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**Citation: Alqarni, Nada (2019) Emotion perception in Arabic and English by Arabic/English monolinguals and Arabic-English bilinguals: a mixed methods investigation. [Thesis] (Unpublished)**

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**Emotion Perception in Arabic and English by  
Arabic/English Monolinguals and Arabic-English  
Bilinguals: A Mixed Methods Investigation**

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Thesis submitted for the degree of Doctor of Philosophy  
Department of Applied Linguistics and Communication  
Birkbeck, University of London

June 2019

## **AUTHOR'S DECLARATION**

I hereby declare that, except where explicit attribution is made, the work presented in this thesis is entirely my own.

Nada Alqarni  
June 2019

## ABSTRACT

This thesis investigates variation in the emotion perception (EP) and the perceived emotional intensity of six emotions in the Arabic and English languages for 609 participants, consisting of 205 Arabic-English bilinguals, 71 Arabic monolinguals, and 333 English monolinguals. Independent variables include the status of language (monolinguals versus bilinguals), psychological variables (trait emotional intelligence—TEI), linguistic proficiency, socio-biographical variables (age, gender, and education level), linguistic profile variables (age and contexts of L2 acquisition, frequency of language use, and residence in English-speaking countries—ESCs), in-group advantage, and bicultural identity orientations. This study adopts an acculturation perspective to explore the relationship between bicultural identities and the EP of bilinguals who live in ESCs.

The stimuli used to depict the emotions were 12 short audio-visual video clips: six in Arabic and six in English. A mixed methods approach was utilised. The quantitative study was based on data obtained from web-based questionnaires that were translated into Arabic and English. The qualitative study consisted of semi-structured interviews with seven Arabic-English bilinguals about their opinions towards emotion perception in the L1 and L2 and the challenges they face in interpreting emotions.

The findings showed that bilinguals outperformed monolinguals in EP in English but did not perform better than Arabic monolinguals in EP in Arabic. The bilingual group also outperformed monolingual groups at the TEI level, suggesting a significant (but small) bilingual advantage in the psychological and emotional domains. TEI, as well as linguistic proficiency scores, was significantly correlated with the EP scores of the bilinguals and English monolinguals. The socio-biographical and linguistic profile variables and bicultural identity were also linked to the EP scores. Monolinguals were able to easily identify emotions in their L1, adding evidence to the claim that language and culture play a fundamental role in emotion construction.

## ACKNOWLEDGMENTS

I humbly thank God for lighting this path to knowledge and sustaining me throughout my journey. To Him I owe everything I have learned and all that I have become.

I would like to acknowledge those people without whom I would not have been able to complete this dissertation. First and foremost, I would like to express my deepest gratitude to my supervisor Prof. Jean-Marc Dewaele, for his valuable and constructive suggestions during the planning and development of this research project, and for his professional guidance, commenting on the drafts of every chapter in this thesis and providing me with precious suggestions which improved the thesis significantly. His tremendous academic and personal support has helped to keep me motivated and on track throughout my study. His willingness to give his time so generously has been very much appreciated. Thank you for your consistent insightful advice and for always calming me down with your encouraging comments.

I am also extremely grateful to my examiners, Dr Bojana Petric and Dr Cristina Ros i Solé, for their insightful comments on the thesis. I would like to offer my special thanks to my second supervisor Dr. Kazuya Saito, for his support and invaluable feedback. My special thanks are extended to the academic and support staff of the Department of Applied Linguistic and Communication for their help and support. I am also thankful to all my fellow Ph.D. students at Birkbeck College for their invaluable feedback and support, in particular Hessa Al-Bishi, Pernelle Lorette, Sally Cook, Dr. Areej Alawad, Heba Arafah, Xuemei Chen, Sohee Jung, Sharona Moskowitz, and Hannah King.

Special and heartfelt thanks are also due to the participants and interview candidates in this study for their contribution. I am extremely grateful for their time and insights.

Words cannot express my immense gratitude to my family for their endless love and support. I won't be this strong without you as my inspiration – to my father

Abdullah and my mother Fatimah – you are the reason why I keep pushing; I keep facing all the struggles, pains, and hardships. Most importantly, my deepest gratitude goes to my husband Ahmed, for these years of understanding, patience, and unwavering faith in me. I am thankful to my lovely son Haitham for always being there. This thesis would never have come into being without the unfailing support of all my beloved siblings: Dr. Mohammed, Faisal, Nadia, Majed, Ali, Shahad, Asma, Amal, Yousef and Abdul-Aziz. Throughout these years they have been the ones who really encouraged me, inspired me and heartened me.

Finally, my special thanks are extended to my beloved friends: Abeer Nasir, Amani Alfaiqi, Sara Ateeq, Dalal Yahya, Sahar Alqarni, and Nora Alqarni, for their continuous support and encouragement.

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# Chapter 1

## INTRODUCTION

One of the key factors leading to smooth emotional interactions is the ability to express inner feelings appropriately and to interpret the emotions of others accurately (Lindquist, Gendron, & Satpute, 2016). But when we say *emotions*, what do we mean, exactly?

Although various definitions of the term *emotion* are found in literature, the term generally embodies cognitive, physiological, psychological, social, linguistic, and cultural elements. Each one of these different aspects of emotions has been heavily researched in different disciplines. For example, in cognitive science, emotions are defined in terms of appraisals and causal mechanisms wired by neurons in the brain (Tomkins, Silvan, & McCarter, 1964). In psychology, emotions are defined in terms of internal bodily sensations (e.g. high blood pressure associated with anger or pain associated with fear or anxiety) (Russell, 2003). In social science, emotions are considered to be social elements shaped by culture and language (Averill, 1980). These different perspectives complement each other, since each one sheds light on a particular side of emotion construction. Emotions can, therefore, be considered to be the product of cognitive processes, psychological reactions, culture, and language (Barrett, 2017a). There are also different aspects in the study of emotions, two of them being emotion experiences (expressions) and emotion perception. The former refers to the feelings within the self (e.g. a feeling of sadness or a feeling of happiness), whereas the latter refers to the “inferring” of emotional states in other people through different verbal and non-verbal channels of communication such as facial expressions, voice, and bodily movements (Lindquist, Gendron, & Satpute, 2016, p. 582). In the present study, the focus will be on *emotion perception* and the effect of cultural, linguistic, and psychological factors.

### 1.1. A brief overview of the topic

#### 1.1.1. *Emotion perception and the linguistic and cultural factors*

While some researchers have minimised the effects of language, culture, contexts, and plasticity of emotional expression and perception (Ekman, 1997; Izard, 1971), others have emphasised the role of these elements in emotion construction (Barrett, Lindquist, & Gendron,

2007; Russell, 2003). Here “contexts” refer to both external surroundings (e.g. social and cultural contexts) and internal-cognitive processes that shape how the structure of emotional information is processed in the brain during an instance of perception (Barrett, Lindquist, & Gendron, 2007). These contexts influence the way emotions are interpreted in two ways: they shape emotional non-verbal behaviours and they construct conceptual representations of emotions (i.e. emotion concepts) in the brain. In other words, culture provides tools to regulate and display emotional patterns (e.g. facial expressions, vocal cues, and bodily movements) while language provides emotion words which allow one to access conceptual knowledge about emotions (Barrett, Mesquita, & Gendron, 2011)

*Cultural contexts* influence how visual, vocal, and verbal information is infused with emotional meaning (Elfenbein & Ambady, 2003). Cultural effects are found in the way people belonging to the same culture co-construct emotional knowledge and agree on which emotional behaviours fit their cultural goals and allow for smooth communication (Barrett, 2017a). There are at least two cultural models that contribute to the subtle cultural differences in emotional expressions: individualist and collectivist. In individualist cultures, individuals conceptualise emotions as being located within the individual whereas in collectivist cultures, individuals conceptualise emotions as being located in the relationship between people (Elfenbein & Ambady, 2002). Individualist cultural models promote expressions of positive and negative emotions as an indicator of self-independence, while collectivist cultural models encourage controlling emotional expressions to maintain social relationships (Markus & Kitayama, 1991).

Individuals in each cultural model, therefore, construct and agree on certain emotional expressions that fit their social and cultural demands (Matsumoto, 1989). They create their own emotional-cultural style, which allows them to interpret and understand each other’s emotions. This phenomenon is called *an in-group advantage* in emotion recognition ability (Elfenbein & Ambady, 2002; Matsumoto, 1989). It seems that exploring differences in emotional expressions across different cultures might lead to a greater understanding of how emotions are being expressed in each cultural style (Elfenbein & Ambady, 2003). Sojourners (e.g. international students, guest workers, or asylum seekers) or immigrants to a new culture might be sensitive to verbal-emotional expressions in the target culture due to their unfamiliarity with their new environment (Elfenbein & Ambady, 2003). In this case, they likely rely more on non-verbal emotional language. Gradually, through extensive exposure and effective socialisation into the target culture, they reconstruct their conceptual representation of emotions to

approximate those of the people in that culture (Dewaele, 2015a; Mesquita, Boiger, & De Leersnyder, 2016; Pavlenko, 2008).

*Linguistic contexts* allow individuals, during the first year of life, to acquire emotion words, which are the basis for emotion concepts in the mental lexicon (Barrett, 2017a). Individuals develop conceptual knowledge similar to that of other individuals in the surrounding speech and cultural environment. Using emotion words, individuals can describe their own as well as others' emotional states. Cross-linguistic differences in emotional expressions are attributed to the differences in emotion categories. For example, in some languages, emotions are described in terms of states, while in others emotions are described in terms of actions (Pavlenko, 2002). Moreover, emotion words influence how people process the sensory information seen in the external contexts (e.g. on faces) "to construct an emotion percept" (Barrett, Lindquist, & Gendron, 2007, p. 331). Put simply, emotion words cause a **perceptual** shift in how facial expressions are seen. They shape how people perceive visual emotional information (Gendron, Lindquist, Barsalou, & Barrett, 2012). Emotion words also shape the **conceptual** encoding of emotions (i.e. "the ability to access the semantic meaning of emotion words") seen on other people's faces (p. 12). In other words, visual representations of emotions are influenced by emotion words (Gendron et al., 2012). Indeed, different emotions can be expressed and perceived in different languages and cultures in reaction to a similar emotional stimulus (Dewaele, 2009, p. 122). What can be inferred, thus, is that language influences both the perceptual skills of decoding emotions as well as the conceptual representations of emotions. The above case is typical in monolingual individuals. In bilingual individuals, however, the acquisition of a new or additional language may alter their conceptual representations of emotions in the first as well as the second language(s). This phenomenon is called *conceptual restructuring* (Dewaele, 2015a; Panayiotou, 2006; Pavlenko, 2008; Stepanova Sachs & Coley, 2006). Therefore, emotion concepts in bilinguals' lexicon have functions and forms that are different from those of monolinguals (Pavlenko, 2008), which allow bilinguals to express, process, and perceive a wide range of emotions in their various languages and cultures, suggesting a *bilingual advantage* in emotional skills. There has been extensive research carried out on emotion perception in the context of monolinguals (e.g. Barrett, Lindquist, & Gendron, 2007; Russell, 2003), yet only a few empirical studies have considered the emotion perception of bilinguals and multilinguals in their various languages. The present study is centred on examining the emotion perception of bilinguals in their languages and how linguistic, cultural, and psychological factors affect this EP.

### 1.1.2. Bilingualism

Who are bilinguals? A generally accepted definition of the terms *bilingualism* and *bilinguals* is lacking in the literature. The early definitions of bilingual, such as Bloomfield's (1935), considered bilingualism to be a process that ends in a "native-like control of two languages" (p. 56). This definition was criticised since it is hard to operationalise and it ignores other linguistic and non-linguistic dimensions (Dewaele, 2015b) such as various degrees of proficiency, language usage, and parameters of bilingual ability (Rodríguez, Carrasquillo, & Lee, 2014). Other early definitions were, more specifically, centred around the dichotomy of *native* versus *non-native* speakers. Both terms have been criticised. The term *non-native* implies a strong monolingual bias (Cook, 2002; Dewaele, 2018a; Grosjean, 1992; Pavlenko, 2005) because it excludes those speakers who acquire their second language in different contexts, for different purposes, and for use with different people (Grosjean, 1992). To avoid the term "*non-native* speakers", Cook (2003) has introduced the term *L2 user*, which refers to "the average person who uses a second language for the needs of his or her everyday life" (p. 5). The dichotomy, in Cook's definition, was therefore of *native speakers* versus *L2 users*. The term *user* is inclusive because it considers all varieties and purposes of language use. Indeed, bilinguals often tend to use one of their languages more than the other in certain circumstances or with different people (Baker, 2014; Dewaele, 2009; Grosjean, 2010). The concern, however, has been with the number "2" in *L2 users*, which refers to only a second language that is acquired after the age of three. In practice, aside from that second language there can be a third, fourth, fifth, and so on (Dewaele, 2018a). Dewaele (2018a) explained that all languages acquired after the age of three, "typically the boundary for first language acquisition", have more characteristics in common; early acquired language(s) before the age of three likewise have more characteristics in common (pp. 237-238). In addition, the term *native speaker* in Cook's dichotomy seems to fail to consider the fact that there are some occasions where first language(s) (L1s) are lost through a process of attrition (i.e. a temporary loss of certain language skills or lexical elements), which can be caused by different reasons, such as a prolonged stay in an L2 environment, forced emigration, or being the language of the enemy (Schmid, 2004). Moreover, native speakers can have different levels of language knowledge (for example, literate versus illiterate), a different lexicon, and different varieties and dialects (Dewaele, 2018a). Instead, Dewaele (2018a) proposed the dichotomy "*L1 users* versus *LX users*". *LX* refers "to any number of LXs acquired and forgotten in various ways and to various

degrees” (p. 238). The term LX, therefore, does not imply any chronological order of acquisition or proficiency levels, since LXs can be “equal or superior to that of L1 users in certain domains” (p. 238). This means that variations in proficiency can exist with both L1(s) and LX(s), whose users can be multi-competent in their various languages (Dewaele, 2018a; Pavlenko, 2005).

The term *bilingual*, nevertheless, is suitable when considering individuals’ linguistic behaviour, as well as conceptual systems, in their languages (Dewaele, 2009). It is an umbrella term under which different language levels and skills rest (Baker, 2014). Therefore, being bilingual implies not “only the ability in two languages but also the use of two languages” (p. 3). This perspective is typical for researchers who study bilinguals (L1+ L2) (Dewaele, 2009). Dewaele insisted that adult bi/multilinguals are no longer learners of a language because they use their L2/LXs for life purposes. The term *L2 learners* might be improper, as it entails that the language learning process has no end and, thus, can “never be complete” (Cook, 2016, p. 4). Rather, the term *L2 learner* can indicate how people acquire their L2 but not their proficiency level or the purpose of their language use (Cook, 2002). L2 learners learn the language in classroom settings as a subject and don’t necessarily tend to use it outside classrooms; if L2 learners use their L2 outside the classroom, they are no longer considered learners but *users* of the L2 (Cook, 2002).

Several researchers have argued that a high level of language proficiency should not be the end point of defining bilinguals (Cook, 2016; Dewaele, 2009; Grosjean, 2010; Wei, 2000). Dewaele suggested that bilinguals could be situated in a middle position in the proficiency continuum, with beginners and advanced speakers on each end. Bilingualism, thus, can be considered to be “a continuum rather than a category” (Dewaele, 2015a, p. 1). Wei (2000) stated that bilingualism is not a static phenomenon but rather a dynamic one that changes depending on other linguistic, cultural, and psychological factors. A broad definition of bilingualism suggested by Dewaele, Wei, and Housen (2003) encompasses “not only the ‘perfect’ bilingual (who probably does not exist) or the ‘balanced’ am-bilingual (who is probably rare) but also various ‘imperfect’ and ‘unstable’ forms of bilingualism, in which one language takes over from the other(s) on at least some occasions and for some instances of language use” (p. 1). The present dissertation will adopt a more recent view of bilingualism, based on Dewaele’s (2018a) and Wei’s (2000) observations. Throughout this dissertation, the

terms *bilinguals* (L1 + L2) and *monolinguals* (L1) will be used to refer to the Arabic-English speakers and the groups of Arabic L1 and English L1 users, respectively.

### 1.1.3. Bilingual advantages/disadvantages

The acquisition and dynamic interaction of various languages can be considered a key factor in shaping cognitive and psychological dimensions. While early studies on bilingualism warned that bilingualism could lead to lower levels of intelligence (cf. Hakuta, 1986), recent studies have documented a number of bilingual benefits for cognitive functions (e.g. Bialystok, 2011; Carlson & Meltzoff, 2008). The positive effects of bilingualism have been called the “*bilingual advantage*”, i.e. skills where bilinguals outperform their monolingual counterparts (de Bot, 2017). From the theoretical point of view, the bilingual advantage in cognitive functions may be related to the cognitive processes required in suppressing interference from irrelevant information. Bilinguals constantly need to monitor the selection of the language that fits the situation, activate the selected language, and inhibit the other language (Paap & Greenberg, 2013). In other words, bilinguals need to control their languages, focusing on one language while avoiding interference from the non-intended language (Costa, Hernández, Costa-Faidella, & Sebastián-Gallés, 2009).

Positive outcomes of bilingualism have been observed in domains and skills such as inhibitory control (e.g. Bialystok, Carlson, & Meltzoff, 2008; Craik & Luk, 2008), task switching (Prior & MacWhinney, 2010), monitoring (Costa, Hernández, & Sebastián-Gallés, 2009), metacognitive awareness (e.g. Cazden, 1974) metalinguistic awareness (Bialystok, 2001; Bialystok, Majumder, & Martin, 2003; Cazden, 1974), problem solving (e.g. Bialystok, 2001), creative and divergent thinking (e.g. Braccini & Cianchi, 1993; Kharkhurin, 2008), and socio-emotional skills (e.g. Barac, Bialystok, Castro, & Sanchez, 2014; Genesee, 2008; Han, 2010). Negative effects of bilingualism, however, were reported in domains such as vocabulary knowledge (Michael & Gollan, 2005). For example, bilinguals were found to have a small vocabulary, weak access to lexical items, and low scores on verbal fluency tasks (Bialystok & Craik, 2010). These bilingual deficits, however, have no negative effects on the “bilinguals’ ability to express themselves” (Rodríguez, Carrasquillo, & Lee, 2014, p. 12), including their ability to express their emotions. Therefore, whether bilingualism has positive or negative effects on the bilinguals’ emotional skills remains to be empirically investigated.

Recent research on multilinguals has reported that familiarity with more languages, at high levels of proficiency and frequency, may develop specific psychological skills. For example, multilinguals reported lower levels of communicative anxiety in their multiple languages (e.g. Dewaele, Petrides, & Furnham, 2008). Multilinguals who use their languages frequently are said to become better communicators (Dewaele & Wei, 2012). Multilinguals have also been found to have higher levels of the variables of Open-mindedness (e.g. Dewaele & Stavans, 2014) and Tolerance of Ambiguity (Dewaele & Wei, 2013). Bilingualism and multilingualism, from the theoretical point of view, may also have communicative, cultural, economic, and academic advantages for children as well as for adult bilinguals (Baker, 2014; Rodríguez, Carrasquillo, & Lee, 2014; Wei, 2000).

Wei (2000) proposed that bilinguals' familiarity with different languages may allow them to be involved in a variety of cultures, giving them greater opportunities to communicate with people from different cultural groups (Calderon & Minaya-Rowe, 2003). This means that bilinguals may be more likely to show respect for linguistic and cultural diversity (Rodríguez, Carrasquillo, & Lee, 2014). They can, therefore, be more sensitive in communication and more attuned to the communicative needs of their interlocutors (Wei, 2000). Research into bilingual advantages/disadvantages in domains other than cognitive ones is presently called for (de Bot, 2017), which presents an opportunity to combine linguistic, cultural, and psychological variables and investigate their effects on the emotion perception of bilinguals.

#### *1.1.4. Linguistic multi-competence and socio-pragmatic competence*

Alongside the work on bilingual advantages/disadvantages, there is a growing interest in the linguistic and emotional multi-competence of bi/multilinguals. Multi-competence refers to the “overall system of a mind or a community that uses more than one language” (Cook, 2016, p. 2). In other words, it is related to the relationship between more than one language in the same mind and on how these languages are interconnected (Cook, 2002). Linguistic multi-competence reflects how bi/multilinguals process their linguistic knowledge in a way that is different from monolinguals (Cook, 2002; Dewaele, 2016b). Multi-competence involves all aspects of language knowledge of L2/LX users and it can be seen in situations in which L2 users “think more flexibly” than monolinguals; tend “to read rapidly in their L1”; and “have better communication skills in their L1” (Cook, 2002, p. 7), adding to the list of bilingual/multilingual advantages. These L2 users' characteristics allow them to acquire rich

knowledge in all linguistic components, which monolinguals may lack (Cook, 2002). Multi-competence, moreover, can positively influence multilinguals' emotional knowledge (Dewaele, 2016b). In other words, multilinguals can have a variety of ways to express their emotions in their various languages, depending on the linguistic context (Dewaele, 2016b). Furthermore, they can also access a wide variety of emotion words and concepts that allow them to express and perceive emotions in different environmental contexts.

As far as linguistic, emotional, and psychological behaviours are concerned, bi/multilinguals must not be considered as a sum of two monolinguals or as failed monolinguals, particularly when these behaviours are compared (Cook, 2002; Dewaele, 2016b; Grosjean, 1992, 2010). Cook (2016) demonstrated that although L2 users differ from monolinguals in most linguistic aspects including syntax, phonology, and pragmatic competence, that does not mean that L2 users are “wrong”, but rather that they have an *ethnic* or *dialect identity* that is associated with their L1. Thus, comparisons between bilingual and monolingual speakers should not look for a pragmatic deficit in either group but rather try to highlight the special linguistic or pragmatic skills of each group (Cook, 2016).

Emotions have semantic representations as well as conceptual representations (Dewaele, 2016c). Certain scholars have argued that some LX users recognise that some expressions, especially those involving negative emotion-laden words, may have incomplete semantic or conceptual representations, which, if misunderstood, may lead to offense or embarrassment (Dewaele, 2016c; Pavlenko, 2008). Dewaele argued that semantic representations of emotions are likely acquired through exposure to an L2/LX. This means that L2 users will understand the meaning and the emotional load of emotion words, especially emotion-laden words (i.e. words that do not directly refer to emotions but elicit emotions, such as taboo words and swear words) (Pavlenko, 2008), through natural exposure to the L2. Conceptual representation of emotion words is part of L2 *socio-pragmatic* competence. This socio-pragmatic competence is important because it tells L2 users how and when to use a particular word or expression. It also develops L2 users' awareness of illocutionary effects that are likely to emerge from using those emotion-laden words and indicates what non-verbal cues are accompanying emotion-laden words and expressions. By developing socio-pragmatic competence, L2 users are more likely to be well-versed in the degree of intonation that may strengthen or weaken the effects of emotion-laden words. They will also be aware of the possible reactions of their interlocutors when using such words and what the possible social

consequences will be (Dewaele, 2016c). The above skills are only fully acquired through natural exposure to the L2 because it is hard to acquire them in formal classrooms (Dewaele, 2016c, 2018b).

The socio-pragmatic competence for communicating emotions varies in foreign language (LX) users since most of them struggle to understand offensive words in LX(s), and they may misuse or misunderstand them (see Dewaele, 2016c, 2018d). Familiarity, understanding, or perception of emotion words and expressions in the L2, thus, reflects socio-pragmatic competence (Dewaele, 2018d). The users' L1 is typically more powerful in many aspects of language use, particularly in pragmatic, socio-pragmatic, and socio-cultural communication (Dewaele, 2007a). L2 users, however, may achieve high levels of pragmatic competence in specific domains in the L2/LX (e.g. emotional expressions of anger, swearing, and affection) and certain modes (e.g. in L2 written or oral communication) (Dewaele, 2007b). Some L2 users may also better perceive pragmatic competence and emotional characteristics in their L2 than in their L1.

There is a significant body of research suggesting that multilinguals' L1 typically evokes a stronger emotional reaction, especially when expressing anger, swearing, or affection (Dewaele, 2006; 2010a, 2018b; Dewaele & Pavlenko, 2001-2003). Indeed, interpreting and expressing emotions in the L2/LX contexts is challenging. Several researchers have insisted that knowledge of the degree of the emotionality of emotion words and emotion-laden words is just as important as the knowledge of the grammatical features of those words (Altarriba, 2003; Dewaele, 2010a; Pavlenko, 2008). This means that bilinguals should develop their metapragmatic and socio-pragmatic competence in emotion communication in the socio-cultural contexts of their L2. By developing these socio- and metapragmatic skills, bilinguals are likely to have smoother emotional interactions, resulting in effective socialisation and fewer psychological and emotional problems. There are, however, some factors that determine bilinguals' ability to acquire emotion skills in the L2. Amongst these are psychological factors and the perception of cultural identity, which this study aims to investigate.

#### *1.1.5. Psychological traits (Trait Emotional Intelligence)*

Mayer and Salovey's (1997) conception of emotional intelligence (EI) strives to define it in terms of ability. They proposed four types of abilities of EI: the ability to perceive

emotions, to use emotions, to understand emotions, and to manage emotions. Trait Emotional Intelligence (TEI) is related to the individuals' perception of their and others' emotions (Petrides, 2009). It is also related to emotional aspects of personality, which can be assessed through questionnaires and rating scales. TEI, thus, is a skill rather than a cognitive ability, and is mostly related to emotion perception and emotion-related information. Perceiving emotions, therefore, represents one aspect of TEI.

Barrett (2017a) has recently defined EI in terms of emotion concepts and the ability to construct emotions that fit situations. She argued that emotional intelligence is related to the ability to construct more emotion words and concepts. Barrett (2017a) suggested that learning emotion words and constructing more emotional experiences and predictions allows individuals to *master* their emotions, as it gives them a variety of options to categorise, manage, and express their emotions, as well as perceive the emotions of others. The acquisition of emotion words, not only in the L1 but also in other languages, is likely to help develop individuals' emotional granularity (i.e. rich emotion words and concepts). High emotional granularity, thus, is an indicator of high emotional intelligence and well-being. Based on the above theoretical argumentation, it can be hypothesised that knowledge of two languages is likely to increase bilinguals' emotional granularity, which might result in high levels of TEI and therefore in an improved ability to interpret the emotions of others. This study aims to investigate the relationship between the TEI and emotion perception of bilinguals and monolinguals. However, an investigation into the richness of bilinguals' emotional vocabulary is beyond the scope of this study.

#### *1.1.6. Bicultural identity and emotional acculturation*

Because language and culture are interconnected, languages vary across communities (Hoffman, 1991). In the case of bilinguals who speak two languages, they are more likely to be exposed to two cultures. This phenomenon is called *biculturalism*. Still, being a bilingual does not guarantee being bicultural (Hoffman, 1991). Just as bilinguals vary in their degrees of L2 linguistic competence, bicultural individuals vary in their adaptation levels to the L2 culture (Hoffman, 1991). Berry (1971) defined "biculturalism" as the "acculturation that involves the individual simultaneously in the two cultures that are in contact" (p. 11). Chen, Benet-Martínez, and Bond (2008) used an alternative term, *bicultural identity*, which refers to "a local

identity that is rooted in the culture of origin as well as a global identity that emerges as individuals adapt to the demands of an emerging culture of multiculturalism” (p. 806). Individuals vary in the way they manage or maintain their cultural identities. The relationship between cultural identities can be described as *monoculture* (i.e. when individuals tend to be a part of one cultural identity group), *conflict* (i.e. the separation between the cultural identities), *alternation* (i.e. adjustment of cultural identities depending on the social demands), *hybridity* (i.e. the two cultures become an indistinguishable new culture), and *compatibility* (i.e. the two cultures being in harmony) (Comănanu, Noels, & Dewaele, 2018). The present dissertation will use the definition of bicultural identity suggested by Chen, Benet-Martínez, and Bond (2008). The term “bicultural identity”, therefore, is used to refer to the ethnic and the mainstream identities. This study will also adopt the model proposed by Comănanu, Noels, and Dewaele (2018) to describe the perception of the relationship between bicultural identities.

Previous studies in cultural psychology have reported that emotions acculturate when people move from one culture to another (De Leersnyder, Mesquita, & Kim, 2013). This process is called *emotional acculturation*. This means that immigrants’ emotional patterns are likely to change to be similar to those of the host culture (De Leersnyder, Mesquita, & Kim, 2013, p. 127). Specifically, the term refers to the adoption of the new culture’s emotional patterns and expressions. Mesquita, Boiger, and De Leersnyder (2016) found that people from a different linguistic and cultural background change their emotional patterns (e.g. facial expressions, bodily postures, and vocal cues) to approximate the emotional behaviour of the people in the LX culture. Emotional acculturation predicts that people’s emotions change throughout their life experiences and are shaped by social relationships (De Leersnyder, Mesquita, & Kim, 2011). One goal of these emotional changes is to fit in the new culture and to behave appropriately when communicating with individuals from the LX culture. Some of the factors that might determine the degree of socialisation and acculturation into the target culture are the number of years spent in the host culture (De Leersnyder, Mesquita, & Kim, 2011) and language proficiency (Hoffman, 1991). However, there has been little investigation of the role of language elements in the acculturation process and emotions, particularly in the field of cultural psychology.

The construction of emotions, therefore, is acquired through life experience and is not restricted by the early socialisation in the new culture. Thus, “people’s emotions ... continue to be updated” (Mesquita, Boiger, & De Leersnyder, 2016, p. 33). This ability to change and

update emotional patterns helps individuals determine how to act in different social and cultural contexts, which can be the case for bi/multilinguals who live in the target culture (L2/LX environment). There is also an indication in the literature that effective acculturation and socialisation into the target culture can foster the acquisition of emotion words and concepts (Barrett, 2017a). Some studies, however, have argued that most L2 users need some time to adopt the emotional behaviours of the target culture, but L2 users with high language proficiency levels in the L2 might have the opportunity to boost their acquisition of the emotional expressions in the L2 (Dewaele, 2015a). This indicates a need to understand the emotion perception of bilinguals who live in the L2 environment and to examine if their interpretation of emotions in their L1 and L2 is influenced by their stay in the L2 environment and their attitudes about their bicultural identities, taking into consideration their linguistic profiles, socio-biographical variables, and psychological traits (TEI).

## **1.2. Rationale for the study**

The present study investigates the relationship between emotion perception and linguistic, cultural, and psychological variables. Specifically, it investigates the emotion perception of bilingual individuals and the effect of linguistic proficiency, the perception of bicultural identity, and personality. Even though some well-known studies on emotion perception and expression have been conducted on monolinguals, there are certain gaps in bilingualism and emotion research. Firstly, much of the research up to now has been theoretical in nature, drawing much attention to the categorisation of emotion words and expressions in different languages. A second point related to the effects of bilingualism on emotion is that there have been only a few studies that have either focused on bilinguals' emotional experiences in their languages or have investigated bi- and multilinguals' preferred language in certain emotional-communicative situations.

Moreover, the review of the existing literature discussed in Chapter 2 indicates that there has been little quantitative analysis of emotion perception in the case of bi/multilinguals. There are no published studies that have examined the existence of advantages/disadvantages of bilingualism on adults' emotion skills, in general, and emotion perception, in particular. To date, there has been little agreement on the effects of bilingualism and multilingualism on personality and social and communicative skills. As de Bot (2017) noted, "the fact that being a bilingual is beneficial both socially and psychologically is beyond doubt, but the specifics

are waiting to be explored” (p. 23). Some of these specifics could be the emotional and communicative skills and the personality trait of emotional intelligence, which this study strives to explore in the comparison of EP and TEI of bilinguals and monolinguals.

Despite the crucial role of personality traits, and especially TEI, in shaping emotional experiences and EP of bilingual and monolingual individuals, no study to date has empirically examined the relationship between these variables. This is the gap that this study will attempt to fill.

Several studies have highlighted the role of individual differences in emotional expression and the preferred language choice when expressing emotions, as well as in the perception of the emotionality of certain emotion words (e.g. Dewaele, 2009, 2010a; Lorette & Dewaele, 2018b). Based on the above, this study will consider the role of the socio-biographical and linguistic profile variables in the emotion perception of monolinguals and bilinguals.

A few studies have examined the emotion recognition ability of L1 or LX speakers using audio (i.e. one emotional channel) (e.g. Graham, Hamblin, & Feldstein, 2001; Rintell, 1984; Zhu, 2013) or audio-visual stimuli (i.e. a multimodality of emotional channels) (e.g. Dewaele, Lorette, & Petrides, 2019; Lorette & Dewaele, 2015, 2018a, 2018b). To date, one empirical study has examined the emotion recognition ability of L1 and LX users using different stimulus modalities (i.e. audio-visual or audio-only recordings) (Lorette & Dewaele, 2018a). Based on the evidence provided by the latter study, audio-visual modality is preferable when decoding emotions in the case of LX users. Therefore, since this current study focuses on the emotion perception of L1 versus L2 users, it will utilise a multimodality of emotional channels (i.e. spontaneous and dynamic stimuli). It has been claimed that this type of stimuli can provide rich emotional information and is preferred because it corresponds to day-to-day conversations (Elfenbein & Ambady, 2002).

Most previous studies have adopted the term Emotion Recognition Ability (ERA). However, one major theoretical issue with this term is that it implies that emotions are fixed on faces. This assumption does not acknowledge the role of language and culture in emotion construction (Barrett, 2017a). Instead, having adopted the theory of constructed emotions, this study will also adopt the term Emotion Perception (EP), which infers that people interpret

instances of emotion categories based on the way they have previously experienced them (Barrett, 2017a). Individuals, therefore, only agree on their perception of emotions if they share emotion concepts associated with those emotions. If they do not agree on their perception, that does not mean that they are “wrong”, but rather that they have constructed different emotions based on their past experiences. Based on this assumption, this study will not look for a deficit in the participants’ abilities to interpret emotions but instead will highlight the degree of their agreement in emotion identification, considering the language status and other psychological, socio-biographical, and cultural variables.

While experiencing culture shock and acculturative stress, sojourners (i.e. individuals who exercise the privilege of international mobility for various reasons, either intellectual, experiential, or economic, within a specific timeframe; Bochner, 2006) lack the skills of emotional expression and of how to react to the emotions of others. Furthermore, they may also misunderstand the meaning of the emotional expressions of the host culture’s people. Consequently, most of them are likely to experience difficulties with intercultural communication, which can lead to serious psychological as well as physical and health problems as a result of acculturation and the sudden change of the culture (Steffen, Smith, Larson, & Butler, 2006). Because many sojourners often lack adequate preparation and do not take part in training programmes before travelling abroad (for whatever reason), most of them experience difficulties in adapting to the host culture’s rules of emotional display and emotional patterns (i.e. both facial configurations and verbal and non-verbal cues). Sojourners thus do not only need to acquire skills to regulate their emotions, but also need to be more competent regarding cultural differences in emotional expressions. If they can master the different ways of expressing emotions in their dual cultures, they are likely to be more skilful in expressing their own emotions as well as perceiving the emotions of others. Therefore, it is essential to understand how sojourners or bicultural individuals perceive emotions in the target culture. This study will consider the above phenomenon and examine the emotion perception of bilinguals who live in an English-speaking environment, as well as explore the relationship between their perception of the relationship between their bicultural identities (i.e. the ethnic versus the target) and their perception of emotional expressions in both cultures.

### **1.3. Purpose of the study**

In light of the aforementioned theoretical and methodological discussions, the main aim of this dissertation is to investigate the emotion perception of Arabic-English bilinguals in their L1 and L2. Consequently, a question that arises is that if the emotion perception of the bilingual individuals in Arabic or English is different, to what extent do they deviate from the emotion perception as well as the perceived emotional intensity of monolingual individuals? It is essential then to compare bilinguals to monolinguals in order to explore the effect of bilingualism on emotion perception in the L1 and L2.

This study also aims to find out whether the emotion perception and the perceived emotional intensity by bilingual and monolingual individuals are linked to TEI levels, as well as explore individual differences in emotion perception, considering the socio-biographical variables (namely age, gender, and education levels) of the bilinguals and monolinguals. Another aim is to investigate the effects of linguistic proficiency as well as the linguistic profile variables (i.e. the age of L2 acquisition, the contexts of L2 acquisition, the frequency of L2 use, and time spent in an English-speaking environment) on the emotion perception in the L2 for bilingual individuals. Furthermore, this study aims to examine the existence of an in/out-group advantage in the emotion perception of monolingual individuals, particularly by comparing the emotion perception of Arabic monolinguals (in Arabic) to that of English monolinguals (in English). The study also aims to investigate whether bicultural identity variables (i.e. monoculture, conflict, alternation, hybridity, and compatibility) are linked to the emotion perception in the L1 and L2 for bilingual individuals who live in an English-speaking environment.

A mixed methodology approach will be adopted, which involves the collection and analysis of quantitative data followed by the collection and analysis of qualitative data (Creswell & Plano Clark, 2011). The qualitative data are used to provide further explanation and to gain a greater understanding of the quantitative findings (Creswell & Plano Clark, 2011). The quantitative study will be conducted using data obtained from online questionnaires that are translated into Arabic and English. The follow-up qualitative study will consist of semi-structured interviews with Arabic-English bilingual participants about their views regarding emotion perception in their L1 and L2. These two components of the study aim to inform each other and, thus, provide a more refined comprehension of the emotion perception of bilinguals.

#### **1.4. Significance of the study**

This study is significant as it combines cultural psychology, personality psychology, and bilingualism in one area of research: the emotional aspects of bilingual speakers. The significance of the present study also lies in its focus on the emotion perception of bilingual compared to monolingual speakers. By focusing on these two groups, this study contributes to the ongoing debates about bilingual advantages/disadvantages in domains beyond cognitive processes. Specifically, this study contributes to an understanding of the effects of bilingualism on emotion and communicative skills not only in the L2 but also in the L1. It also highlights the effects of bilingualism in the psychological and personality domains. The present study has the potential to contribute to bilingualism research by documenting the emotion perception of bilinguals, as well as adding an acculturation perspective to cultural psychology research on emotional acculturation and biculturalism. This study will closely identify, by using qualitative data, which type of emotions—negative or positive ones—are more difficult to interpret in the L2 from the perspective of bilinguals. This will help to understand the necessity of adequate preparation and training in emotional and communicative skills in the L2 for L2 users.

This study also addresses individual differences in the emotion perception of bilinguals and monolinguals in terms of personality traits (TEI), linguistic proficiency, and socio-biographical and linguistic profile variables. While previous studies have assessed the emotion recognition abilities of participants from various cultural backgrounds (e.g. East Asian, American, or European cultures), this is the first attempt to investigate the emotion perception of Arabic L1 speakers (i.e. one of the Middle Eastern cultures) and consider their emotion perception in Arabic and English. The findings of this study will, therefore, contribute to improving the current understanding of the role of language and culture in emotion construction by investigating the existence of an in/out-group advantage in the emotion perception of monolinguals from different linguistic backgrounds: Arabic and English.

Regarding methodological approaches, this study notably employs both emic and etic approaches (i.e. a triangulation approach). This type of approach is crucial when investigating factors that determine the aspects of language use of bi/multilinguals (Dewaele, 2009). An emic perspective “can provide an excellent complement to quantitative empirical analysis” (Dewaele, 2009, p. 107). This perspective requires qualitative approach to data collection and analysis (Syed, 2001). The emic qualitative perspective is crucial because it allows researchers to go beyond the surface level of analysis obtained by the etic quantitative perspective to

discover underlying concepts and issues (Syed, 2001). One important feature of the emic perspective is that it views participants as “active subjects” rather than “passive objects” or just as a “bunch of variables” (Dewaele, 2009, p. 107). In other words, it gives participants a voice to express their language behaviours, feelings, and experiences, which add more insight and depth understanding to the phenomenon being explored. Thus, the inclusion of emic and etic perspectives can offer a global picture of language use amongst bi/multilinguals (Dewaele, 2010a).

## **1.5. Organisation of the thesis**

This thesis consists of seven chapters:

Chapter 1 (**Introduction**), the present chapter, introduces the concept of emotion and emotion perception. It also presents a brief overview of the topic, the rationale behind the study, the aims and significance of the present study, and the theoretical and methodological approach adopted for the quantitative and qualitative analyses.

Chapter 2 (**Literature Review**) is comprised of six sections: The first section presents an overview of emotion theories in psychology. The second section presents a critique of the literature on emotions across languages and cultures. The third section provides an overview of the literature on emotions and bilingualism. The fourth section addresses the literature on emotion, acculturation, and emotional acculturation. The fifth section presents the literature on the link between emotion construction and emotional intelligence. Finally, the sixth section discusses emotion perception, in/out-group advantage in emotion perception, and the emotion perception of bi/multilinguals.

Chapter 3 (**Methodology**) provides an overview of the methodological approach adopted. The characteristics of the sample, the instruments, and the procedures for data collection and analysis of the quantitative and qualitative studies are explained in this chapter.

Chapter 4 (**Results of the Quantitative Study**) presents the statistical analyses of the quantitative data. The quantitative research questions are answered in relation to the research hypotheses.

Chapter 5 (**Results of the Qualitative Study**) presents the analysis and findings of the qualitative research questions.

Chapter 6 (**Discussion**) discusses the quantitative and qualitative results with support from related research and previous literature. Both expected and unexpected findings are discussed and a number of limitations are addressed.

Chapter 7 (**Conclusion**) provides a summary of the key findings. It outlines the contribution of the present study with respect to current research and ends with recommendations for future research.

## **Chapter 2**

### **LITERATURE REVIEW**

#### **2.1. Introduction**

This chapter provides a review of the literature relevant to the present research on emotion perception of bilinguals and monolinguals. The chapter is divided into six sections: the first section (Section 2.2) presents the theoretical background of emotions in psychology; the second section (Section 2.3) reviews the literature on emotions across languages and cultures; the third section (Section 2.4) addresses emotion studies in the field of bilingualism and the ways bilinguals express and process their emotions; the fourth section (Section 2.5) addresses the effects of acculturation and bicultural identity orientations on emotion experiences; the fifth section (Section 2.6) presents the literature on emotional intelligence (EI) and its relation to emotion construction; and the sixth section (Section 2.7) discusses emotion perception and the verbal and non-verbal channels of emotional communication, and presents the literature on the emotion perception of bi- and multilinguals.

#### **2.2. Emotion research in psychology**

The concept of emotions and how emotions are constructed in humans has been covered exhaustively in various fields of studies. However, there is still debate about the exact definition and origin of emotions. On a very basic and almost instinctual level, it is known that emotions are the inner feelings that humans experience in a given situation (Lindquist & Gendron, 2012). Psychologists, philosophers, sociologists, biologists, and even linguists have tried to explain how emotions emerge and how people process their emotions. There has been a long-standing debate between two theoretical models: the basic emotion models (e.g. Ekman, 1972; Izard, 2009) and the constructivist model (e.g. Barrett, 2017a; Russell, 2003).

##### *2.2.1. Basic emotion theories*

Basic emotion theories, also known as the classical views of emotions, dominated the early studies of human development, by Hippocrates, Aristotle, Rene Descartes, and Charles Darwin to recent studies by Steven Pinker and Paul Ekman. Basic emotion theories agree on

the assumption that certain basic emotions are inborn, fixed components in humans' biological nature that help them survive. For example, the emotion of fear generally helps people avoid contact with snakes to ensure survival. Thus, the event of seeing a snake causes them to run (emotional reaction), and triggers the emotion of fear (Ekman, 1972; Izard, 2009). This theoretical perspective concentrated on emotional experiences in which emotion is tied to specific bodily responses or to *bodily fingerprints* such as heart rate rising when afraid, pouting when sad, scowling when angry, or smiling when happy (Ekman, 1972). These bodily fingerprints, according to the classical view, are universal, and allegedly allow people to identify the emotions of others. All healthy people around the world should be able to experience and recognise the so-called *basic emotions*—anger, sadness, fear, disgust, surprise, and happiness—despite the language they speak and the culture to which they belong. This universal view of emotions and their unique fingerprints stems from the idea that emotion circuits in the human brain control bodily behaviours every time an individual may experience an emotional reaction. Emotions, according to this theoretical model, are merely reactions to the world (Ekman, 1972).

The assumption that emotions are seen on faces can be traced to Charles Darwin's (1872) book *The Expressions of the Emotions in Man and Animals*, wherein he argued that all people recognise emotions through universal facial expressions. The idea is that each emotion has distinctive facial expressions that have communicative functions; if an individual is happy, she/he smiles, and if she/he is angry, she/he furrows. Based on this theory, Ekman and his colleagues (see Ekman & Friesen, 1969, 2003; Ekman, Friesen, & Ellsworth, 2013) empirically tested the universality of facial expressions in different cultures around the world, even in remote cultures like the tribes of Papua Guinea, who have little or no contact with Western cultures. The researchers used posed photographs of American-style facial expressions representing the so-called *basic emotions*: anger, fear, sadness, disgust, surprise, and happiness. This method is called the Basic Emotion Method and, until recently, has been widely used by many researchers. Through their experiments, Ekman and his colleagues concluded that emotion recognition is indeed universal. They also inferred that the brain has particular areas for each emotion with psychological functions; for example, the amygdala is the brain area of the emotion of fear. Now, it is worth considering that if emotions are indeed universal and have distinctive facial fingerprints, why do some people cry while others shout when they are angry, some people smile while others dance if they are happy, and a man may furrow while a woman may cry if they get in trouble? Are these variations in emotional expressions because of the

language, culture, social values, psychological processes, or something else inherent in the human brain? To answer this question, scholars have tried to investigate the origin of emotions from constructivist perspectives.

### *2.2.2. Constructivist emotion theories*

The basic emotion theories have been constantly criticised by psychologists who argued that emotions are not universal but are instead constructed and made by individuals (Averill, 1980; Barrett, 2017a; Russell, 2003). The constructivist approach assumes that emotions occur as a result of categorising sensations using emotion knowledge supported by language and culture (Lindquist, Satpute, & Gendron, 2015). There are three main constructivist theories of emotions: neuro-constructivist theory (Tomkins, Silvan, & McCarter, 1964), psychological constructivist theory (Lindquist & Gendron, 2012; Russell, 2003), and social constructivist theory (Averill, 1980). Generally speaking, the central assumptions of all of these theories are that emotions are constructed rather than triggered, emotions are mental states like cognition, and there are variations of emotions with no particular bodily fingerprints (Barrett, 2017a). Proponents of these theories agree that people experience emotions when conceptual knowledge and bodily sensations become meaningful in a given situation (Lindquist, MacCormack, & Shablack, 2015).

More specifically, the neuro-constructivist theory assumes that emotions are constructed in the human brain through the experience of emotional situations from the early days of life, physical contact with caregivers, and from culture. In other words, humans are born with a capacity to develop and create emotions through environmental contact. The psychological theory of emotion construction, on the other hand, assumes that emotions are constructed from internal sensations and the mind. Emotions, like other mental states, are constructed from a core system in the body and the brain (Barrett, 2017a; Gendron, Roberson, van der Vyver, & Barrett 2014). In psychological constructivist theories, language has a fundamental role in emotion perception and experiences because the meaning of bodily sensations is determined by the conceptual knowledge about emotions (Lindquist, MacCormack, & Shablack, 2015). This conceptual knowledge is shaped by language. The third theory of emotion construction is the social construction theory, which ignores the role of biology in emotion formation (Averill, 1980). Instead, it assumes that emotions are constructed as a result of individuals' contact with their society and culture. In other words, knowledge of

emotions is determined by knowledge of the world. Consequently, people in Y culture may experience emotions which do not exist in X culture.

Barrett (2017a) recently introduced a new theory that incorporates elements from the three constructivist theories of emotions: *the theory of constructed emotions*. It strongly criticises the assumptions of the classical view of emotion universality. One main assumption of the theory of constructed emotions is that emotions vary from culture to culture and are constructed by people. The construction of emotions combines cognitive, biological, and social components. Barrett insisted that emotions are linked to three essential aspects: experience, predictions, and *emotion concepts*. By “concept”, Barrett (2017b) refers here to “an internal model [that] runs on past experiences” (p. 12). Emotion concepts are the mental representations that allow individuals to categorise their emotional experiences into emotions (Johnson-Laird & Oatley, 1989). These aspects are interrelated when constructing emotions; the brain predicts, based on previous experience of emotion concepts, how the body should react to an emotional situation. Because people have experienced sad moments, for example, and because they have the emotion concept of *sadness* in their language and culture, they know how to react to that situation; for instance, they are expected to cry, pout, or otherwise demonstrate behaviour in line with the requirement of the situation and their cultural norms. Emotions, according to this theory, are defined as “your brain’s creation of what your bodily sensations mean, in relation to what is going on around you in the world” (Barrett, 2017a, p. 30). This definition of emotions implies that emotion is created by the brain, and that bodily sensations change depending on the surrounding environment (Barrett, 2017a). Individuals, therefore, have control over their emotions. Careful examination of this definition also shows that emotions are tied to their concepts in a language. If an emotion concept exists in a language, then speakers of that language will experience that emotion category and its variations.

If individuals could guess the emotions of others from different cultures, it is because they have experienced those emotional concepts and their emotional patterns previously. Barrett (2017a) explains this as follows: “Our words allow us to enter each other’s affective niches, even at extremely long distances.... New words seed new concepts that are a basis for constructing emotional experiences and perceptions” (p. 197). Nobody could argue that she/he could accurately recognise emotions from facial expressions (Barrett, 2017a). Instead, she/he only agrees with others on the perception of the emotions because emotions have no biological fingerprints. Emotion perception is “a complex mental process that does not imply a neural

fingerprint behind the emotion, merely that an instance of emotion occurred somehow” (Barrett, 2017a, p. 40). The emotions that people seem to detect in other people’s behaviours are deeply rooted in their own head and their own predictions. The brain, thus, is basically making predictions and guesses about emotions and feelings that are constructed in the moment. People have the ability to make physical sensations meaningful and to connect them to situations (Barrett, 2017b). In other words, “we are architects of our own experience” (Barrett, 2017a, p. 40).

In an experiment, Barrett and Moshe (2009) found that over 700 American participants varied in their distinctions of feelings like *angry*, *sad*, and *afraid*, using emotion words like *anger*, *sadness*, and *fear*. Some participants used the emotion words *fear* and *sadness* to refer to the same emotion, while others experienced the two emotions differently. In the classical view of emotions, participants who could distinguish emotion words were able to detect the correct physical fingerprints of the emotions displayed on faces and bodies, while those who could not distinguish emotions must have been unable to detect those fingerprints. In the classical view, the inability to distinguish facial fingerprints of emotions stems from the person’s lack of knowledge of those emotional fingerprints. Here, the classical view seems to fail to consider the fact that faces are not static and that the brain relies on other accompanying cues such as voice, body positions, and previous knowledge (Barrett, 2017a).

The theory of constructed emotions assumes that emotions are distinctive categories (i.e. *happiness*, *sadness*, *anger*, *fear*, and so on) with variations (Barrett, 2017a). The category of the emotion of *happiness*, for example, has different emotional variations, which can be signalled by behaviours such as smiling, laughing, dancing, or even crying. These variations of emotional categories are shaped by culture and the surrounding environment. Children learn these emotional variations early in preschool, patients learn them from their therapists, and individuals learn them from media throughout the world (Barrett, 2017a). Here it can be inferred that emotional variations are created by the culture. This argument goes against the classical view’s assumption that emotions are not culture-specific but are universal with unique fingerprints. For the theory of constructed emotions, emotions are “constructions of the world” (Barrett, 2017b, p. 16); people construct their own emotions and interpret others’ emotions based on their own past experiences of similar emotions. What is universal, then, is the way people construct their emotion concepts from emotional experiences (Barrett, 2017a). All

healthy people around the world construct emotion concepts, whatever those emotion concepts may be, through their linguistic competence and cultural norms.

Facial configurations have social and communicative functions. While some of the facial configurations or, as they are called in the classical view, *facial expressions*, have meaning, others do not. The criterion here is that facial configurations are fully understood if they are accompanied by other factors like body language, voice, social contexts, cultural expectations, and linguistic content (Barrett, 2017a). By having all these factors, facial configurations become meaningful and have communicative functions between interlocutors. Thus, the theory of constructed emotions argues that across different cultures, different people, and different social situations, emotion categories are represented by different bodily behaviours. One of these behaviours is facial configuration.

Another assumption of the theory of constructed emotions is that emotions words are considered to be emotion entities. This means that each emotion word, for example, *sadness*, *anger*, or *happiness*, refers to a set of physical responses tied to particular situations (Barrett, 2017a). Furthermore, cultural factors guide individuals' physical responses to the emotional situation. Individuals of X culture, for instance, were taught by their culture to show their anger as an indicator of their self-autonomy and well-being, while individuals of Y culture were taught not to show their anger to fit in with the group to which they belong. In each one of these cultural stereotypes, individuals are guided by their culture on how to show their emotions in a way that maintains social and cultural harmony. Therefore, an emotion is modified and expressed depending on the social situation; for example, showing less or more than is felt, naturalising the emotional situation, combining it with other emotions “that comment on it”, or hiding it and “showing another in its place” (Matsumoto, 2009, p. 274).

Having adopted the theory of constructed emotions, it can be argued that emotion concepts are linked to emotion words and, thus, individuals use those concepts to construct their experiences about emotion categories and their variations to fit their communicative purposes. Therefore, each culture and language establish certain variations of emotions which may not exist in other cultures. If individuals learn a specific emotion concept through their language and culture, they apply their knowledge of that emotion concept to perceive others' emotional states. For example, in Arabic, the emotion category of *sadness* “الْحَزَن” has about eight common emotional variations depending on the situation: “الأسى، الكمد، الأسف، الوجوم، اللهف،

اللبيث ”الغم، الكرب، اللبث“ (Wehr, 1979) and an Arabic L1 user can guess the appropriate emotional situation for each variation, as well as the emotional intensity of each variation. In English, on the other hand, there are variations of *sadness*, such as *gloom, glum, sorrow, sorry, sympathy, tragic, unsatisfied, upset, heartbroken, dejection, desolation, despair*, etc. (Johnson-Laird & Oatley, 1989). Each one of these variations is used to signal a particular instance of the feeling of sadness. In both languages, these variations of sadness have different communicative functions and bodily behaviours. For example, one emotion variation of sadness in Arabic refers to having a feeling of sadness with a feeling of anger at the same time, or it can refer to the feeling of sadness when losing a loved one (Wehr, 1979). This rule seems to apply to all emotion categories. However, in the case of individuals speaking multiple languages, most of them may find it difficult to perceive those emotion variations in their multiple languages as accurately as L1 users (Dewaele, 2015a). This difficulty stems from the fact that every language is unique, with specific emotional concepts, and experience and cultural adaptation is required in order to properly use them for successful and smooth communication.

Therefore, knowledge of a language shapes conceptual knowledge, including emotional concepts, and it is influenced by effective socialisation into a particular social and cultural context. In the following pages, more relevant studies on the relationship between emotions, cultures, and languages will be discussed in more depth, highlighting cross-cultural and cross-linguistic varieties in emotion categories and concepts.

### **2.3. Emotions, languages, and cultures**

According to the literature, the factors *cultures* and *languages* are the starting point in understanding how emotions are formed. Although culture and language are different terms, they are interconnected. In cultural psychology research, culture consists of “routine practices”, including “linguistic practices”, that are shared by a group of individuals (Shweder, Haidt, Horton, & Joseph 2008). Culture is a mediating tool that connects individuals’ linguistic practices to their cultural and social identity. Language, accordingly, is a “vehicle of culture”, and acquiring a language entails “internalisation of the linguistic indexing of social and cultural reality” (Ogarkova, Borgeaud, & Scherer, 2009, p. 346). Even though culture and language are interrelated elements, each one has specific functions in emotion formation. For example, culture is said to influence the behaviours (mainly non-verbal ones) associated with emotional expressions, whereas language serves as “the glue’ for emotion concept knowledge, binding

concepts to embodied experiences and in turn shaping the ongoing processing of sensory information from the body and world to create emotional experiences and perceptions” (Lindquist, MacCormack, & Shablack, 2015, p. 1).

In order to provide a clear picture of the relationship between emotions, cultures, and languages, the literature examining emotional expressions and behaviours across different cultures will be discussed in the following section before moving on to the literature on how emotion construction is influenced by languages.

### *2.3.1. Cross-cultural differences in emotional expression and behaviours*

Culture influences emotion construction in different ways: display rules (de Gelder & Veld 2016; Ekman & Friesen, 1969; Matsumoto, 2009), emotional arousal levels (Kacen & Lee, 2002; Markus & Kitayama, 1991; Mesquita & Frijda, 1992; Russell, 2003), emotional cues (de Gelder & Veld, 2016), emotional intensity (de Gelder & Veld, 2016; Zhu, Ho, & Bonanno, 2013), and emotional cultural models (Barrett & Russell, 1999; Mesquita & Walker, 2003). The ongoing debate is between those who agree or disagree with the two general theoretical perspectives: universality versus culture-specificity of emotions. Those who argue against the universality of emotions have provided evidence for the role of culture in emotion construction. The following paragraph delves into the first way culture influences emotions through display rules.

Ekman and his colleagues have argued consistently that emotions are universal across languages and cultures, and the variations in emotional expression and recognition are merely due to the *display rules* that regulate the appropriate display of emotions in different situations across different cultures. These display rules are learned rules of social appropriateness, which are assumed to be learned early in life through contact with individuals within a culture. They also govern methods of emotion management and regulation in accordance with social and cultural contexts (Ekman & Friesen, 1969). Display rules also regulate the characteristics of “the daily expressions of emotions” (de Gelder & Veld, 2016, p. 223). Based on the above assumptions, an emotion is modified and expressed depending on the social situation (Matsumoto, 2009, p. 274). The evidence of display rules was provided by Ekman’s (1972) study, which examined the emotional expression of American and Japanese participants. The participants were shown stress-inducing films, once alone and then again with the researcher

present. The Japanese participants smiled when the researcher was present, while the Americans showed the same negative emotional reactions in both conditions. Ekman made the argument that the Japanese participants followed the display rule from their culture, which prohibits the excessive show of negative and positive emotions in front of strangers, which is not the case for Americans.

Cross-cultural differences in emotional display rules have been extensively presented in the literature. Dewaele (2015a) reviewed several studies on the relationship between emotion and cultures. He summarised that individualist and collectivist cultures have different patterns of emotions due to the variation in the display rules. For example, individualist cultures in the West tend to endorse positive and negative emotional expressions with less emotional restraint. Collectivist cultures such as those in East Asia, by contrast, tend to value emotional restraint and encourage the control of emotional expressions; by doing so, they maintain cultural harmony and social cohesion (Dewaele, 2015a). In this way, it can be argued that culture dictates how people should behave emotionally.

Display rules are likely to reflect culturally influenced emotional behaviours. People acquire display rules regarding emotional expression in ways that are similar to those of language acquisition. Through exposure to the culture, people start constructing their emotion system and acquiring emotional expressions similar to those of other people in that culture. At home, young children acquire the emotional behaviours, and even linguistic cues (e.g. the lexical items) of certain emotional expressions, of their parents or caregivers.

Cross-cultural differences were also found in emotional arousal levels, which refer to the two neurophysiological dimensions of valence and arousal (Russell, 2003). Russell argued that emotions have different functions at the different levels of valence and arousal. For example, when emotional situations require energy, high arousal emotions that lead to decision-making are induced; consequently, low arousal emotions lead to rest and inaction. Markus and Kitayama (1991) for example, stated that Western cultures are “independent-self construal” (p. 225) cultures wherein individuals are the main units in the society; in this cultural stereotype, individuals are encouraged to show their inner states and emotions (particularly high arousal emotional states such as anger and joy). In contrast, East Asian or collectivist cultures are “interdependent self-construal” cultures. In such cultures, one’s duty is to maintain

social harmony and adjust their behaviour according to cultural and social norms. Individuals belonging to collectivist cultures are thus encouraged to show low arousal emotions.

Evidence of the cross-cultural differences in emotional arousal levels was provided by Kacen and Lee's (2002) study. The authors used an arousal scale, which consisted of emotion objectives representing different arousal levels. The study was a cross-cultural comparison between Caucasians and Asians. They found that Caucasian participants reported being in high arousal emotional states (excited) significantly more frequently than Asians, who demonstrated low arousal emotions (they were relaxed and calm). Mesquita and Frijda (1992) attributed these variations in emotional arousal levels to different physiological reactions, which are influenced by culture. Culture seems to control the styles of emotions and the intensity of emotional expressions. The theory of the universality of emotions seems to fail to consider those cultural styles in emotional expression. If emotions are universal, then people from different cultures should behave emotionally in similar ways, which is not the case.

Cross-cultural differences were not only found in emotional expression, but also in the way people perceive the emotions of others. Cultural variations in emotion perception can be attributed to the emotional cues to which people from different cultures pay attention. In a study conducted to test the ability of Japanese and Dutch participants to recognise emotions through audio-visual stimuli, de Gelder and Veld (2016) used short fragments recorded by two Japanese and two Dutch female speakers in their L1s. Each stimulus was recorded with the same neutral linguistic contents but with different emotional vocal cues: one with a happy voice and another with an angry voice. These recordings were accompanied by photos of happy or angry facial expressions. The results revealed that, unlike the Dutch participants, the Japanese participants depended more on the voice rather than the face when the stimulus involved a mismatch between face and voice. The results pointed towards the impact of the culture on modulating multi-sensory integration of emotional information. The researchers found that the Japanese participants relied on the vocal cues more than the linguistic input and the face because the Japanese may consider excessive eye contact when communicating to not be culturally acceptable (de Gelder and Veld, 2016).

The role of culture in shaping the perception of the emotional content conveyed with English intonations was studied amongst 50 Anglo-Americans and 50 Korean learners of English (Cho & Dewaele, 2018). The participants were asked to complete a congruency task

that examined their perception of the congruence between the category of semantic valence (positive versus negative) and the intonation type in 24 emotional utterances. The two groups of participants were not significantly different in their perception of the congruence between the semantic meaning and the intonation type. The semantic incongruence of the emotional intonation, however, interfered with the American participants' task performance more than with the Korean participants' performance. The researchers explained that the American participants seemed to be more *sensitive* to the interaction between the semantic meaning and the intonation type than the Korean participants. The Korean participants, however, were more affected by the negative semantic meaning than the Americans.

Cross-cultural varieties in emotions have also been found in the rate of intensity of emotions in social interactions. For example, Zhu, Ho, and Bonanno (2013) asked Chinese participants to rate the intensity of negative emotions displayed on the facial expressions of Chinese people and Caucasians. The participants rated the intensity of emotions expressed by Chinese people at higher rates than those of the Caucasians. This finding was attributed to the cultural variations in expressing negative emotions; in certain cultures it is unacceptable to express those emotions through facial expressions. De Gelder and Veld (2016) suggested that "some cultures are more likely to suppress their emotions, especially negative ones, in social interactions. This again is something that should be taken into account in important interracial interactions" (p. 230). Based on the above evidence, culture might guide emotional behaviours and expressions. One might notice that, for example, in some cultures it is inappropriate to show extreme grief at a funeral, while in others it is the norm. Thus, unfamiliarity with these cultural differences in emotional expression can lead to miscommunication.

Matsumoto (2009) argued that cross-cultural differences in emotional expression emerge from two underlying mechanisms: the variation in "expression management and regulation" and the variation in "the kinds of events that trigger emotions" (p. 263). In most studies, however, emotional expressions are only linked to facial expressions (Lewis, 2008). The case instead is that individuals, even when experiencing the same emotion, tend to express it through different emotional behaviours (Barrett, 2017a). It is better, then, to assume that emotional expressions involve **more** than facial expressions. Rather, they involve a complex process of past experiences, emotion concepts, and learned cultural expressions. Across different cultures, people learn to associate social circumstances with certain emotional states. Culture, moreover, "allows for a multiplicity of uses" (Matsumoto, 2009, p. 275) and shapes

people's emotional reactions to social events (Matsumoto, 2009). For example, one might notice that in American and most Western cultures, people will feel happy if they are served with pork chops for dinner, while in Arabic cultures, people will feel disgusted and will refuse to eat. The influence of culture on emotional triggers leads to the discussion of the influence of cultural models on the emotional process.

*Cultural models* are the beliefs and social practices that control the desirability and morality of emotions and emotion behaviours (Mesquita & Walker, 2003). Cultural models influence people's emotional behaviour in every culture by defining, constructing, and regulating emotions. More specifically, they impact four aspects of emotions: "antecedent events, subjective feeling, appraisal, and expression/behaviour" (Mesquita & Walker, 2003, p. 779). The first perspective of cultural differences is found in antecedent events, in which culture promotes situations that trigger "culturally desirable emotions" and influences the interpretation of those antecedent events (Mesquita & Walker, 2003, p. 780). In other words, cross-cultural differences in emotional expression were attributed to the differences in situational promotion and what causes emotions (e.g. external events, mental perceptions of the events, other people, or internal organs) (Boiger & Mesquita, 2012; Heelas, 1996). For example, in Russian culture, "*revnost*", meaning "jealousy" in English, is exclusively caused by a situation such as one's boyfriend or girlfriend flirting with someone else; meanwhile, "jealousy" in English can be a response to someone's good fortune *in addition* to the above antecedent. In Russian, this English antecedent (someone's good fortune) causes another emotion: "*zavist*" ("envy") rather than "*revnost*" (Pavlenko, 2008; Stepanova Sachs & Coley, 2006). Other cultures tend to reduce the in-group contexts in which certain emotions such as anger might emerge, which is considered an improper emotion (Heelas, 1996).

The second aspect of emotion that is said to be influenced by cultural models is the valence dimension of emotion, or pleasure/displeasure, as first introduced by Barrett and Russell (1999). The valence dimension is influenced by the cultural models (i.e. individualist and collectivist). For example, in individualist cultures, pleasure is more central to the quality of life than it is in collectivist cultures. A study conducted by Kitayama, Markus, and Kurokawa (2000) investigated the frequency of emotional experiences of certain emotions amongst 283 American and 630 Japanese participants. Americans reported a higher frequency of experience for positive emotions than negative emotions. For the Japanese participants, however, the

frequencies of positive and negative emotions were similar. In other words, it seemed that they had emotions that were balanced in terms of valence.

The third aspect of emotions that might be influenced by cultural models are appraisals, which are regulated and reflected by cultural models through facilitating and preventing “desirable appraisals of events” (Mesquita & Walker, 2003, p. 784). This refers to the differences in the evaluation of emotion-causing events, as well as consequences. Cultural models influence *agency* appraisals, which are “attributions of responsibility for and control over the event” (Mesquita & Walker, 2003, p. 784). Cultural models, for instance, influence the role of personal agency. While Western cultural models promote independence and personal accomplishment (Markus & Kitayama, 1991), East Asian cultural models stress fate and the interdependence of an individual and her/his social environment (Fiske, Kitayama, Markus, & Nisbett, 1998). For example, in Mesquita and Karasawa’s (2002) study, American participants had a higher tendency to appraise emotional situations as under control and experienced more positive emotions than the Japanese participants. Another example is the Japanese-specific emotion “*amae*”, which refers to an emotion that a person may have when she/he makes an inappropriate request, yet still expects the other person to grant the favour. This emotion was perceived as a positive and desirable emotion by the Japanese but as a negative one by the Americans (Morsbach & Tyle, 1986).

The last emotion aspect that is influenced by cultural models is emotional expressions and behaviours. Indeed, cultural differences are found in the way emotions are expressed via verbal or non-verbal emotional behaviours across cultures. For example, in Scherer et al.’s study, the Japanese participants reported using fewer hand and arm gestures in certain situations involving negative emotions such as *anger*, *fear*, and *sadness* than American participants (Scherer, Matsumoto, Wallbott, & Kudoh, 1988). It seems that the excessive expression of some emotions is infrequent in specific cultural models that emphasise harmony in social relationships (Tanaka et al., 2010)

The studies reviewed so far have demonstrated wide-ranging influences of culture and cultural models on different emotional aspects: emotional expressions, appraisals, antecedent events, valence and arousals, and display rules. One issue that arises is how these emotional aspects are influenced by language, and how both factors of *language* and *culture* integrate to construct emotional knowledge. Therefore, it is essential to include the linguistic element in

the discussion of emotion construction to understand how speakers of different languages conceptualise emotions. The next section will present literature on cross-linguistic differences in emotion categories and concepts.

### 2.3.2. *Cross-linguistic differences in emotion categories and concepts*

Every language spoken in the world has a different set of categories of emotion words (Wierzbicka, 1999). Indeed, language functions to bring emotions into existence (Lindquist, Barrett, Bliss-Moreau, & Russell, 2006; Wierzbicka, 1999). Therefore, in order to explore variations of emotions in different cultures, the first starting point is language, as emotions and language are two “parallel systems in use, and their relationship exists in that one system (emotions) impacts on the performance of the other (language)” (Bamberg, 1997, p. 309). All healthy people can feel emotions and, therefore, “being emotional” impacts the communicative situation on two levels: the linguistic level (lexical and syntactic forms) (Bamberg, 1997, p. 309) and the extra-linguistic level (facial configurations, body postures, or hand movements). In this section, the literature reviewed on emotion categories and concepts is discussed from the point of view of **monolinguals**.

Concerning the emotion lexicon, Pavlenko (2008, p. 148) identified three categories: *emotion words*, *emotion-related words*, and *emotion-laden words*. *Emotion words* are words that directly refer to emotions and affective states (such as “angry”, “sad”, or “happy”). *Emotion-related words* are words that refer to the behaviours associated with affective states without direct reference to the specific emotion words (such as “cry” or “smile”). *Emotion-laden words* are words that help elicit emotions from speech without directly referring to the emotion words (such as “cancer” or “exams”). People typically use emotion-laden words when they describe their emotions and emotional experiences. Emotion-laden words have sub-categories as well: taboo or swear words, insults, (childhood) reprimands, endearments, aversive words, and interjections.

A significant body of literature has shown that emotion words are different from abstract and concrete words in the mental lexicon in terms of concreteness, imageability, and recalling (Altarriba, 2003; Altarriba & Bauer, 2004; Altarriba, Bauer, & Benvenuto, 1999). Emotion words were rated less than concrete but higher than abstract words (Altarriba, 2003). Based on the above, emotion words “may be embedded in a richer semantic network”

(Pavlenko, 2008, p. 149). Emotion words are also said to have other components in terms of arousal and valence (Altarriba & Bauer, 2004). Wierzbicka (1999) added that emotion words are used to express emotions in two contexts: being X and feeling X. For example, “feeling sad” and “being sad” are expressions of the English emotion *sadness*, but “feeling ignored” and “being ignored” represent a state of events but not emotions (as the term “ignore” is not an emotion). However, this approach is not applicable to all languages. For example, in English, affective states are described using adjectives, whereas in Russian and Polish emotions are described using adverbs and transitive verbs (Pavlenko, 2002). This means that emotions are considered as inner feelings and states in English but as actions and events in Russian and Polish.

Wierzbicka (1999) indicated that “every language imposes its interpretive grid” (p. 26). Put simply, the meaning of emotion words is influenced by the linguistic interpretation. For example, two affective states can be interpreted as instances of the same emotion (e.g. *joy* and *happiness*) whereas two other affective states are interpreted as two distinct instances of two different emotions (e.g. *sadness* and *fear*) depending on the language spoken. Tahitians, for instance, attribute sad events such as “the loss of a loved person” to “illness rather than to loss”; (Wierzbicka, 1999). That does not mean that the Tahitians do not have feelings of *sadness*, but rather the way they interpret *sadness* in their language is different from how it is interpreted in English. Therefore, it is reasonable to agree with Wierzbicka’s view that English emotion words “such as *sadness*, *enjoyment*, or *anger* are no more than the cultural artefacts of one particular language [emphasis in the original]” (p. 29). Moreover, it is only by analysing emotion words that the underlying meaning of emotions can be understood in any particular language.

Emotion concepts are conceptual representations of emotions in the mental lexicon that allow individuals to categorise their own as well as others’ emotions (Pavlenko, 2008). Researchers supporting basic emotion theories have argued that emotion concepts are stored in the mental lexicon in the brain, where each emotion word has mental concepts with specific features. If an emotion category is depicted by different facial expressions, for example *laughing*, *smiling*, or *silence* to signal the emotion *happiness*, those variations in facial expressions should belong to different emotion categories than the category of happiness. In other words, each emotional pattern, be it facial expressions or vocal cues, is a representation of an emotion category. If other variations happen to occur to express that emotion category,

they are irrelevant. However, if emotion categories are universal (Ekman & Friesen, 1969), there can be unlimited emotion categories (Wierzbicka, 1999).

Barrett (2017a) argued that in some theories, emotion concepts are considered prototypes. For example, *sadness* is an emotion that involves certain features such as frowning, pouting, crying, loss of significant others, or feeling powerless. Barrett also argued that the brain constructs the emotional prototypes depending on contextual goals that fit specific social situations. For example, for a person who had experienced several instances of *sadness*, her/his brain could construct any instance of sadness (i.e. crying, frowning, pouting, etc.) that fits the current situation.

Barrett (2017a) stated that emotion concepts “aren’t fixed definitions in your brain, and they’re not prototypes of the most typical or frequent instances. Instead your brain has many instances – of cars, of dot patterns, of sadness, or anything else – and it imposes similarities between them, in the moment, according to your *goal* in a given situation [emphasis in the original]” (pp. 89-90). In the above quote, Barrett links emotion concepts to the diversity of emotions across different cultures and languages. Therefore, people allegedly experience emotions and create emotional categories that best fit their social and cultural goals. As was already indicated, in most Western cultures individuals are allowed to express their anger through their bodily movements, while in Asian cultures people avoid expressing excessive anger to abide by their culture’s rules. Again, the linguistic factor can be added on as one that influences display rules of emotions because it is responsible for formulating the conceptual knowledge of emotions.

Pavlenko (2008) proposed three possible relationships between emotion concepts encoded in any pair of languages. First, emotion concepts are identical in both languages, facilitating the acquisition of L2-based concepts. In this case, there will be a complete overlap between concepts, resulting in a positive transfer in the L2 learning process. Second, emotion concepts in one of the languages have no equivalent concepts in the other language. This means that these emotion concepts are language-specific with no translation equivalents in other languages. In this case, L2 learners need to acquire L2-based concepts, which requires affective socialisation in the L2 environment so that L2 learners can “develop prototypical scripts for these emotions” (Pavlenko, 2008, p. 150) and therefore create and develop new conceptual representations of the non-equivalent emotion concepts. Third, the emotion concepts in both

languages are in a partial overlap. This partial overlap takes different forms: nesting, split, differentiation, and core overlap. Nesting relationships between emotion concepts are found when “one concept represents a subpart of another” (Pavlenko, 2008, p. 152). The relationship between the concepts can be split if one emotion has one term in one language but several in another language. For example, in English, the single emotion word “anger” has two categories in Russian, three in German, five in Mandarin, and seven in Hebrew (Pavlenko, 2014, p. 256). The relationship between the concepts can be seen as differentiation, found in cases where emotion concepts share certain emotional aspects, such as consequences or causes, but have specific cultural and linguistic properties. For example, the Greek concept “*ntropi*” shares aspects of the English emotions “shyness, shame, embarrassment, and discomfort” (Panayiotou, 2006). The last form is a core overlap between concepts, found in cases where there is an overlap “of core meanings or prototypes of the two concepts and differentiation at the periphery or in the links between the category in question and other categories” (Pavlenko, 2008, p. 152). For example, English L1 speakers prefer indirect declarations of love, using metaphorical or symbolic associations (e.g. rose, heart), but Spanish L1 users prefer sensory or referential associations (p. 152).

Therefore, people perceive the emotions of others and successfully communicate their emotions with their interlocutors if they share similar emotion concepts and words (Barrett, 2017a). For example, one may express her/his anger, and her/his friend will successfully understand which variation of anger she/he means (vengeance, irritation, scorn, etc.). The rule of thumb here is that both interlocutors “are using synchronized concepts” (Barrett, 2017a, p. 94). The significant factor in this situation is language and culture. If an individual communicates with a speaker of a different language or culture, she/he may find it difficult to ensure whether the interlocutor accurately understands her/his intended emotional meaning or not.

Emotion concepts are created in the brain by a conceptual system within the first year of life (Barrett, 2017a, p. 94). Babies hear words—including emotion words—when communicating with their parents and surrounding adults; this allows them to build mental concepts. As they grow up, infants start to create an emotional model similar to that of the adults, which later allows them to communicate their emotions and perceive the emotions of others. Indeed, words provide tools to perceive emotions. Similarly, if children learn emotion words, like *angry* or *afraid*, they can predict other people’s emotional behaviours (e.g. facial

configurations, bodily posture, and voices) that accompany those emotion words. They construct them in their brain. Gradually, when children grow up, they continue to develop their conceptual knowledge of different emotions that are typical in their culture. What is essential in this process is acquiring emotion words that allow them to construct that conceptual knowledge. This conceptual knowledge, therefore, consists of a wide range of emotional instances acquired via learning and past experiences (Lindquist, MacCormack, & Shablack, 2015).

Basic emotion theories assume that emotional knowledge is inborn and emotions have unique fingerprints that all infants are born with (Ekman, 1972). Barrett (2017a) rejects this view and argues that children can learn emotion words that construct their “emotion concepts in the absence of biological fingerprints and in the presence of tremendous variation. Not the words in isolation, mind you, but words spoken by other humans in the child’s affective niche who use emotion concepts” (p. 102). Widen (2013) found that children cannot construct emotion concepts without meaningful communication with caregivers. Thus, by acquiring emotion words, children start to categorise different emotional expressions in faces, voices, and bodies (Widen, 2013) that signal one emotion category, or similar expressions that may signal different emotions; for example, crying may signal *happiness* or *sadness* depending on the situation. Children also construct their knowledge about emotions as **events** that have *causes* that elicit emotions, and *consequences* that are expressed by bodily changes (Barrett, 2017a). Thus, they become more competent at identifying and labelling facial expressions that exist in their culture (Widen, 2013). Here, it is emotion words that have the fundamental role in helping children construct their conceptual knowledge of emotions.

However, it is not only children who can construct new emotion concepts. Adults also continue to learn and update their emotion concepts throughout their lives by learning new emotion words either in their first language or in other languages (Barrett, 2017a). Some languages, however, lack the exact translation equivalent of certain emotion words (Pavlenko, 2008). For example, the Polish word “*przykro*” is used to describe a bad feeling that arises if someone fails to show her/his interlocutor warmth or affection. This concept is a Polish culturally specific emotion which has no equivalent translation word in English (Wierzbicka, 1999). Thus, when acquiring a new language (LX), speakers need to acquire emotion words to be able to construct mental conceptual representations of emotions that will allow them to successfully communicate their emotions and perceive those emotions in others who speak the

target language. How bilinguals restructure their emotion concepts in their second language will be discussed in the next section in more detail.

A cross-linguistic and cultural study by Gendron et al. (2014) focused on the effect of language and culture on emotion concepts. The participants were American English speakers and speakers of Herero, a dialect spoken by a remote ethnic tribe (Himba) in Namibia, who had limited exposure to the Western culture. The participants were asked to sort images showing six facial expressions of the emotions *anger*, *sadness*, *disgust*, *fear*, *surprise*, and *happiness* into piles by emotion type, depending on how they perceived the emotions on the faces. The findings of the study showed that each group sorted the images differently; Himba participants produced a pile that reflected multiple emotion categories. The findings also showed that Himba participants perceived emotions as behaviours rather than as emotional states. For example, they described the photos by perceiving them as actions rather than as states of mind, such as “looking at something” or “laughing”. Unlike the Himba participants, American participants could use emotional words such as *angry* or *sad* to categorise photographs, opting for mental state descriptors of emotions. The Himba, in contrast, did not distinguish emotion concepts from behaviours, in a manner that could be described as “action descriptors” (Gendron et al., 2014, p. 7). It should be noted that the participants were asked to perceive the posed facial expressions and name them with the help of a translator. The emotion words were repeated verbally during the experiments, as some of the Himba participants were preliterate. This experiment supports the importance of emotion words, which provide an essential context in emotion perception.

Returning to the issue of learning emotion words in other languages, the literature shows that effective acculturation and formal learning can foster the acquisition of emotion words in the target language (Barrett, 2017a). Nevertheless, constructing emotion concepts of emotion words in a second language may alter the conceptual representations of the emotions in the first language. Barrett’s example of this was her experience with her colleague Alexandra, whose L1 is Greek and L2 is English. Alexandra acquired the English emotion word “guilt”, which has two emotion concepts in Greek: one refers to minor infractions and another refers to serious transgressions. When she spoke with her sister, who was in Greece, Alexandra used “the ‘major’ guilt word (*enohi*) when describing, say, that she ate too much pie ... to her sister, Alex came across as overly dramatic. In this case, Alex constructed her dessert experience using the English concept for guilt” (Barrett, 2017a, p. 104). This example

demonstrates that emotion concepts are not static but dynamic, constantly changing because of linguistic and cultural contexts.

People occasionally experience certain affective states but are unable to describe them with words; yet, they still experience them. To overcome the lack of emotion words, individuals tend to rely on other emotion concepts that best describe the situation. This ability is called “conceptual combination” (Barrett, 2017a, p. 105). This conceptual combination allows individuals to construct unlimited concepts from existing ones. Still, using emotion words will get the job done. People with high emotional granularity (i.e. a rich repertoire of emotion concepts and words) are expert in expressing their emotions using diverse emotion words (Barrett, 2017a). They are also expert in perceiving different emotions in others. They use each emotion word for one contextual goal. For example, they may have English emotion “concepts for anger, sadness, fear, happiness, surprise, guilt, wonder, shame, compassion, disgust, awe, excitement, pride, embarrassment, gratitude, contempt, longing, delight, lust, exuberance, and love, to name a few” (Barrett, 2017a, p. 106). People with moderate emotional granularity use fewer emotion words than those with high emotional granularity. Similarly, people with low emotional granularity use only a few emotion words to describe emotions. They may only use some emotion words like “sadness”, “fear”, “guilt”, “shame”, “embarrassment”, “irritation”, “anger”, and “contempt”, but all these words correspond to one emotional concept that aims to convey something like “feeling unpleasant” (Barrett, 2017a, p. 106). It is also essential to indicate that emotional granularity is linked to another psychological trait, *trait emotional intelligence*, which will be discussed in more detail later in this chapter.

Therefore, the relationship between culture, language, and emotion concepts is significant, as Barrett (2017a) stated:

The people around you, in your culture, maintain that environment with their concepts and help you live in that environment by transmitting those concepts from their brains to yours. And later, you transmit your concepts to the brains of the next generation. It takes more than one human brain to create a human mind. (p. 111)

Barrett pointed towards the role of culture in transmitting emotional knowledge and to the fact that people in each speech community share emotion concepts and words that allow them to

communicate effectively. People in every culture, accordingly, are supposed to experience an emotion or see it in the behaviours of others by using emotion words that shape their perception (Lindquist, Barrett, Bliss-Moreau, & Russell, 2006). As was explained earlier, emotions are complex events that do not involve innate and universal fingerprints, but rather a combination of neurological, psychological, cultural, social, and linguistic components. What is universal is that people are born with an innate ability to construct emotions (Barrett, 2017a) and they construct emotion knowledge in different ways, depending on their language and culture.

Taken together, the above studies demonstrate that emotion categories and concepts vary across different languages and cultures. However, this does not mean that speakers of different languages “have distinctive physiological experiences”, but rather that they have different ways of evaluating and interpreting emotional experiences (Pavlenko, 2008, p. 150). Emotion concepts vary across languages in terms of “function, encoding, and salience” (Pavlenko, 2008, p. 150). The differences in conceptual categories across different cultures are attributed to emotion words. To sum up, sources of differences in emotion concepts can be attributed to cross-cultural and linguistic differences in causal antecedent events, display rules, appraisals, physiological reactions, consequences of emotion regulation and display, and emotion categories and words. The above differences were addressed from the point of view of **monolingual** individuals. In the case of **bilinguals** or **multilinguals**, emotion concepts have different functions and representations (Pavlenko, 2008). In the case of bilinguals, emotion concepts are displayed in their mental lexicon in different ways depending on the relationship between those concepts in their respective languages (Pavlenko, 2005, 2008). However, acquiring another language can be emotionally advantageous (Dewaele, 2016b) because learning emotion words and constructing new emotion concepts in the L2 may alter the conceptual representation of emotions in the L1 and L2 and may allow L2/LX users to express their emotions in a variety of ways. The next section will address these issues in more detail to shed light on how emotions are related to bilingualism.

#### **2.4. Emotion categories and concepts in bilinguals and multilinguals**

The literature reviewed so far presented the ways culture and language impact emotion concepts and categories, as well as the relationship between emotion concepts in different languages from the point of view of monolinguals. This section will present the literature on the emotion concepts and categories from the point of view of **bilinguals**.

There is a significant body of research suggesting that for bilingual speakers emotion concepts have functions and forms (Pavlenko, 2005, 2008) that are distinct from those of monolinguals. Bilinguals may construct and process emotion categories differently because, in most cases, there are conceptual non-equivalent terms across languages, as was shown in the above section. It is said that the emotion concepts in L1 and L2 are displayed in bilinguals' lexicon differently, depending on the relationship between those concepts in both languages and cultures and on the bilinguals' linguistic trajectory (Pavlenko, 2005, 2008, 2014).

Pavlenko (2014) argued that when acquiring an L2, most bilinguals restructure L2-based concepts beginning with a process called *destabilisation*, where L2 users “diverge from the L1 pattern in order to accommodate or approximate the divergent pattern of an L2” (p. 304). This destabilisation process occurs even when individuals are exposed to a different variant of the same language, leading to both semantic and possibly conceptual shifts (Dewaele, 2017b). The evidence of this type of destabilisation was found in Dewaele's study, which explored the effect of living outside the US on the perceived offensiveness of four English emotion-laden words of British origin and another four of American origin. The sample of the study consisted of three groups of Americans: one group living in the US, one in the UK, and one in a non-English-speaking country. The findings showed that the Americans who lived outside the US perceived the four British words as being more offensive than the other two groups. This evidence indicated that the semantic representations of emotion-laden words that originated from another variety of the L1 are likely to change and shift as a result of the knowledge of more language variants and intense and prolonged exposure to their use in other varieties of the L1.

This process of restructuring may result in one of five outcomes: *internalisation of the L2 categories and patterns*, *co-existence* or *maintenance* of the language-appropriate categories, *convergence of L2 categories*, *L2 influence on L1 categories or patterns*, and *attrition* of categories and patterns (Pavlenko, 2014, p. 305). The first possible outcome, *internalisation of new concepts*, is found in cases when L2 learners socialise in the L2 environment and construct L2-based emotion concepts that have no translation equivalent in the L1. Through effective socialisation in the L2 community, L2 learners can understand the causes and effects, as well as the display rules, associated with these emotions (Dewaele, 2016c; Pavlenko, 2008). For example, Panayiotou (2004) found that Greek-English bilinguals

internalised the concept of “*frustration*” from English and tended to refer to it in their Greek narratives (p.133). This process can be described as code-switching of words that are not encoded in the other language but instead are internalised as a result of effective socialisation.

The second possible outcome of restructuring is *co-existence*, found in cases where emotion concepts in L1 and L2 are similar to those of monolingual speakers. The co-existence of concepts occurs either because those L1 and L2 concepts are identical, overlap, or are language-specific. For example, Pavlenko (2002) found that Russian-English bilinguals could categorise emotions elicited in situations similarly to Russian and English monolinguals. The third possible outcome is *conceptual convergence of L2 categories*, found in cases where bilinguals perform in different ways from monolinguals in a way can be described as an “‘in-between’ performance” (Pavlenko, 2014, p. 305). This case is common in forms of communication between bicultural bilinguals. The fourth possible outcome is *L2 influence on L1 categories or patterns*, found in cases when there is a modification of existing L1 concepts, to some extent, to approximate L2-based concepts (Pavlenko, 2008). This case was found when Russian-English bilinguals encoded the terms “jealousy” and “envy” as similar, contrary to Russian monolinguals, who separated the situations eliciting the two terms (Stepanova Sachs & Coley, 2006). The last possible outcome of restructuring concepts in bilinguals’ lexicon is *attrition*, found in cases when bilinguals lost L1-based concepts, especially those that are language-specific, caused by a long stay in an L2 environment and less reliance on L1 conceptual categories (Pavlenko, 2008). This case was found in Pavlenko’s (2002) study, where Russian L1 users “relied on two central emotion concepts, *rasstraivat’sia* (to be getting upset) and *perezhivat’* (to experience things keenly/to worry/to suffer)” whereas “Russian-English bilinguals relied only on the term of “*upset*”, that has a lexical and conceptual counterpart in English but did not invoke the language- and culture-specific notion of *perezhivat’*” (Pavlenko, 2008, p. 155).

All the above processes of restructuring, however, may vary across individual bilinguals, since bilinguals’ lexicon is dynamic; it is constantly changing depending on different learning and speaking contexts (Pavlenko, 2008, 2014).

A considerable amount of literature has demonstrated that bi- and multilinguals process and express emotions differently (Altarriba, 2003; Dewaele, 2008a, 2009; Dewaele & Pavlenko, 2001-2003; Ożańska-Ponikwia, 2014; Panayiotou, 2004). Altarriba (2003)

investigated the representation of emotion words amongst 21 Spanish-English bilinguals using rating scales of emotion, concrete, and abstract words, which were represented on one of three dimensions: concreteness, imageability, and context-availability. The findings revealed that participants rated emotion words in Spanish as less concrete but more easily pictured than abstract words. The participants provided equal ratings for both word types in terms of context-availability. Moreover, Spanish-English bilinguals preferred to express their emotions in their L1, the language with rich emotion concepts associated with their past emotional experiences. Altarriba (2003) concluded that “emotion words in the first language may carry a broader range of expression and may be more highly associated to specific contexts than their presumed counterparts in a second language” (p. 318). Indeed, bilinguals tend to represent and store words, including emotion words, in their languages differently. The above evidence revealed that emotion words in L1 are typically practised and applied in many contexts so that they are stored deeply and have strong semantic representation. Emotion words in the L2, on the other hand, are experienced and applied in fewer contexts, especially by those late bilinguals. In this latter case, emotion words in the L2 are not encoded deeply in bilinguals’ lexicon (Altarriba, 2003; Dewaele, 2007a).

Panayiotou (2004) investigated the verbal construction of emotions with ten bilingual/bicultural American English and Greek Cypriot participants to see whether the participants expressed their emotions differently in their respective languages. They were presented with two culturally similar scenarios in the two languages, first in English and a month later in Greek. Their verbal reactions to the written scenarios in both conditions were recorded. The story was about a young professional man who spent little time with his mother and girlfriend because of work pressure. The results revealed that the bilinguals’ reactions to the same story were different depending on the language it was read in. The participants offered linguistically and culturally “appropriate emotional responses” in both languages (Panayiotou, 2004, p. 134). However, their verbal responses in both languages “were not direct translations of each other” (p. 134). This evidence indicates that bilinguals tend to code-switch not only at the linguistic level but also at the social and emotional levels. It seems that bilinguals may have a metaphorical “palette with more colours”, with which they can paint (express) their emotions in their languages (Panayiotou, 2004, p. 133). Panayiotou described this ability to shift the emotional expressions between languages as “having the other within the self” (p. 134). Several researchers agree with the above assumption and have considered this ability to be an outcome of structuring new emotion concepts that fit different social and cultural contexts (Dewaele,

2008b; Panayiotou, 2004; Pavlenko, 2008). This indicates that bilinguals possess a greater variety of ways to express as well as predict emotions depending on the linguistic and cultural demands.

Exposure to a second language and culture alters the L2 users' interpretation and perception of emotions (Dewaele, 2016c; Ożańska-Ponikwia, 2014; Pavlenko, 2008); however, bilinguals' emotional expression is mediated by linguistic and psychological factors. Ożańska-Ponikwia (2014) conducted a study to explore the effect of a number of independent variables, including personality traits (Extraversion, Openness, Neuroticism, Emotionality, Sociability, and Agreeableness), self-perceived language proficiency, length of stay in English-speaking countries (ESCs), and TEI on the perception and expression of emotions of 102 Polish-English bilinguals in their L1 and L2. She collected qualitative and quantitative data using interviews and an online questionnaire. The findings revealed that the length of stay in ESCs was significantly correlated with the bilinguals' frequency of use of their L2. High levels of self-perceived language proficiency were also strongly linked to the emotional expressions in the bilinguals' L2. While the length of stay in ESCs did not guarantee high levels of language proficiency in English, the latter had a powerful impact on L2 users' perception and expression of emotions (Ożańska-Ponikwia, 2014). In addition to the language proficiency, naturalistic acquisition of the L2 and the frequency of using the L2 in social interactions seemed to facilitate the perception and expression of emotions in the L2. Ożańska-Ponikwia suggested that immersion in the L2 culture and socialisation leads to "cognitive changes" that influence the perception and expression of emotions not only in the L2 but also in the L1 (2014, p. 125).

Together, these studies provide valuable insights into the different ways bilinguals and multilinguals express and process their emotions. What is interesting is that bilinguals and multilinguals vary not only in their expressions of emotions but also in their perception of the **emotionality** of their languages and also in their **language choices** for emotion communication. The next section will address these issues in more depth.

#### *2.4.1. Emotionality and language preferences for emotion communication*

As far as emotional process in bilinguals is concerned, bilinguals perceive new levels of *emotionality* in their languages, mediated by their language history profile (Dewaele, 2010a,

2015a, 2018b; Pavlenko, 2005, 2008, 2014). *Emotionality* refers here to “autonomic arousal elicited by particular languages or words and examined directly, through changes in skin conductance response, and indirectly, through speakers’ verbal and nonverbal behaviours and self-perceptions. These levels of emotionality are different from those of monolinguals” (Pavlenko, 2008, p. 156).

Dewaele (2008a) found that LX users’ perception and use of the phrase “I love you” and the degree of emotionality it had was stronger in their L1 than in their LXs. However, LX users’ choice of a language to express affection was determined by a number of factors, such as the age of acquisition, the frequency of language use, the context of language acquisition, self-perceived oral proficiency, the type of social relationship, and the degree of socialisation in the LX environment. Furthermore, it was found that L1 is used as the language of inner speech and inner emotional speech more often than other LXs (Dewaele, 2015b). Dewaele (2016b) explained that those LX users who usually prefer L1 to express their emotions consider their L1 to be the language in which they typically feel less anxious.

Pavlenko (2006) found that, based on the data obtained from the Bilingualism and Emotion Questionnaire (Dewaele & Pavlenko, 2001-2003), most participants reported that their L1 is more “real” and “natural” whereas languages learned later in life are “fake”, “artificial”, and “performative” (p. 18). Moreover, participants reported that their L1 is typically associated with ease, noting they feel more comfortable in expressing their emotions in their L1. One of the reasons the participants offered for not preferring their LX to express emotions was attributed to “less familiar repertoires of languages learned later in life” (p. 19). “Linguistic repertoire” refers here to the “totality of linguistic resources available to the individual” (Pavlenko, 2005, p. 7). Pavlenko (2006) argued that one reason could be the differences of emotionality experienced in those languages.

The above cases are not fixed in all bilinguals and multilinguals, however. Higher levels of perceived language proficiency, authentic use, and early learning of LX were linked to more frequent use of that language for inner speech and inner emotional speech. The LX, thus, can share the role of the L1 of being the language of inner feelings (Dewaele, 2015b). Pavlenko (2008) argued that L1 might be considered to be more *emotional* than other languages acquired later in life but is not necessarily the *preferred* language for emotional expression. This case

depends on the linguistic and cultural differences between L1 and L2/LX, levels of emotionality, and language proficiency (Pavlenko, 2006).

Dewaele (2016c) explored the understanding and the perception of 30 negative emotion-laden English words, including swear words, amongst 1,159 L1 and 1,165 LX users of English. The findings showed that LX users were less sure about the meaning of those negative words, and they less frequently used them than L1 users. However, LX users tended to overestimate the offensiveness of those words, with the exception of the word “cunt”, more than L1 users, suggesting that swear words in LX “become ‘red flag’ words in the LX users’ mental lexicon” during LX learning (Dewaele, 2018d, p. 73). The variations in the perception of the offensive words, however, were mediated by LX users’ linguistic profile variables, such as the context of LX acquisition, the age of acquisition, and having lived in an English-speaking country. In another study, the offensiveness of the most negative English word, “cunt”, was underestimated and less frequently used by the LX users, as they reported that they were less sure about its meaning (Dewaele, 2018d). The L1 users, by contrast, rated it as more offensive. Dewaele attributed these findings to the little attention paid to these offensive words in formal language learning.

In another study, Dewaele (2009) reported that bilinguals generally preferred their L1 when expressing *anger*; however, a long socialisation into LX environments led to a preference for the LX to express anger. This case demonstrates that LXs can carry stronger emotional associations than the L1. For example, LX users may prefer to swear in LX because they feel that they have more personal freedom and that they aren’t violating their L1 social/cultural rules when doing so (Dewaele, 2015c). This preference of the LX to be the language of swearing can be determined by social relationships with interlocutors (Dewaele, 2016b). For example, some LX users prefer to swear in their LX if they express their anger with interlocutors of a different language while others prefer to use their LX to express anger when interacting with other L1 users (Dewaele, 2016b). In another study, participants reported less swearing with family, colleagues, and strangers, but they reported more swearing in interactions with friends and when alone (Dewaele, 2017a). Pavlenko (2008) argued that some LX users preferred using their LX to express negative emotions, especially swear words, to avoid the feeling of guilt. L1 was typically preferred to express positive emotions, but this is not a fixed case. Some L2 users preferred L2 to express positive emotions because they felt that L2 offered “an opportunity to express positive feeling without experiencing the undue

emotionality elicited by the L1” (Pavlenko, 2008, p. 160). In some other cases, L2 was preferred for emotion communication, especially by bilinguals whose L1 was associated with painful memories. The L2 could also be the emotional language if it was “acquired in intimate relationships with its speakers” (p. 160).

LX users’ choice of a language for communicating their emotions, both negative or positive, is influenced by their linguistic history and socio-biographical variables. One of these variables is the type of LX instruction; LX users who used their LX outside classrooms in daily interactions tended to use their LX more frequently to communicate emotions, particularly for swearing (Dewaele, 2010a). Another variable is the age of LX acquisition. LX users who had acquired their LX in their early childhood tended to swear in their LX more than those who had acquired their LX in adulthood (Dewaele, 2010a). Moreover, LX users who reported high levels of perceived language proficiency in their LX tended to use that language more frequently for swearing and using offensive words (Dewaele, 2016c).

To sum up, the literature reviewed in this section has demonstrated that L2/LX users have different semantic as well as conceptual representations of emotions in their languages. They possess a wide variety of ways to express emotions and their languages evoke different levels of emotionality, with stronger levels of emotionality found in the L1, especially when swearing (Dewaele, 2004, 2016c, 2017a) and when expressing affection (Dewaele, 2008a, 2018b) or anger (Dewaele, 2006), mediated by linguistic and cultural variables as well as social contexts. Based on the above, bilinguals and multilinguals process emotions in different ways than monolinguals. A significant body of literature has shown that bilinguals differ from monolinguals not only in their perception of the emotionality levels of their languages but also in cognitive and psychological processes, as well as linguistic multi-competence, as will be discussed in the following section.

#### *2.4.2. Bilingual advantages/disadvantages*

A considerable body of evidence has accumulated suggesting that bilingualism confers a number of advantages (i.e. bilingual advantages or BA) in domains where bilinguals outperform monolinguals. For example, several studies have sought to emphasise that bilinguals outperform monolinguals in different **cognitive** tasks such as metalinguistic awareness (Bialystok, Majumder, & Martin, 2003; Cazden, 1974), metacognitive awareness

(e.g. Cazden, 1974), attention control (Bialystok, Craik, Klein, & Viswanathan, 2004; Bialystok, Craik, & Luk, 2008; Carlson & Meltzoff, 2008; Green, 1998), working memory (e.g. Bialystok et al., 2004; Bialystok, Craik, & Luk, 2008), monitoring (Costa, Hernández, & Sebastián-Gallés, 2009), switching (Prior & MacWhinney, 2010), novel word learning (Kaushanskaya & Marian, 2009), problem solving (e.g. Bialystok, 2006), abstract reasoning, and creative behaviour and divergent thinking (e.g. Braccini & Cianchi, 1993; Kharkhurin, 2008, 2010).

Taken together, these studies have documented the advantages of bilinguals in tasks that require engagement of executive function to inhibit responses (i.e. to ignore irrelevant aspects of the same stimulus) (e.g. Bialystok, 2011; Prior & MacWhinney, 2010). Several explanations have been advanced for this cognitive advantage. A dominant perspective suggests that bilinguals' consistent need to shift, monitor, and manage the use of two languages improves their ability to control their attention while engaged in language-based and non-language-based tasks (Bialystok, Craik, & Luk, 2008; Prior & MacWhinney, 2010). In other words, it was speculated that bilinguals' ability to concurrently hold two languages in the same mind might explain the greater control reflected by superior performance on tasks requiring attention control. It was found that bilinguals are better able than monolinguals to maintain their attention on task-relevant information "despite adverse interference, particularly in attention-impaired" tasks such as the Stroop colour test (Yang, Yang, Ceci, & Wang, 2005, p. 2403). Researchers have observed that the memory capacity of bilinguals may have an increased efficiency as a result of their ability to inhibit one language while using another (Bialystok et al., 2004; Bialystok, Craik, & Luk, 2008). The above evidence was based on bilinguals' performance on tasks requiring more attention control; however, this bilingual advantage was absent in attention-aided tasks such as the Stroop word test (Yang, Yang, Ceci, & Wang, 2005).

It was found that bilingual children's experience of learning and maintaining two languages, especially languages with different forms and structures, allows them to develop greater metalinguistic awareness of how language works (Bialystok, Majumder, & Martin, 2003; Cazden, 1974). This means that they may have a greater ability to recognise the differences in the syntactic rules of their languages explicitly. However, this depends on the linguistic distance between the languages being compared. For example, Spanish-English bilingual children outperformed English monolinguals on a phoneme segmentation task, but

Chinese-English bilinguals did worse than English monolinguals. It can be inferred that the similarity between languages affects the metalinguistic awareness of bilinguals. Furthermore, the linguistic distance between the two languages also affects bilinguals' knowledge of language and writing systems. One study by Bialystok, Luk, and Kwan (2005) investigated the impact of knowing one language and writing system on learning another. The authors compared monolinguals to three groups of bilinguals: Spanish-English bilinguals, Hebrew-English bilinguals, and Chinese-English bilinguals. The authors found that Spanish-English and Hebrew-English biliterates (i.e. using two languages for communication) had the highest levels of literacy. The authors attributed this finding to the possible effects of bilingualism on early acquisition of literacy, on the general understanding of reading and its basis in print systems, and on the potential transfer of reading principles across different languages. It seemed, however, that the distance between the Chinese and English languages impacted the Chinese-English bilinguals' linguistic knowledge. Indeed, linguistic distance between the two languages can make a difference since, if there is an overlap between them, bilinguals need less effort to use and understand both languages; if the two languages are farther apart, using the first language would have less of an impact on using and learning the other language (de Bot, 2017).

Adesope, Thompson, and Ungerleider (2010) conducted a large-scale meta-analysis of 63 studies examining the cognitive correlates of bilingualism in children. Overall, they found that bilingualism is associated with a number of cognitive benefits, including working memory, attention control, metacognitive and metalinguistic awareness, and abstract and symbolic representation skills. However, the effect sizes varied from small to large, moderated by the methodological factors, types of tasks, and language features.

Bilingualism has also been linked to divergent thinking, which is the ability to generate ideas creatively (Kharkhurin, 2008, 2010). One explanation that has been advanced for this advantage in divergent thinking is that bilingualism might improve bilinguals' ability to activate and simultaneously process "a multitude of unrelated concepts from different categories", which increase their divergent thinking abilities (Kharkhurin, 2008, p. 234). Although Kharkhurin (2008) found that bilinguals outperformed monolinguals in their performance on tasks requiring the ability to activate different categories, bilinguals did not differ from monolinguals in tasks requiring the production of original ideas and solutions. It seems that the bilingual advantage is "limited to unconscious cognitive processing" but not the

ability to produce unique and original ideas (p. 238). The benefits of bilingualism were also found in non-verbal creative behaviours (Kharkhurin, 2010). Kharkhurin (2010) argued that the bilingual advantage in non-verbal creativity might be attributed not to bilingualism *per se*, but rather the experience of two cultures (i.e. **biculturalism**). In other words, the experience of two cultures may result in more cognitive flexibility and creative performance.

Several studies investigating the effects of dual language learning have been carried out on young bilingual children (Barac et al., 2014; Genesee, 2008; Han, 2010). A longitudinal study of the development of socio-emotional and cognitive skills in Hispanic preschool children by Winsler, Kim, and Richard (2014) reported that socio-emotional skills (e.g. initiative, self-control, and attachment) were found to be stronger amongst young fluent bilingual children compared to their monolingual peers. The researchers found a possible relationship between socio-emotional skills and increased inhibitory/self-control in young bilinguals. In other words, young bilingual children exhibit strong socio-emotional skills, which might be related to their enhanced behavioural self-control. The researchers speculated that children at age four with advanced cognitive skills later become more fluent bilinguals than those with lower cognitive skills. The researchers, therefore, argued that enhanced inhibitory control could be either the consequence or the precursor of being bilingual. Their findings are in line with Barac et al.'s (2014) conclusion that balanced bilingualism can be an indicator of strong cognitive, metacognitive, and inhibitory control skills.

Another longitudinal study of socio-emotional skills amongst bilingual children by Han (2010) reported that bilingualism can develop children's socio-emotional well-being. The researcher found that bilingual children were better able than monolinguals to communicate with their teachers, parents, and peers. Han concluded that the knowledge of two languages might help children to develop their emotional skills and thus to feel more comfortable and accepted during their early school years.

Although several studies have documented the advantages of bilingualism on cognitive processes, other studies have reported *negative effects* of bilingualism on tasks requiring rapid lexical access (e.g. Michael & Gollan, 2005) or verbal skills in both languages (e.g. Macnamara, 1966). Several explanations have been advanced for these bilingual disadvantages. Some have claimed that bilinguals tend to spend less time activating lexical representation in each language, especially when speaking, resulting in a weaker association

between lexical items. Furthermore, bilinguals need to learn individual words and “then efficiently retrieve them roughly twice as many times as monolinguals” (Michael & Gollan, 2005, p. 392). Bialystok (2005) argued that those studies that documented bilingual disadvantages in vocabulary knowledge were conducted on children in preschool or during their early school years. However, it can be speculated that learning strategies, as well as the amount and quality of input, may play an essential role in developing vocabulary skills, especially in young children.

Kharkhurin (2010) compared the verbal and non-verbal creative performance of 103 Russian-English adult bilinguals to that of 47 English adult monolinguals. The researcher found bilingual advantages in non-verbal creativity but bilingual *disadvantages* in verbal creativity amongst Russian-English bilinguals. These findings were attributed to the bilinguals’ limited linguistic skills, which decrease their creativity in verbal contexts. This demonstrates a monolingual advantage in verbal creativity and language production, as well as verbal fluency. This means that monolinguals typically use their single language and activate its linguistic units at higher levels than bilingual individuals, who might use one of the languages less frequently, which may minimise their lexical access (Bialystok, Craik, & Luk, 2008; Kharkhurin, 2010).

Some critics argue that convincing evidence for bilingual advantages in cognitive performance is lacking (Lehtonen et al., 2018; Paap & Greenberg, 2013). More specifically, the studies that report such advantages have been criticised because of their methodological features, which included either only one task to compare bilinguals to monolinguals or multiple tasks that lacked a test for convergent validity (Paap & Greenberg, 2013). Other concerns include the characteristics of the sample; for example, having an inadequately matched group—e.g. bilinguals from different cultural backgrounds (Paap & Greenberg, 2013).

More recently, Lehtonen et al. (2018) have conducted a meta-analysis of 152 studies comparing adult bilinguals to monolinguals in six executive function components. They found that bilingualism had no effect on these cognitive control functions and that their meta-analysis “does not support the view of bilingualism being associated with an advantage in cognitive control functions in adults”. They also observed very small effect sizes in studies of the domains of inhibitory control and shifting, specifically “when correcting for publication bias” (Lehtonen et al., 2018, p. 422).

These above studies, therefore, demonstrated that there might be a limited effect of bilingualism on cognitive processes. It is possible that the advantages of bilingualism have been confounded by socio-biographical factors, since most of the studies were conducted on bilingual children, and it was difficult to reliably demonstrate bilingual advantages in adults (cf. Bialystok, 2005), particularly adult bilinguals with different language learning histories or different language proficiency. Most of these studies also did not include factors which may have confounded the results, such as the age of language acquisition, contexts of language acquisition, dominant language, the status of the language (e.g. minority versus majority languages), the amount as well as the quality of input, and cultural differences. Controlling for such factors may have enabled understanding of the mechanisms underlying bilingual advantages/disadvantages, especially in the case of adult bilinguals.

Nevertheless, reported positive effects of bilingualism/multilingualism extend beyond cognitive domains to include other psychological and personality skills. Across a number of studies, multilinguals have shown enhanced psychological skills with regard to a foreign language learning environment. In an investigation on communicative anxiety (CA) in L1 and foreign language anxiety (FLA) in LX(s) for 464 multilinguals, Dewaele, Petrides, and Furnham (2008) found that knowledge of more languages at higher levels of proficiency and frequency, as well as strong socialisation in a language, was positively linked to lower levels of CA and FLA. Furthermore, Dewaele and van Oudenhoven (2009) found that multilingualism is linked to higher levels of Open-mindedness and Cultural Empathy and lower levels of Emotional Stability. The researchers explained that effective acculturation and knowledge of more languages strengthen individuals' personality traits, especially their respect for cultural diversity. Similarly, Dewaele and Stavans (2014) found that advanced knowledge of more languages, as well as their frequent use, was positively linked to higher levels of Social Initiative and Open-mindedness, as well as higher levels of Cultural Empathy amongst 193 multilinguals. Moreover, multilingualism was positively linked to higher levels of cognitive empathy, which was attributed to multilinguals' ability to see the world from the point of view of their interlocutors (Dewaele & Wei, 2012) as well as to a higher Tolerance of Ambiguity, suggesting that multilinguals are more attuned to the communicative needs of their interlocutors (Dewaele & Wei, 2013). The above personality traits were said to be indicators of multi-competence that multilinguals have as a result of the interconnection between multiple languages in the same mind (Cook, 2012; Dewaele & Wei, 2012, 2013). It is essential, thus, to

consider multi-competence when focusing on language use and the emotions of L2/LX users (Pavlenko, 2005).

Overall, there seems to be some evidence that bilingual advantages/disadvantages are mediated by linguistic, cultural, and psychological factors. In view of all that has been mentioned so far, one may suppose that bilingual advantages vary across different bilinguals depending on their linguistic proficiency, linguistic history, socio-biographical variables, as well as cultural backgrounds and the experience of biculturalism. It is thus essential to consider all these factors when focusing on bilinguals' language use, including their language use for emotional expression and perception. The following section presents literature on linguistic competence, proficiency, as well as multi-competence, since all these factors are interrelated at this point of the discussion on the emotional experiences of bilinguals.

#### *2.4.3. Linguistic competence and proficiency*

The concept of “competence” has been studied from different angles: linguistic or grammatical competence, communicative competence, and pragmatic competence. In first language acquisition (FLA) research, Chomsky's theory points to the competence or the cognitive processes monolingual speakers have without reference to the actual language use ability in the case of non-monolinguals. This competence, according to Chomsky's theory, may refer to either linguistic competence or communicative competence (Llurda, 2000). However, because communicative competence defines only the innate system or the Universal Grammar (UG), this monolingual model fails to account for bilingual situations where speakers vary in their performance of the L2. Communicative competence also consists of components such as grammatical competence, sociolinguistic competence, discourse competence, and strategic competence (Canale, 1983). The concept of grammatical competence is similar to Chomsky's notion of “competence” (Llurda, 2000).

Crystal (1997) defined pragmatics as “the study of language from the point of view of the users, especially of the choices they make, the constraints they encounter in using language in social interaction and the effects their use of language has on other participants in the act of the communication” (p. 301). Pragmatic competence is defined by Fraser (2010) as “the ability to communicate your intended message with all its nuances in any socio-cultural context and to interpret the message of your interlocutor as it was intended” (p. 15). It consists of

illocutionary acts (i.e. the user's intention in producing an utterance, e.g. in apology) and perlocutionary acts (i.e. the effect of an utterance on the hearer) (Austin, 1962). One example of an illocutionary act is the emotional force of emotional expressions; a perlocutionary act can be the effect of swear words or taboo words (Dewaele, 2004, 2007b). Thus, L2 users' perception and feelings about their L2 and communication in the L2 reflects their pragmatic competence (Dewaele, 2007b). A familiarity with the grammatical competence in a language, however, does not guarantee pragmatic success (Fraser, 2010).

All these components of competence represent the knowledge that reflects the actual degrees of *proficiency* in a language. To find an alternative concept that accounts for bilinguals' different levels of language use, the term proficiency emerged. Stern (1983) defined proficiency as "the actual performance of given individual learners or groups of learners" (p. 341). This performance comprises elements like the mastery of the grammatical forms; the linguistic, affective, and socio-cultural meanings; the ability to use language for communication; and "the creativity of language use" (Llurda, 2000, p. 90; Stern, 1983). Llurda suggested that the term "proficiency" can be a "middle term between 'competence' and 'performance'" (p. 93).

The proficiency levels of participants vary from beginner, intermediate, to fluent or advanced speakers in English (Llurda, 2000). There are different methods to measure individuals' proficiency in the L2/LX, such as observing the participants' actual linguistic performance, using standardised language proficiency tests, or using self-perceived language proficiency reports. Several studies on bilinguals used self-ratings as a proficiency measurement through which participants rated their skills in reading, writing, listening, and speaking in the various languages they have mastered. However, using self-perceived language proficiency may reflect the participants' subjective attitudes towards their proficiency levels in their L2. Dörnyei (2003) argued that people do not always provide real answers about themselves in self-reported questionnaires. This can be attributed to "social desirability or prestige bias" (Dewaele, 2007a, p. 150). Some researchers, nevertheless, have argued that the use of self-perceived language proficiency is a valid tool to obtain the levels of language proficiency (MacIntyre, Noels, & Clément, 1997).

Self-perceived language proficiency is influenced by several factors including, but not limited to, linguistic history (e.g. the context of L2 acquisition and the age of onset of

acquisition (AOA)), individuals' exposure to the L2 (i.e. the frequency of use of the L2), and the social and psychological characteristics of L2 users (e.g. age, gender, education levels, and personality traits) (Dewaele, 2007a, 2007b, 2010b; Furnham & Heaven, 1999; MacIntyre, Noels, & Clément, 1997). Amongst these factors, frequency of use of the L2, AOA, and context of the acquisition have the most substantial effect on perceived language proficiency (Dewaele, 2007a, 2007b). In other words, frequent users of an L2 perceived their language proficiency to be higher than less frequent users. Frequent use of a language can also lead to less communicative anxiety when using the L2 because it allows users to feel more confident about their progress in that language (Dewaele, 2010b). L2 users who learned their L2 in a naturalistic setting rated their oral proficiency higher than those who learned their L2 in a formal setting. Naturalistic use of an L2 can thus boost L2 learning. Dewaele (2007b) found that L2 users who learned their language in formal settings (e.g. in classrooms) felt more anxious and less proficient in the L2 compared to L2 users who use their L2 in authentic communication. The context of L2 acquisition also affects communicative anxiety and the perception of emotional characteristics in the L2 (Dewaele, 2007b). Another factor is AOA; L2 users who started learning their L2 at a younger age rated their proficiency higher than those who started learning their L2 later in life. In any case, early learners of a language have a distinctive advantage over late starters regarding oral language proficiency. In addition to these linguistic variables, socio-biographical variables (e.g. age, gender, and education levels) may affect the perceived language proficiency of L2 users. It was found that females rated their language proficiency higher than males; highly educated participants rated their language proficiency higher than less educated individuals; and older participants rated their language proficiency higher than younger participants (Dewaele, 2007a). Dewaele stated that older participants might have experienced more authentic intercultural interactions than younger individuals.

However, it is not only linguistic and socio-biographical variables which affect perceived language proficiency, but also some personality traits, as well as the social and psychological characteristics of L2 users. For example, MacIntyre, Noels, and Clément (1997) found that participants with higher levels of FLA tended to underestimate their proficiency in French L2 while those who were more confident overestimated their language proficiency. Extravert participants also judged their language proficiency more optimistically than introverts (Furnham & Heaven, 1999).

#### *2.4.4. Linguistic multi-competence*

In the field of Second Language Acquisition (SLA), several studies have addressed the differences in the linguistic competence between monolinguals and bilinguals or L2 users from a “monolingual perspective”. According to this monolingual view, bilinguals should have two separate language systems, similar to those of monolinguals. The bilingual, thus, is seen as a sum of two monolinguals. Bilinguals are evaluated in terms of fluency in both languages. Only bilinguals who are equally fluent and who have perfect knowledge of the two languages should be considered true bilinguals. The other types of bilinguals are considered to not really be bilinguals *or* monolinguals. Studies adopting this view compared bilinguals’ language skills in terms of “monolingual standards”, which is an inappropriate comparison because bilinguals use their languages for different social functions (Grosjean, 1992, p. 52). The monolingual perspective has also focused on the negative effects of bilingualism on cognitive and developmental processes because it considered monolinguals to be “the models of the normal speaker-hearer” (Grosjean, 1992, p. 51). Many researchers have criticised this view because it fails to consider the variations in bilinguals’ knowledge, as well as levels of proficiency in their languages (Cook, 2002, 2016; Dewaele, 2007a; Grosjean, 1992, 2010). This perspective also does not consider the interaction and the interconnection between the two linguistic systems in the same person (Grosjean, 1992). Grosjean (1992) insisted that the monolingual view is “destructive in many areas” (p. 54). To avoid adopting this monolingual view, an alternative bilingual view was introduced and has been accepted and widely adopted in bilingual research.

The bilingual perspective defines the bilingual as “not the sum of two complete or incomplete monolinguals” but rather as a person with “a unique and specific linguistic configuration” (Grosjean, 1992, p. 55). Bilinguals’ two languages are interconnected, resulting in a complete language system which is different from that of a monolingual person (Cook, 2002; Grosjean, 1992, 2010; Pavlenko, 2005). The comparisons between monolinguals and bilinguals, thus, should stress “the many specificities of the bilinguals” such as the structure and organisation of language competences, which are different from those of monolinguals (Grosjean, 1992, p. 55). The bilinguals, however, can develop communicative competence equivalent to that of monolinguals or even other bilinguals and multilinguals. This perspective, moreover, evaluates the bilinguals’ use of two languages based on the communicative function needs.

The bilingual perspective has led to the emergence of a state that has been called “*multi-competence*”, which means “the knowledge of more than one language in the same mind or the same community” (Cook, 2003, p. 2). Cook (2016) further specified that this means “everything a single person or a single community knows about all the languages they use” (p. 1). The main idea of multi-competence is that multilinguals do not have separate language systems, but instead their multiple languages are interconnected and influence each other. It also assumes that L2 users have linguistic competence in their L1 and L2 that is different from that of monolinguals of those languages. Therefore, multilinguals are not speakers with “compromised competence” (Pavlenko, 2005, p. 11).

If the two languages are indeed interconnected in the same mind, how does this manifest? To answer this question, Cook (2002) suggested three possibilities for this relationship: the first one is “total separation in which the two languages are independent”, which is called “coordinate bilinguals”. The second possibility is the “total integration in which they form a single system” (Cook, 2002, p. 11). However, these two types of interconnections between languages “could never actually exist” (p. 9). The third possibility is “interconnection”, in which two or more languages are “connected to a greater or lesser degree”. This third possibility is more acceptable than the other ones because it assumes that the two systems of languages are *interconnected* in the mind and “there are overlaps between them”, depending on certain factors, such as L2 linguistic backgrounds (Cook, 2002, p. 15). L2 users, therefore, vary in their linguistic proficiency in the L2. As a result, multi-competence is not a static state but rather a dynamic interaction between languages (Cook, 2016) that affects different aspects of language use.

Based on the above arguments on multi-competence, acquiring another language can also be emotionally advantageous because LX users experience an extended “conceptual and emotional range” of emotional expressions and concepts (Dewaele, 2016b, p. 9). Bi- and multilinguals may also have more freedom to express or code-switch their emotions in their multiple languages. Multilinguals, therefore, can be at a distinct advantage over monolinguals in having *emotional multi-competence* in addition their linguistic multi-competence, as Dewaele (2016b) suggests:

The new language and culture offer LX users new potential emotional selves which they can deploy according to their needs.... The addition of a language

(or a culture) to an individual's repertoire has profound repercussions on the whole system, including the individual's emotional geography. The acquisition of new emotion concepts, and of new sociopragmatic and sociocultural information governing their use, affects the L1 emotion concepts and the way they are verbalised.... LX affective socialization results in a unique multi-competent behaviour both in the L1 and LX. (p. 10)

Indeed, bi- and multilinguals might be at a distinctive advantage (over monolinguals) when it comes to expressing and predicting emotions. Collectively, the studies reviewed so far highlight a critical role for linguistic, cultural, and psychological factors in the emotion formation of bilingual individuals. It is also essential to take into account bilingual individuals' emotion experiences in the context of various cultural values, which may change their emotion perception and expressions. Indeed, bicultural and multicultural individuals were found to be likely to adopt the emotional behaviours of the target culture (De Leersnyder, Mesquita, & Kim, 2011). Therefore, acculturation and biculturalism are one of the factors that may contribute to shaping the emotion experiences of bilinguals and multilinguals.

## **2.5. Acculturation, bicultural identity, and emotional acculturation**

### *2.5.1. Acculturation*

Acculturation exists as a result of the interaction between culture and human behaviours (Berry, 1997). Redfield, Linton, and Herskovits (1936) mentioned that "acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups" (p. 149). According to Berry (2005), acculturation is "the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members" (p. 698). Acculturation, therefore, appears in societies with people from different cultural backgrounds and ethnic groups; these kinds of societies are called *multicultural* or *culturally plural* societies (Berry, 1997). Generally speaking, acculturation takes place on two levels: the group level, which includes changes in the social structure and cultural norms, and the individual level, which includes changes within a person's behaviour. Berry (2005) argued that acculturation is a form

of the broad concept of “culture change”, which results from social, intercultural communication, leading to changes in the cultural forms of “either or both groups” (p. 701).

The cultural groups in multicultural societies “are not equal in power”, which make them divided into minority, mainstream, and majority groups (Berry, 1997, p. 8). These cultural groups also have different reasons for existing in culturally plural societies: *voluntariness* (immigrants who choose to experience the acculturation process), *mobility* (refugees and indigenous people who unwillingly enter the acculturation process), and *permanence* (some immigrants move to a new culture to settle permanently, while others, such as sojourners, settle temporarily) (p. 8). Amongst these groups, this study is interested in the **sojourner** population, their emotion perception, and how their bicultural identity orientations relate to their emotion perception in both languages. More importantly, what is in common in all these groups is adaptation; what differs, however, is the degree of adaptation, the level of difficulties they have, and the effects of acculturation on their social, cultural, and psychological behaviours. Adaptation here means “changes that take place in *individuals* or *groups* in response to environmental demands [emphasis in the original]” (Berry, 1997, p. 13).

Factors thought to influence the degree of acculturation have been explored. Most important of these are the context and the period spent in the target culture (Berry, 1997). Other important factors are age, gender, education levels, cultural distance, and personality. Age may play a vital role in defining the degree of acculturation; children—because of their “personal flexibility”—were found to adapt to the new culture more easily than adults who moved to a new culture later in life (Berry, 1997, p. 21). Gender is another factor that determines the degree of acculturation; women seem to have more difficulties in adapting to the host culture than men. Education levels may also impact the acculturation process; individuals with high levels of education were found to be more flexible in adapting to a new culture (Berry, 1997). Another critical factor is the cultural distance between the home culture and the host culture; the greater the differences between the two cultures, the more difficult individuals find it to integrate (Berry, 1997). Therefore, it can be assumed that the cultural distance between the L1 and L2 cultures might be related to the type of cultural orientation and emotion perception of L2 users as well.

The last factor influencing the degree of acculturation is personality traits. In a study by Benet-Martínez and Haritatos (2005), extraverted individuals were found to be less

influenced by the negative consequences of acculturation, including the acculturative stress (feeling discrimination and strain in linguistic and intercultural relations) of living in a multicultural environment. Negative acculturation experiences, moreover, were found to be related to neuroticism; neurotic individuals were found to feel more anxious and stressed in cultural and linguistic relations, and they perceived more cultural conflict (p. 1036). Furthermore, Chen, Benet-Martínez, and Bond (2008) proposed that individuals' personalities and their style of integrating their cultural identities seem to have an important effect on their reaction to "culturally specific stimuli, leading either to accommodation or to opposition in one's cognitive processes" (p. 807).

Berry (1971) identified two issues associated with acculturation: "cultural maintenance" (the degree of maintaining the cultural identity) and "contact and participation" (the degree of involvement in the new cultural group) (p. 9). In addition, Berry introduced four acculturation strategies that could describe how individuals manage and perceive the relationship between their multiple cultures: 1) "assimilation" (i.e. when minority groups choose to interact with the majority group and not to maintain their cultural identity); 2) "separation" (i.e. when individuals choose to maintain their original cultural identity and avoid contact with majority cultural groups); 3) "integration" (i.e. when individuals hold their original cultural identity while making contact with members of other cultural groups); and 4) "marginalisation" (i.e. when individuals have little interest in both maintaining the original cultural identity to avoid cultural loss or in connecting with other cultural groups just to avoid discrimination) (p. 9). Integrated individuals tend to view their cultures as mixed while marginalised individuals seem to disregard both of their cultures. Meanwhile, the assimilated and separated individuals tend to adopt one cultural identity (either the mainstream or the original culture). Berry (1971) claimed that individuals vary in the degree of adaptation between their behaviour and the new culture; if the fit increases then assimilation and integration strategies are obtained; when the fit decreases, by contrast, individuals demonstrate separation or marginalisation strategies of acculturation, which may result in conflict between cultural identities. Furthermore, Berry (2005) suggested that individuals who adopt the integration strategy are less likely to feel stress than those who experience marginalisation. Those who experience assimilation and separation tend to have intermediate levels of stress and adaptation.

The integration strategy is more dominant in multicultural societies, where individuals seek to keep their home culture (Berry, 1997). Benet-Martínez and Haritatos (2005) commented that Berry's classification of acculturation strategies supports the idea that was introduced by Phinney (1996) that "acculturation is not a linear process, with individuals ranging from unacculturated to assimilated, but rather a multidimensional process that includes one's orientation to both one's ethnic culture and the larger society" (p. 922). However, Benet-Martínez and Haritatos (2005) criticised Berry's taxonomy of acculturation strategies as they argued that Berry did not define how individuals "go about integrating and maintaining the dual cultures" (p. 1018). Moreover, they argued that Berry's scale assesses bicultural individuals through a single score, which seems insufficient to identify individual differences that may be linked to their bicultural identity; for example, some variables—including socio-cultural or socio-cognitive factors—may impact the individual differences in the acculturation process. This led Benet-Martínez, Leu, Lee, and Morris (2002) to propose a new scale: Bicultural Identity Integration (BII), which combines individual differences and bicultural individuals' perception of their bicultural identity. This new scale aims to define the levels through which "biculturals perceive their mainstream and ethnic cultural identities as compatible and integrated vs. oppositional and difficult to integrate" (Benet-Martínez, Leu, Lee, & Morris, 2002, p. 9). Chen, Benet-Martínez, and Bond (2008) also reported that the BII scale is useful because it includes dispositional variables like openness, neuroticism, and acculturative stressors (linguistic and cultural isolation).

### 2.5.2. *Bicultural identity*

Identity researchers have provided several definitions of *identity*. Bonny Norton (2013), for example, defines identity as "the way a person understands his or her relationship to the world, how that relationship is constructed across time and space, and how the person understands possibilities for the future" (p. 7). Norton thus emphasises the importance of temporal and spatial dimensions of identity construction, which takes place during negotiation between a person and the world. One important factor that has been shown to have an impact on aspects of identity is language (Arnold, 1999; Coffey, 2013; Kramsch, 2009; Norton, 2000, 2013). It is through language that individuals can construct their identity and are socialised in any community; for example, through the ability to communicate verbally. For language learners, identity is constructed every time they speak, write, or read in the target language, as well as through engagement with the target speech community. Engagement in the L2

environment, more specifically, leads language learners to organise and reorganise their sense of identity and relationship with the social world they live in (Norton, 2013).

In bilingualism research, the term *biculturalism* refers to the process where “a person is realised in his ability to act here and now according to the requirements and rules of the cultures” (Oksaar, 1983, p. 20). It can be assumed that biculturalism is similar to the integration strategy of acculturation (see Berry, 1971; Chen, Benet-Martínez, & Bond, 2008). This means that bilinguals, in most cases, employ their languages for different communicative functions and roles, depending on the cultural context they are in (Hoffman, 1991). Bilinguals often use their L1 at home while using their L2 in official and other socio-cultural contexts when living in the L2 environment (Hoffman, 1991). However, this cannot be generalised to all bilinguals. In fact, certain factors may contribute to the degree of biculturalism amongst bilinguals. One of these factors is age; children and young teenagers who grow up in an L2 environment seem to be influenced by L2 cultural norms more than their parents. This may lead to child-parent conflict since parents, unlike young teenagers and children, are more likely to try to keep their L1 cultural norms (Hoffman, 1991).

There is an indication in cross-cultural literature (e.g. Benet-Martínez & Haritatos, 2005; Berry, 1971; Chen, Benet-Martínez, & Bond, 2008) that bilinguals develop a *bicultural identity* through the process of engagement and acculturation to a world of cultural traditions and practices. *Bicultural identity*, thus, refers to “a local identity” which is embedded in the ethnic traditions, norms, or practices of the culture of origin and “a global identity” which emerges as a result of an individual’s adaptation to “the demands of an emerging culture of multiculturalism” (Chen, Benet-Martínez, & Bond, 2008, p. 806). Bicultural identity, more specifically, means “the selective incorporation of cultural elements” from the cultures a person is exposed to during her/his life (p. 806). For the purpose of this present study, this definition of bicultural identity is adopted with the aim of examining the impact of the perception of the relationship between cultural identities (i.e. the ethnic and the mainstream cultural identities) on the perception of emotions.

The relationship between multiple cultural identities, emotions, and language learning is complex. A careful review of the (mostly qualitative) research on this topic in the socio-cultural literature (e.g. Arnold, 1999; Coffey, 2013; Kramsch, 2009; Ros i Solé, 2016) has revealed that emotions are considered to be socio-cultural experiences, in which language

learning impacts emotions as part of identity and development. In other words, emotions themselves constitute an essential part of a person's identity and development. This socio-cultural approach to emotions and multiple identities assumes that as long as language learners are exposed to an additional language, they experience new emotions. Thus, they acquire different views of the self and inhabit alternative worlds, which "make sense not only through the engagement of imagination but also physical and social encounters with new cultures" (Ros i Solé, 2016, p. 97; Kramsch, 2009). In this perspective, social engagement in the new language allows language learners to "unlock their inner worlds" (Ros i Solé, 2016, p. 101) experience new emotions, and to rethink and "refashion their private lives and personal stories" (p. 114). Ros i Solé (2016) describes the relationship between emotions, language learning, and identity in the following way:

Emotions are seen as a way to enrich our human experiences: our relationships in another language and our understanding of the world around us. Emotions in language learning can lead to worlds of possibility for the self; they can open new windows to how we see and experience our surroundings. The promise of emotions is the window of opportunities for becoming something else, and the personal transformation that language learning offers. (p. 115)

Ros i Solé (2016) thus indicates that language learners' exposure to the linguistic, social, and cultural practices in the target language offers them socio-cultural experiences that allow them to acquire a richer set of emotions and feelings. Arnold (1999) emphasised the importance of concentrating on emotions and affect in SLA research. She suggested that attention to emotions in classrooms can confer positive changes and can increase the effectiveness of the second language learning and teaching process.

Claire Kramsch (2009), in her focus on subjective aspects of language acquisition, argued that language learners are individuals with a rich repertoire of feelings and powerful desires. She thus took on an inclusive perspective, indicating that language learning is seen as a process that is influenced by the language learner's subjectivity, emotions, and perception. Subjectivity in language learning here refers to the significant role of the inner world of language learning, and the role of social engagement in the target language in shaping this inner world (Kramsch, 2009). Kramsch emphasised that emotions play an important role in

constructing identity because social practices in the new culture give language learners new emotional scripts. In her approach, Kramersch (2009) focused on the subjectivities of becoming multilingual, where she defined the subject as a “symbolic entity that is constituted and maintained through symbolic forms” (p. 18). Language use is “symbolic” because it mediates multilinguals’ “existence through conventional symbolic forms” and hence those symbolic forms “construct subjective realities” such as perceptions and emotions (Kramersch, 2009, p. 7). Multilinguals, thus, have deep personal reactions to language use, which hence could impact their engagement cognitively, physically, and emotionally. Kramersch (2009) argued that the multilingual subject becomes “aware of the gap between the words that people utter and the many meanings that these words could have, between the signifiers and the possible signified, between who one is and who one could be” (p. 18). In Kramersch’s argument, language is an element of representation, creation, and a lived reality, and multilingual subjects need to successfully engage in the interplay of both the conventional and personal meanings of their language use.

Returning to the issue of bicultural identity, Benet-Martínez and Haritatos (2005) suggested that bicultural identities are classified around two main dimensions. The first one is the perceived *cultural distance* between the dual cultures, ranging from remote to overlapping. The second dimension is *conflict* in maintaining the two cultural identities, ranging from disagreement to a harmonious relationship. The perception of *cultural distance* is often influenced by specific acculturation factors such as language proficiency, years spent in each culture, and identification with the mainstream culture. In other words, the cultural distance was related to the amount of cultural exposure and acculturation attitudes (Benet-Martínez & Haritatos, 2005). Benet-Martínez and Haritatos attributed the cultural distance to the bicultural individuals’ evaluation of the degree of similarities and differences between the original and the target cultures. *Cultural conflict*, on the other hand, was not related to such factors. Instead, the cultural conflict was linked to personality traits such as neuroticism and experience of acculturation stress (Benet-Martínez & Haritatos, 2005). Length of stay in the host culture was found to affect the perception of cultural distance between cultures. Benet-Martínez and Haritatos (2005) examined the individual differences in the construction of bicultural identity of 133 first-generation Chinese-American biculturals and how these differences were connected to their personality traits. The findings revealed that the number of years spent in the target culture was linked to the perceived cultural distance; individuals who came to the

United States later in life seemed to perceive more cultural distance between the two cultures than those who came earlier in life.

Benet-Martínez et al. (2002) argued that bicultural individuals differ in the way they manage and perceive their dual cultures. For example, they differ in their perception of their dual cultures; some view their two cultures as compatible and complementary whereas others consider their two cultures to be oppositional and contradictory (Benet-Martínez et al., 2002, p. 493). However, personality traits may affect how individuals classify their dual cultures (Benet-Martínez et al., 2002). The degree of knowledge of the cultural values and beliefs of the two cultures, attitudes towards both cultures, and communication skills might also affect the perception of the relationship between them (LaFromboise, Coleman, & Gerton, 1993). Herrmann and Brewer (2004) proposed a model that describes the relationship between the multiple identities of individuals living in a larger community: nested, cross-cutting, or separate (p. 8). With nested identities, national identities are integrated or “subsumed” by local identities. Cross-cutting identities are found when some members of one identity group belong to another identity group. Separated identities are found when an individual belongs to “non-overlapping” identities.

LaFromboise, Coleman, and Gerton (1993) discussed the psychological effects of biculturalism and provided five bicultural models that described the relationship between the cultural identities of individuals exposed to multiple cultures. Their models include assimilation, acculturation, alternation, multiculturalism, and fusion. The first model, assimilation, is used to describe the ongoing process of adopting the dominant cultural identity, during which an individual suffers from stress and social problems until she/he perceives the target culture’s acceptance of her/him. The acculturation model is similar to the first model but differs in that, although the individual develops a dominant cultural identity, she/he still perceives herself/himself as a member of the original/minority culture. The alternation model refers to individuals’ understanding of the two cultures and the ability to switch to any one of them, depending on the social situation. This can be described as code-switching between the two cultures, similar to the way bilinguals code-switch between their languages in communication. This kind of bicultural model leads to less psychological problems (like stress) because the individual is aware of how to modify their behaviours based on the social contexts in both cultures (LaFromboise, Coleman, & Gerton, 1993). This means possessing the ability to maintain both cultural identities. The multicultural model promotes the positive identities of

the minority cultures of individuals working with other people from different cultures to address national, political, and economic needs. The last model, the fusion model, describes the fusion of two similar cultures regarding political, economic, and geographical properties, which may result in a distinguishable new cultural identity.

More recently, Comănaru, Noels, and Dewaele (2018) investigated the bicultural identity orientations of 300 young adults from immigrant families in Canada. The researchers also developed a new bicultural identity orientation scale (BIOS), which includes the subscales of *conflict*, *monocultural*, *alternation*, *complementary*, and *hybrid* identity orientations. This “instrument showed sound validity and reliability” (p. 12). The findings of their quantitative and qualitative studies suggested that bicultural individuals who perceived their cultural identities as being opposed (i.e. in conflict) are less likely to adjust psychologically. The complementary and hybridity orientations were interrelated, suggesting positive attitudes towards their original and Canadian cultures. However, how well individuals perceive their dual cultures depends on their personality, life history, and linguistic proficiency.

Overall, these studies suggested that migration is a life-changing event that can occur at any point in time and results in a shift in different domains of personality, language use, socio-cultural relationships, and psychological well-being. Based on the above, one may suppose that acculturation and the perception of bicultural identity may impact immigrants’ emotions. Indeed, previous studies have confirmed this hypothesis and showed that immigrants’ emotions acculturate to resemble the emotions of people in the target culture (Boiger & Mesquita, 2012; De Leersnyder, Mesquita, & Kim, 2011). This phenomenon occurs for different purposes and takes different forms. The next section will address how acculturation impacts emotional experiences in more depth.

### 2.5.3. *Emotional acculturation*

According to Mesquita (2010), “Emotions are first and foremost a type of connection with our social worlds” (p. 83). Multilinguals and immigrants need some time to be able to identify and adopt the display rules of emotions in new linguistic and cultural contexts (Dewaele, 2015a). When immigrants move to their new culture, they experience difficulty in perceiving emotions and the emotional intensity expressed by the speakers of the target culture.

Consequently, this results in miscommunication (Dewaele, 2015a). An important factor that might determine the degree of acculturation is linguistic proficiency (Hoffman, 1991). Thus, high levels of linguistic proficiency of the language spoken by the host culture's people might accelerate the acquisition of emotional and social skills necessary for affective communication in the L2 culture.

Mesquita (2010) argued that emotions “may differ in the ways that fit the cultural models” (p. 98) of the host culture, which is referred to as the *emotional acculturation*. De Leersnyder, Mesquita, and Kim (2011) argued that people's psychological processes and emotional experiences are changed as a result of the acculturation processes and their “internalisation of the new culture”, which is also referred to “emotional concordance” (p. 452). Only immigrants who engage successfully in the host culture's practices can internalise the new culture. This means that emotional acculturation is not influenced by attitudes, but rather by the degree of involvement in the new culture and the amount of exposure to the host culture's social practices. De Leersnyder, Mesquita, and Kim (2011) stated that “people's emotions become attuned to their enduring social relationships” (p. 451).

Boiger and Mesquita (2012) argued that emotions are “ongoing, dynamic, and interactive processes that are socially constructed” (p. 221). These ongoing processes develop and change over one's lifespan and are shaped by social interactions (Boiger & Mesquita, 2012). The researchers analysed the construction of emotions on three different levels: *moment-to-moment interactions*, *ongoing relationships*, and *socio-cultural contexts*. At the first level, “moment-to-moment” interactions, emotions are seen as constructed at the moment of interaction. The evidence of this assumption has been provided by studies on infants' ability to recognise emotions when interacting with caregivers, by studies on adults' emotions when they emerged as a result of the interactions and “on-going exchange” between people, and by studies on strangers who tend to adopt the emotional behaviour of their counterparts (Boiger & Mesquita, 2012, p. 224).

On the second level, *ongoing relationships*, emotions are constructed and developed based on ongoing relationships with other individuals, and certain emotions (e.g. *anger*) are expressed depending on what kind of social relationship it is. For example, in marital conflict, *anger* is expressed depending on the quality, and the expected future, of the relationship. At the third level, emotions are constructed based on the *socio-cultural context*. Individuals

belonging to individualist cultures express their emotions differently from those in collectivist cultures due to cultural constraints and social practices. At this level, emotions are constructed based on the cultural models which guide the individuals' values, goals, and concerns. These cultural models involve "practices" which may "increase or decrease the likelihood of appraisals and emotion as well" (Boiger & Mesquita, 2012, p. 225). These practices are observed in the different ways people express their anger, affiliation, politeness, and other affective states in different cultures. Furthermore, cultural models guide emotional behaviour and emotional responses. Because of these cultural models, emotions differ and change depending on the social relationships and cultural contexts.

De Leersnyder, Mesquita, and Kim (2011) conducted two studies to investigate whether immigrants' emotions approximate the emotional patterns in the host culture. The first study was conducted with 47 Korean immigrants in the United States, while the second one was conducted with 59 first-generation and 85 second-generation Turkish immigrants in Belgium. The Korean participants had similar educational backgrounds and were in a similar social class as the majority of the Americans, whereas the Turkish immigrants were less education and were from the working class. The participants were required to answer an Emotional Patterns Questionnaire (EPQ), in which participants had to describe a recently encountered situation that elicited one of the four classes of emotions (positive-engaged, negative-engaged, positive-disengaged, and negative-disengaged) in their L1 (East Asian) and L2 (North American) cultural contexts. The findings of the first study showed that Korean immigrants, who spent more time in the host culture and had more social contacts and relationships with members of the host culture, had higher emotional concordance with the emotional patterns in the host culture. The results of the second study revealed that the time immigrants spent in the host culture (Belgium) was linked to their emotional concordance, and there was a positive association between age and the emotional concordance (as in the first study). However, the extent of social contact with members of the host culture did not influence the immigrants' emotional concordance. The researchers provided two possible explanations for their findings: "emotional patterns may change either because immigrants who are introduced in the new culture will experience different situations or because immigrants start appraising the same situations differently" (De Leersnyder, Mesquita, and Kim, 2011, p. 461). This means that this emotional acculturation is a consequence of an external factor (i.e. the experience itself) or an internal factor (i.e. a conceptual shift either in emotional categories or in the way they appraise the situations). Moreover, individuals tend to change their emotional patterns to fit the cultural

contexts (Mesquita, Boiger, & De Leersnyder, 2016). It seems that individuals' ability to change their emotions helps them act accordingly in the different social and cultural contexts throughout their lives.

Having discussed the linguistic and cultural factors that are related to emotion experiences, the next section will present the literature on the psychological factors, namely *emotional intelligence*, which seems to be most related to emotional experiences and perception.

## **2.6. Emotions and psychological factors—emotional intelligence (EI)**

In psychology, emotional intelligence (EI) is considered to be a part of mental health and, as discussed earlier in this chapter, emotion concepts are mental representations of emotions. Therefore, the conceptual representation of emotions should be influenced by mental health.

The exact definition and measurement of EI remain a hot topic in the field (Barrett, 2017a). For the classical view of emotions, EI is mainly the ability to detect the emotions of others and the ability to express the right emotion at the right moment; for example, in order to experience happiness and avoid sadness in particular situations (Mayer & Salovey, 1997). This definition of the classical view of EI assumes that emotions are universal objects associated with certain and known emotional behaviours and patterns shown on faces and the body, and that the perceiver is responsible for detecting facial expressions and other emotional cues. On the other side of the debate, the constructed theory of emotions assumes that EI is a personality trait that can be developed by learning more emotion words as well how and when to use them, either to experience these emotions within themselves or to perceive them in others (Barrett, 2017a). As Barrett suggested, in order to be an emotionally intelligent person, it is better to “beef up your concepts” (p. 179). EI, according to Barrett, is “about getting your brain to construct the most useful instance of the most useful emotion concept in a given situation” (p. 179). In Barrett's definition, EI is best described in terms of emotion concepts. In other words, in order to achieve high levels of EI, a person should develop her/his emotional granularity (i.e. a rich repertoire of emotion words and concepts) by learning emotion words not only in the L1 but also in other languages—*especially if no emotion words exist to represent certain emotion concepts in the L1*.

By developing emotional granularity, people can become emotionally expert; they can express their emotions and perceive emotion variations in others (Barrett, 2017a). For example, a person who has only two emotion concepts—“Feeling Awesome” and “Feeling Crappy”—to describe different affective states “cannot be very emotionally intelligent” (p. 180). In contrast, people who know rich emotion words to distinguish emotion instances of feeling awesome like “happy, content, thrilled, relaxed, joyful, hopeful, inspired, prideful, adoring, grateful, blissful...” are more likely to be emotionally intelligent and can master their emotions (p. 180). Their brains contain more emotion concepts, which allow them to choose emotion words that fit each specific situation. Therefore, they can experience, predict, categorise, and perceive emotions “more efficiently” and they are also “flexible when regulating their emotions” (p. 182).

Acquiring emotion concepts is, therefore, the key to developing EI (Barrett, 2017a). Barrett also suggested that emotionally intelligent people tend to acquire new emotion concepts and hone existing emotion concepts. This can be achieved by reading books or watching movies, for example, but the easiest way is to learn emotion words and link them with emotional experiences. By doing so, people can “provoke brain to combine concepts from new ones” and subsequently, people “will predict and behave differently later” (p. 180). Learning emotion words, therefore, is associated with emotional well-being and emotional intelligence (Barrett, 2017a). Words also allow people to interpret others’ emotions. Thus, the choice of words shapes people’s prediction about the emotions of others. Barrett (2017a) further suggested that “if you want someone else to know what you’re feeling, you need to transmit clear cues for the other person to predict effectively and for synchrony to occur” (p. 197). Therefore, having a variety of emotion words that fit the situation is an indicator of emotional well-being or emotional intelligence and learning emotion words will “seed new concepts that are a basis for constructing emotional experiences and perceptions” (p. 197). Based on the above argumentation, it can be hypothesised that bilinguals are more likely to have opportunities to learn new emotion words when acquiring a new language and that they may develop conceptual systems that are different from those of monolinguals. Allegedly, this rich conceptual system enhances their EI. However, this is only speculation from the theoretical point of view. Dewaele (2018c) investigated the relationship between multilingualism and the trait emotional intelligence (TEI) of 1,278 participants and found that no statistical relationship

existed between the two factors. Dewaele explained that TEI might not always be shaped by social environmental factors such as multilingualism.

There are two main perspectives of EI, both sharing the idea that EI is outside the realm of cognitive abilities; instead, it refers to social and emotional knowledge (Mayer & Salovey, 1997; Petrides & Furnham, 2000). The first perspective of EI is the ability model (Mayer & Salovey, 1997), in which EI is defined as “the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth” (p. 5). According to this perspective, EI is an ability with four dimensions: emotion identification, emotion utilisation, emotion understanding, and emotion regulation. Because EI is seen as an ability, it is assessed by intelligence-like tests (i.e. performance tests). The second perspective, on the other hand, is the trait perspective (Petrides & Furnham, 2003). Under this perspective, EI is considered to be a personality trait that is linked to emotional self-efficacy. Trait emotional intelligence (TEI) refers to “a constellation of emotion-related self-perceptions and dispositions” (Petrides & Furnham, 2003, p. 40). Therefore, according to this model, EI is measured through self-report questionnaires. TEI is usually assessed through the TEIQue (Trait Emotional Intelligence Questionnaire, Petrides & Furnham, 2003). It is a valid instrument to measure EI, and it is available in over 20 languages worldwide. However, since the assessment is a questionnaire, its scores lead only to predictions about emotional knowledge. Yet, in addition to emotional knowledge, TEI itself also includes the social aspects of personality. For the purpose of this study, the second perspective (i.e. the trait perspective) is adopted with the aim to assess the link between TEI and bilinguals’ and monolinguals’ perception of emotions in their languages.

TEI encompasses 15 facets organised under four main factors: *well-being*, *emotionality*, *self-control*, and *sociability* (Petrides & Furnham, 2003). The factor *well-being* is characterised by the ability to feel cheerful and satisfied with life (happiness), to have self-confidence (self-esteem), and to look on the bright side of life (optimism). The *emotionality* factor is related to the ability to take on someone else’s perspective (empathy), of understanding people’s feelings (emotion perception), of communicating feelings to others (emotional expression), and of maintaining fulfilling personal relationships (relationships). The *self-control* factor involves the ability to control emotions (emotional regulation), being less likely to give in to urges (impulsiveness), and to withstand pressure and regulate stress (stress management). The final

factor, *sociability*, is categorised by the ability to influence other people's feelings (emotional management), to stand up for oneself (assertiveness), and to build networks using superior social skills (social awareness). In addition to these factors and facets, there are also two independent facets: *self-motivation* and *adaptability*. Amongst these factors, emotionality appears particularly relevant for this current study, as it specifically targets abilities related to emotion perception and emotion communication.

TEI, however, is not only associated with emotion-laden information, but also with other personality traits and cognitive abilities, such as mood induction (Ciarrochi, Chan, & Bajgar, 2001; Petrides & Furnham, 2003), academic performance and deviant behaviour (Petrides, Frederickson, & Furnham, 2004), social support and mood management behaviour (Ciarrochi, Chan, & Bajgar, 2001), feeling different when speaking an LX (Ożańska-Ponikwia, 2012, 2014), and communicative anxiety and foreign language anxiety (Dewaele, Petrides, & Furnham, 2008). For example, in Dewaele, Petrides, and Furnham's (2008) study on multilinguals, TEI had an impact on levels of communicative anxiety (CA) and foreign language anxiety (FLA). It was found that participants who scored lower in TEI suffered more from CA/FLA in their L1 and their LXs. In contrast, participants with high levels of TEI suffered less from CA/FLA across the different languages they spoke and in different situations.

TEI has been found to be related to children's socio-emotional skills and academic performance (Mavroveli, Petrides, Sangareau, & Furnham, 2009). The researchers conducted a study on 140 children (aged between 8-12 years) in English schools. The results revealed that TEI was significantly correlated with the children's emotion perception and cognitive abilities. Although TEI is independent of cognitive ability, it has a crucial role in predicting emotional and social skills (Mavroveli, Petrides, Sangareau, & Furnham, 2009). Barrett (2017a) found a link between learning emotion words and high levels of TEI in the case of students. It seems that a rich emotion vocabulary is an indicator of pupils' academic performance and high levels of TEI; pupils with a rich emotion vocabulary were more likely to perform better in school (Barrett, 2017a). It can be hypothesised that using a wide variety of emotional expressions and emotion words with children allows them to develop their conceptual emotion systems (Barrett, 2017a), which may improve their EI and their ability to manage their emotions later in life.

The evidence presented in this section suggests that EI is one of the psychological skills that can impact the way individuals perceive, construct, as well as experience emotions. So far, the literature presented in this chapter addressed the independent variables in this study (linguistic, cultural, and psychological factors, as well as bilingualism). The following sections will address the literature on the dependent variable, namely emotion perception and the perception of the intensity of emotions, from both monolingual and bilingual points of view.

## 2.7. Emotion perception

Psychologists supporting the universality of emotion perception use the term **emotion recognition ability (ERA)** to refer to the ability of individuals to detect or recognise emotions that are displayed on faces, voices, or the body (Ekman, Friesen, & Tomkins, 1971). This emotion recognition, according to basic emotion theories, is assumed to happen automatically either because it is innate (Izard, 1994), pan-cultural (Ekman, 1994), or natural categories of emotions (Ekman, 1997; Ekman & Friesen, 2003). Language, according to this perspective, has a minor or no role in emotion perception and recognition.

The psychologists that support the theory of constructed emotion rejected the term *emotion recognition* because it assumes that emotions have fixed fingerprints that are expressed by faces, voices, or bodies, and instead suggested an alternative term called **emotion perception**, which seems to be more neutral (Barrett, 2017a). Emotion perception, according to this theoretical perspective, refers to “a complex mental process that does not imply a neural fingerprint behind the emotion, merely that an instance of emotion occurred somehow” (p. 40). Barrett argued that if individuals could interpret emotions via certain facial expressions, such as smiling to signal happiness, it is because they might previously have learned these expressions in their cultures. Additionally, some facial expressions, like smiling, pouting, or crying can be considered to be stereotypes that individuals might learn early in their life through, for example, school, reading storybooks, or watching animations. Thus, individuals may perceive instances of emotion, and they are more likely to agree on their perception, particularly if they share the same emotion concepts.

The ability to recognise emotions reflects individual differences in sensitivity to emotion-laden stimuli. For example, a number of studies in psychology have reported that women generally are better than men at identifying emotions, especially in facial expressions

(Hall, 1984; Kirouac & Dore, 1985; Rotter & Rotter, 1988), vocal cues (e.g. Bonebright, Thompson, & Leger, 1996; Dromey, Silveira, & Sandor, 2005), and lexical-emotional stimuli (Grunwald et al., 1999). Several explanations have been offered for this female advantage in ERA. One possible explanation is that women might have been socialised to decode certain emotions from earlier ages than men. This perspective is influenced by stereotypic gender beliefs—especially in Western culture—about emotional expressions; for example, men are supposed to demonstrate their strength through angry and nervous behaviours, whereas women are stereotyped as weak, withdrawn, submissive, and vulnerable (Timmers, Fischer, & Manstead, 2003). Another explanation might lie in the differences in the cognitive processing capabilities of females and males (Hall & Matsumoto, 2004). It might also be that women’s superiority in identifying emotions stems from their ability to use more expressive non-verbal behaviours, allowing them to easily perceive those behaviours in their interlocutors (Briton & Hall, 1995). However, men were reported to be better than women at identifying the emotion *anger*, especially when expressed by male actors (e.g. Bonebright et al. 1996; Rotter & Rotter, 1988). Furthermore, men tend to display emotions such as anger, pride, and contempt while women were found to more often display emotions such as happiness, sadness, fear, shame, guilt, and surprise (Brody & Hall, 2008). Based on these observations, it seems that gender differences in emotion perception are mediated by socio-cultural factors, personality, gender stereotypes, situational circumstances, and the type of emotion.

It has been reported that the ability to recognise emotions changes with age. Several studies have documented that younger participants were more accurate in interpreting emotions than older participants (e.g. Brosgole & Weisman, 1995; McCluskey & Albas, 1981; Mill, Allik, Realo, & Valk, 2009). One possible explanation might lie in age-related mental health problems such as depression and incipient dementia, which might cause impairment in emotion recognition abilities. A study by Brosgole and Weisman (1995) found that there was a progressive decline in the recognition ability of facial expressions—especially angry faces—beginning at the age of 45. Moreover, those aged 3-12 showed improvement in their ability to decode emotions from auditory prosody. Mill, Allik, Realo, and Valk (2009) investigated the ERA of facial and vocal expressions of 607 participants (aged 18-84 ( $M = 32.6$ ,  $SD = 14.9$ )) (p. 619). The authors found that age-related decline starts at the age of 30. Older participants were less accurate in identifying negative emotions (i.e. sadness and anger) in both modalities. The authors explained that older participants might “learn to ignore negative information, making them insensitive to negative expression of emotion” (p. 627).

The link between emotion perception or ERA and emotional intelligence has been established and elaborated on in previous studies in personality psychology (Austin, 2004; Barrett, 2017a; Ciarrochi, Chan, & Bajgar, 2001; Petrides & Furnham, 2003). For instance, Barrett (2017a) argued that EI is highly associated with emotion perception. However, there is a hot debate between the classical view of emotions and the theory of constructed emotions about the ways EI is related to the ability to perceive emotions in others. In the classical view, individuals can accurately detect emotions through non-verbal cues, which are assumed to be inborn and universal. In the theory of constructed emotions, by contrast, it is a myth to claim “we *know* how other people feel [emphasis in the original]” (Barrett, 2017a, p. 195). Instead, people only agree or disagree on their perceptions of others’ emotions because perceptions are only “guesses”. If they agree, then they are in sync, and emotional communication happens. Individuals with a shared language and culture are more likely to be in sync when communicating their emotions. Barrett (2017a) explained by using the following example: if you communicate with your friend, and he says, “I am proud of my child’s accomplishment at school”, then you construct and perceive the instance of *pride* based on your past experiences and your prediction of what pride is, and whether he is referring to pride in a negative way or a positive way. If you share the emotion concept with your friend and you both belong to the same culture, then you will be in sync regarding this conception. In this way, “emotional communication happens, therefore, when you and I predict and categorize in synchrony” (Barrett, 2017a, p. 195). Based on this argumentation, it can be assumed that people who have rich emotion concepts can predict a variety of emotion instances.

Petrides and Furnham (2003) examined the link between TEI and the emotion recognition ability of the six basic emotions (*happiness, sadness, fear, disgust, anger, and surprise*). The sample included in their study, however, was made up of extreme-scoring groups with 10 high and 10 low TEI participants. The findings showed that participants with high TEI scores were better at identifying emotions through facial expressions than those with low scores. The researchers explained that participants with high levels of TEI seemed to “be more sensitive to emotion-laden stimuli in general” (Petrides and Furnham, 2003, p. 46). The findings, however, may not have been enough to conclusively rule on the relationship between TEI and emotion recognition, and more variations in participants’ scores would be useful to understand the association more clearly.

In another study by Austin (2004), the relationship between TEI and the ability to recognise emotions through facial expressions was measured using the inspection time (IT) paradigm to assess the speed of processing emotional information through the tasks. The stimuli of emotion recognition tasks were adopted from the Ekman 60 Faces Test. The results revealed that Appraisal of Emotions was strongly associated with the participants' performance on the emotional IT tasks, and TEI self-reporting regarding emotion perception ability was useful in measuring performance.

Ciarrochi, Chan, and Bajgar (2001) examined the relationship between EI and skills in identifying emotional expressions, amount of social support, and mood management behaviour of 131 adolescents (aged 13-15 years). The findings showed that EI was associated with the recognition of facial expressions, amount of social support, and the extent of satisfaction with social support. However, emotion recognition of the facial expressions was only associated with the overall score of EI rather than the sub-factor of EI: emotion perception (Ciarrochi, Chan, & Bajgar, 2001). The researchers attributed this finding to the adolescents' failure to report their emotion perception skills accurately.

In another study that focused on L1 users, Dewaele, Lorette, and Petrides (2019) explored the individual differences in ERA of 150 British and 151 American English L1 users. The emotions included in their study were the six basic emotions *anger*, *fear*, *disgust*, *sadness*, *surprise* and *happiness*, which were portrayed in audio-visual video clips by a British L1 English-speaking actress. The findings showed no significant difference between English L1 users in their ERA. The TEI and linguistic proficiency levels were significantly associated with the ERA scores, with participants who scored high in TEI and language proficiency tests performing better in the ERA task. The researchers also found a significant interaction between language proficiency and TEI on the ERA score. In other words, the findings suggested that participants with lower levels of linguistic proficiency might have relied more heavily on their TEI to interpret emotions. The researchers explained that participants with high linguistic proficiency levels might have had high levels of verbal aptitude that allowed them to understand the linguistic input in the stimuli. Based on the above evidence, a link is expected to exist between TEI, language proficiency, and the ability to interpret emotions, particularly in the case of L1 users.

### 2.7.1. In/out-group advantages in emotion perception

From the cultural psychology perspective, agreement on emotion perception by members of a group is called an *in-group* advantage in emotion recognition (Ekman, 1972; Matsumoto, 1989). This means that individuals belonging to the same cultural group can perceive emotions at higher levels of accuracy than those outside of the cultural group. It also specifically refers to the degree of cultural, linguistic, ethnic, and social familiarity between the expresser and the perceiver of emotions (Elfenbein & Ambady, 2002, p. 204). Ekman (1972) and Matsumoto (1989) demonstrated that an in-group advantage in emotion recognition ability is influenced either by cultural *display rules* of decoding and expressing emotions or by the *cultural norms* that every culture imposes on its members (i.e. individualist versus collectivist cultural models). However, Elfenbein and Ambady (2002) disagreed with this view because it implies that the in-group advantage is linked to “subtle stylistic differences across cultures” (p. 205). Instead, they argued that individuals belonging to a particular culture, whether they grew up in that culture or were exposed to it later in life, tend to learn culture-specific emotional behaviours. This emotional behaviour learning allows individuals to interpret the emotions they see on other members of their own cultural/linguistic groups.

Several studies have been published on the different types of emotional cues people usually pay attention to across cultures (de Gelder & Veld, 2016; Ekman, Friesen, & Ellsworth, 2013). There are, basically, two major types of emotional cues: verbal and non-verbal channels. Verbal channels involve linguistic content, namely emotion words and expressions. Non-verbal channels, on the other hand, include visual cues (e.g. facial expressions or body posture) and emotional vocal cues. Each one of these channels has communicative functions (Elfenbein & Ambady, 2002). “The face”, for example, “appears to be the most skilled non-verbal communicator” (Ekman, Friesen, & Ellsworth, 2013, p. 3). One possible reason for this is the richness of facial muscle movements involved in emotional expressions. Facial configurations, therefore, involve more than one emotional meaning in a given context. Ekman, Friesen, and Ellsworth (2013) noted that:

The very richness of the face, the number of different facial behaviors, the number of different kinds of information we may derive from observing the face, and the uncertainty about whether we are obtaining correct, incorrect, or even purposefully misleading

information, can give rise to *confusion* [emphasis in the original]. (p.

2)

Early studies supporting the classical view of emotions conducted their experiments using methods to test how well people from different cultures recognise others' emotions based on facial expressions. In one study, Ekman, Friesen, and Tomkins (1971) tested how well people from different cultures (Germany, Italy, United Kingdom, Scotland, France, Sweden, Switzerland, Greece, Argentina, Brazil, Chile, and Estonia) recognise the six basic emotions using photographs of posed faces. The participants were asked to choose, from a list of emotion words, the words that best fit the facial expressions in each photo. The researchers argued that their results supported the theory of the universality of emotions, as about 85% of the participants showed very high agreement in their recognition. However, Barrett (2017a) criticised Tomkins and colleagues' method and argued that using the forced-choice technique is "an unintentional cheat sheet for the test subjects" (p. 45). Barrett further stated that using a list of emotion words prompts the participants "to simulate facial configuration for the corresponding emotion concepts, preparing them to see certain emotions and not others" (p. 45).

Tombs, Russell, and Ashkanasy (2014) conducted an experimental study to examine the ability of 153 participants to identify the emotional facial expressions of complaining customers from different cultures: Anglo (Australia, England, White South Africa, New Zealand, Canada, Ireland, and USA) and Confucian Asian (China, Singapore, Taiwan, Hong Kong, South Korea, and Japan). The stimuli used in the experiment were video vignettes (silent videos) of emotional expressions of *anger*, *happiness*, *shame*, and *fear*. The participants played the roles of service providers and had to identify the facial emotional expressions of the customers from Anglo and Confucian cultures. The results revealed that participants could better identify anger expressed by customers belonging to their cultural group. This ability was attributed to the familiarity with display rules of anger in their cultures. Generally, the Anglo group could identify anger more easily than the Confucian group. This evidence again demonstrates the cultural variations between individualist cultures, which endorse the expression of even negative emotions, and collectivist cultures, which encourage their people to control their anger in social contexts. This led the Confucian to be happier than Anglo customers (see Matsumoto et al., 1998).

Taken together, these studies have reported an in-group advantage in the emotion recognition of facial configurations. The existence of this advantage in emotion recognition reflects cultural variability, in which individuals can easily read the emotions displayed in “same-race facial stimuli” (Elfenbein & Ambady, 2002, p. 230). Of course, those studies that used posed faces do pose methodological concerns, because posed photographs are probably “stylized and exaggerated to improve legibility” (Elfenbein & Ambady, 2002, p. 230), and they lack validity (Alves, 2013; Mesquita & Frijda, 1992). Russell and Fernández-Dols (1997) argued that “poses ... are assumed to be artificial, symbolic, produced on demand, deceptive in nature, and aimed at an audience” (p. 22). Instead, spontaneous facial expressions are seen to be more authentic and naturally occurring and can be more “communicative in nature and directed towards a specific audience” (p. 23). Furthermore, spontaneous facial expressions in dynamic stimuli can “provide richer and more ecological information that might be more difficult to decode out of context but may be less susceptible to cultural conventions” (Elfenbein & Ambady, 2002, p. 230). Indeed, dynamic facial expressions are ecologically valid and are preferable in emotion research because they are closer “to real situations of social interactions” (Alves, 2013, p. 130).

*Vocal cues* that are comprised of a vocal system and convey emotional signals such as laughter or screaming play an important role in emotion perception as well (Schirmer & Adolphs, 2017). Emotional vocal cues have distinctive features, such as the tone, intonation, stress, volume, pitch, and speed and involve “vocal profiles” that are based on “a psychobiologically determined emotion mechanism, modified by cultural factors” (Pavlenko, 2005, p. 45). Because vocal cues imply different emotional meanings, it is important that they are defined clearly in studies that examine differences in emotional vocalisation. Pavlenko illustrated that similar vocalisations could signal a variety of emotions; for example, loudness and a higher pitch can signal *happiness*, *anger*, and *fear* even though they are different emotion categories. Another factor influencing vocalisations is the degree of emotionality, which might affect emotional meaning instead of changing the “discursive styles” (Pavlenko, 2005, p. 48). In some cultures, for example, people raise their voices not because they are angry but because of their discursive style; others raise their voices to express anger, despite normally speaking softly. Consequently, vocal cues might be misunderstood in different social and cultural contexts because some vocal cues may alter the meaning of the message. In fact, Mehrabian and Wiener (1967) found that the influence of tone in communication is stronger than the content. They found that if the tone of voice is not congruent with the verbal message, the

listener would rely on the voice; for instance, when a speaker tells someone that she/he is angry with a positive tone of voice, that message will be perceived as a positive rather than a negative affective state.

To examine emotion recognition ability through vocalisation in different languages, Thompson and Balkwill (2006) examined the recognition of prosody (i.e. vocal tones which include vocalisation features such as intonation, stress, and timing without linguistic content) in English, German, Chinese, Japanese, and Tagalog. The emotions examined in the study were *joy*, *sadness*, *anger*, and *fear*. The participants were 20 English L1 users, with minimal or no fluency in German, Chinese, Japanese, and Tagalog. The stimuli used in the study were recordings of the five languages by L1 users. The results showed that participants could decode the emotional prosody of all emotions included in the study above chance level in all languages. However, the emotions of *joy* and *fear* were recognised at lower rates than *sadness* and *anger*. The researchers postulated that the recognition of negative emotions might be influenced by “evolutionary factors” that ensure human beings’ survival and enhance their reaction to danger (Thompson and Balkwill, 2006, p. 419). Although English participants identified the prosody of emotions expressed by English speakers with the highest accuracy rates, they were less able to identify the prosody of emotions expressed by Japanese (59%) and Chinese (54%) speakers. This evidence demonstrates the influence of culture and language on the perception of emotional prosody.

In another context, Scherer, Banse, and Wallbott (2001) conducted an experimental study on the recognition of vocal emotional cues from voice recordings (content-free speech) by two German males and females. The participants in the study were speakers from several countries and languages: German, French (France and Switzerland), English (Great Britain and the US), Dutch, Italian, Spanish, and Indonesian. The researchers investigated the vocal cues of the emotions of *joy/happiness*, *sadness*, *fear*, *anger*, and *disgust*. The findings of their study pointed towards the effect of the linguistic factor on the emotion recognition ability of vocal cues. Although *joy* was the only positive emotion in the study, the results indicated that it had the lowest recognition accuracy of all the emotions. The role of language was emphasised in the study, in which Germanic origin languages (Dutch 68% and English 68%) had the highest recognition rates, followed by Romance languages (Italian 67%, French 66%, and Spanish 62%), whereas the Indonesian language had the lowest recognition rate (52%) amongst all languages. *Anger* had the highest accuracy percentage. This finding was attributed to the

assumption that *joy* is often associated with smiling, which seemingly can be more easily recognised through facial expressions than vocal cues. This speculation finds support in Sauter's (2010) study, in which the authors argued that negative emotions such as *anger* could be marked with specific vocal cues that individuals can easily recognise, but the positive emotion *happiness* is the easiest emotion to recognise through facial expressions in different cultural contexts. For example, *anger* is usually marked by loudness, which makes it easier to identify through voice than face (Scherer, Banse, & Wallbott, 2001). These findings also support the in-group advantage hypothesis that individuals are better at recognising vocal cues produced by members of their own linguistic and cultural group (Elfenbein & Ambady, 2002).

The above findings were replicated in another study, in which Zhu (2013) asked 20 L1 users of Mandarin Chinese, 20 native Dutch users, and 20 advanced learners of Chinese to listen and identify emotional prosodies expressed by L1 and LX users of Chinese. Zhu conducted three experiments; in the first one, the emotional prosodies were portrayed by four Chinese L1 users; in the second experiment, four Dutch L2 speakers of Chinese (who learned Chinese later in life) recorded the stimuli in Chinese; and in the third experiment, L1 users of Chinese listened to Dutch L2 speakers' recording. The participants were divided into three listener groups, listening to emotions expressed by Chinese L1 users, native Dutch users, and advanced Dutch learners of Chinese. The participants in all three groups could identify the emotions expressed by Chinese L1 users at above chance level (16.7%). Dutch L2 learners of Chinese identified emotions with higher rates of accuracy (with a mean recognition rate of 54%) than the Chinese L1 users and native Dutch participants (with a mean recognition rate of 46%). The researcher attributed this ability to identify vocal cues in the L2 to the influence of exposure to the L2. However, the three groups could not identify the emotions expressed in Chinese by LX users (mean accuracy rates: 39% for Chinese L1 users, 38% for native Dutch users, and 41% for advanced Dutch learners of Chinese). Zhu speculated that LX users might transfer their L1 prosody features of emotional expressions into their L2, which made it difficult for other listeners to detect their emotional meaning. In the third experiment, the results revealed that accuracy recognition rates were higher in the in-group judgments where listeners shared the same culture with the expressers of the prosody than in the out-group judgments. In other words, Chinese and native Dutch listeners could identify emotional prosodies in stimuli recorded by speakers from their own linguistic and cultural group, supporting the in-group advantage hypothesis. Moreover, this finding adds to the evidence that

L2 learners may transfer their non-verbal emotional expressions to their L2 contexts, which might result in miscommunication in the L2 (Albas, McCluskey, & Albas, 1976).

However, Pavlenko (2005) criticised the lack of consideration of “definitive vocal profiles” in studies focusing on the emotion perception of vocal cues, because those vocal profiles are essential for interpreting the vocalisation of emotions. Another methodological issue in these studies is the lack of measurement of other related factors, such as personality traits and “communicative intentions” (Pavlenko, 2005, p. 48). Investigations of these factors may have added more insights into the cultural agreement and disagreement in the emotion perception of non-verbal cues. Although extensive research has been carried out on the emotion perception of vocal cues in the case of L1 users, little is known about bilinguals’ perception of these non-verbal cues in their languages. Pavlenko (2005) argued that in most cases some late bilinguals fail to acquire the pitch patterns and voice qualities of their L2 and it is only through effective socialisation and extensive exposure to the L2 that L2 users can successfully acquire these qualities.

Non-verbal emotional channels, including visual and vocal cues, are rarely used in isolation. They are usually accompanied by the linguistic content in daily communication (Pavlenko, 2005) to provide valuable emotional information. Yet several studies to date have opted to investigate ERA from a unimodal perspective of emotional channels. Such a perspective may fail to provide a clear picture of in/out-group advantages in emotion perception; emotions are communicated via different channels in everyday life, as individuals usually vocalise their emotions while displaying them on their faces and in their voices unconsciously. Therefore, integrating multiple channels to explore variations in emotion perception is preferable because it allows to “assess emotional expression in the dynamic stream of behaviour” (Elfenbein & Ambady, 2002, p. 230).

In a study that examined the impact of the type of stimuli on emotion perception, Collignon et al. (2008) conducted three experiments on the multisensory perception of the two negative emotions of *fear* and *disgust*. In each experiment, the stimuli used were short audio, visual, or audio-visual video clips. The participants were asked to categorise emotions displayed in the congruent and incongruent audio-visual stimuli. The results indicated faster and more accurate recognition of the emotions displayed in the congruent stimuli than in the incongruent ones. In one sensory modality where participants were required to focus on one

emotional channel, the participants demonstrated less reliance on the target modality when there was irrelevant information. Instead, they focused on the information provided rather than the emotional channel.

Collignon et al.'s (2008) research was complemented by Tanaka et al.'s (2010) study, which compared 20 Japanese and 16 Dutch participants with regard to their multisensory perception of the emotions *anger* and *happiness*. Two conditions (congruent and incongruent) of faces and voices were applied. Happy faces were combined with angry voices in the incongruent stimuli, and vice versa for anger. In the congruent stimuli, faces and voices matched the intended emotion. In the experiment, the participants were asked either to focus on the face in one task or on the voice in the other one. The findings showed that the Japanese participants relied on the vocal cues—even when they were instructed to focus on faces—more than the Dutch participants. These findings add to the previous evidence regarding the cross-cultural differences in the perception of emotional cues. In other words, the Japanese participants, being part of a collectivist culture, relied less on facial configurations of emotions, as they are likely restricted by their cultural display rules to avoid an excessive show of facial expressions. This leads the Japanese to rely more on the vocal cues as the more appropriate channel of emotion information (Tanaka et al., 2010).

Paulmann and Pell (2011) had the same aim but in a different context, with an addition of verbal cues. The authors explored the perception of emotions through different channels (prosody, facial expressions, and semantics/linguistic cues) and a combination of all channels. The emotions included in the study were *anger*, *sadness*, *disgust*, *happiness*, *pleasant surprise*, and *neutral affect*. The participants were 72 English L1 users who were randomly assigned into groups for different conditions of the experiments: unimodal (prosody, semantics, or face), bimodal (face + prosody, prosody + semantics), or multimodal (face + prosody + semantics) stimuli. The results revealed that participants could identify the emotions displayed in the multimodal stimuli better than the unimodal or bimodal stimuli. However, the verbal (semantic) and visual channels reported higher accuracy rates than the vocal (prosodic) channel, particularly for *disgust*, *happiness*, *surprise*, and *neutral affect*. Furthermore, the positive emotions (*happiness* and *surprise*) were better identified through the face than the other channels, but the negative emotion *sadness* was better recognised through the prosodic channel. However, the type of channel had no effect on identifying *anger*. These findings indicated that emotions are better interpreted when they are displayed through a combination

of verbal and non-verbal channels. In addition, audio-visual stimuli enhance the ability and the accuracy of perceiving emotions more than the auditory or visual channels in isolation (Paulmann & Pell, 2011). The integration of “congruent information”, therefore, is a valuable source of emotional information (p. 200).

The above-mentioned studies have only considered L1 users’ ability to identify emotions in their L1. L2/LX users, however, seem to experience difficulty with some emotional channels, such as vocal cues, in their L2/LX. To avoid this difficulty in interpreting emotions from vocal cues, most of them tend to rely on visual information when emotions are communicated in their L2/LX (Riviello, Esposito, Chetouani, & Cohen, 2011). In their study, Riviello and colleagues (2011) compared 60 American, 60 French, and 60 Italian participants’ emotion perception of emotions displayed in two different conditions: audio and visual stimuli extracted from natural materials from American English movie scenes. The Italian and French participants were English L2 users. The findings revealed that Italian participants demonstrated higher accuracy rates for emotions presented in the audio recordings, whereas Americans and the French did better in the perception of the emotions portrayed in the videos. Overall, the findings suggested that participants could recognise the emotions via visual stimuli more accurately than via the audio ones. Collignon et al. (2008) speculated that visual channels might dominate other emotional channels, but the case mostly depends on the context and the type of emotion.

Overall, the above studies suggest that culture and language might play a significant role in emotion interpretation and that individuals belonging to the same cultural and speech community are at an advantage when it comes to interpreting each other’s emotions accurately. Thus, if culture shapes the perception of emotions, moving to a new culture should, consequently, impact this perception. It was suggested that the ability to identify emotions might have a positive effect on the degree of intercultural adjustment to the target culture in the case of immigrants (Yoo, Matsumoto, & LeRoux, 2006). The intercultural adjustment, in this context, refers to “the process of altering one’s behaviours or cognitions in relation to a different environment, in order to better interact with the environment to achieve desired end goals” (p. 346). The term *adjustment* in the above definition refers to the “psychological outcomes” associated with adaptation into the new culture. These psychological outcomes are either subjective or objective; the subjective outcomes involve emotions of *anger*, *anxiety*, *sadness*, or *frustration*, while objective outcomes may include outcomes related to other states

outside the minds, such as economic status, job performance ratings, or grades. Emotion perception, more specifically, is linked to intercultural adjustment in terms of emotional disturbance, conduct disorder, depression, social anxiety, academic achievement, and popularity (Yoo, Matsumoto, & LeRoux, 2006).

Yoo, Matsumoto, and LeRoux (2006) investigated the relationship between the emotion recognition ability, emotion regulation, and intercultural adjustment of 63 sojourners (international students in the US). The researchers argued that emotion recognition ability predicted the degree of intercultural adjustment, and it preceded emotion regulation (i.e. the way an individual can experience or express emotions) (Gross, 1998). In other words, in order to regulate emotions, individuals have to be able to identify emotions, which should therefore allow them to adjust to the target culture. The methods applied were used to measure the degree of adjustment and its relation to emotion recognition and emotion regulation. Emotion recognition ability was examined through the use of the Japanese and Caucasian Brief Affect Recognition Test (JACBART), which consists of 56 pictures of seven emotions: *anger*, *contempt*, *disgust*, *fear*, *happiness*, *sadness*, and *surprise*. The results of their experiments showed that the recognition of *anger* predicted positive intercultural adjustment, while the recognition of other emotions such as *contempt*, *fear*, and *sadness* predicted negative adjustment. The researchers attributed this finding to the role of emotional expression in interpersonal communication; *anger*, for example, has essential social communication functions, such as showing offense and frustration when one is being insulted or treated unfairly. When individuals acculturate to a new culture, they likely face situations in which they misunderstand emotional intention and get into conflicts because of the cultural differences in communicating emotions—and especially anger. Based on this reasoning, it can be assumed that if *anger* is correctly recognised, it may indicate a better adjustment because an individual will be able to modify her/his anger or offensive behaviours, depending on the cultural context, and thus communicate effectively (Yoo, Matsumoto, & LeRoux, 2006). The other emotions, such as *sadness* and *contempt*, which were associated with worse adjustment, seemed to be related to individuals' self-evaluation and sensitivity to those emotions, which may affect their adjustment and lead them to rate other situations in a negative way (Yoo, Matsumoto, & LeRoux, 2006).

Research on emotion perception has been mostly restricted to limited comparisons of L1 users or monolinguals across different cultures and languages. Until recently, there was

insufficient evidence that could explain the case of bi- and multilinguals' perception of the emotions in their multiple languages. A few studies have found that most L2 users find it particularly difficult to identify the emotions and the intensity of emotional expressions of their interlocutors in the first year of moving to an L2 environment (Dewaele, 2015a; Rintell, 1984). A recent study has raised the issue that LX users experience more difficulty in interpreting emotions via audio-only channels (Lorette & Dewaele, 2018a), while other studies have found that the emotion recognition ability of LX users is influenced by both linguistic and cultural factors (Lorette & Dewaele, 2015, 2018a, 2018b). Other studies have proposed that acquiring a second language might be advantageous for emotion recognition ability (Dromey, Silveira, & Sandor, 2005; Lorette & Dewaele, 2018b). Indeed, bilinguals and multilinguals process, express, and construct their emotions in ways that are different from those of monolinguals. As long as they have different conceptual representations of emotions, it follows that they have different skills in interpreting the emotions of others.

### 2.7.2. *Emotion perception of bi/multilinguals*

In an early study, Rintell (1984) explored the emotion recognition ability of 127 international students of Spanish, Arabic, and Chinese origin who were enrolled in an American Intensive English Program at the time of the experiment. There was also a control group of 19 English L1 users who participated in the experiment. The participants were divided into three groups based on their language proficiency in English: beginners, intermediate, and advanced. The emotions included in the study were *pleasure*, *anger*, *depression*, *anxiety*, *guilt*, and *disgust*. Rintell used 11 short recordings of conversations recorded by English L1 users, who talked about past experiences they had that caused them to feel one of the emotions. The participants were required to listen to the conversations and to choose the emotion word that fit the conversation, and they were asked to rate the intensity of emotions as they perceived them. The results revealed that age, as well as gender, had no significant effect on the emotion recognition ability of the participants. Language proficiency, interestingly, had the most substantial effect on the emotion recognition ability of the L2 learners, with intermediate (5.99) and advanced (6.95) students scoring significantly higher than beginners (3.97). English L1 users, however, performed better than advanced learners (Rintell, 1984, p. 261). This significant difference between L1 users and LX users of English might be attributed to the context of the L2 use, as the participants were learners of English, rather than authentic users. The comparisons between the three groups of L2 learners showed that the Chinese students

had the lowest score, followed by the Arab students, and then the Spanish students. This finding was attributed to linguistic and cultural differences. There were no significant differences between English L1 users and learners of English concerning their perceived emotional intensity of most emotions. *Surprise*, however, was the emotion that was perceived correctly by L1 and L2 users. Rintell (1984, p. 262) explained that the positive emotion *surprise* seems to require “less grammatical complexity”, which makes it easier to interpret by students.

Graham, Hamblin, and Feldstein (2001) compared English L1 users with English LX users, namely Japanese L1 users and Spanish L1 users, regarding their ability to decode the vocal cues of basic and secondary emotions expressed by English L1 users. The participants were asked to listen to audio recordings and to choose the emotion labels that best described what they heard. The results of their study revealed that English LX users were less adept at decoding the vocal cues of emotions than L1 users. English L1 users obtained the highest accuracy rates of emotion recognition, followed by the Spanish and the Japanese speakers, suggesting a cultural distance effect. Language proficiency did not significantly influence the students’ ability to identify the emotions. The researchers attributed this finding to the students having had less exposure to the L2 culture in authentic contexts, which might cause negative transfer of L1 emotional vocal features (Dewaele & Pavlenko, 2002; Graham, Hamblin, & Feldstein, 2001).

Dromey, Silveira, and Sandor (2005) investigated vocal emotion recognition ability amongst three groups of participants: 53 English monolinguals, 32 English L1 multilinguals, and 57 LX multilinguals. The participants were required to listen to recordings of words spoken with *angry* or *neutral* intonations. The results revealed that gender had a significant impact on emotion recognition ability: women identified emotions with higher accuracy rates than men. There was also a significant negative correlation between age and the ERA score, with younger participants outperforming older participants. The findings, interestingly, suggested a small *multilingual advantage* in ERA, as English L1 multilinguals outperformed other groups of participants. English L1 multilinguals also outperformed English L1 monolinguals, although the difference was not significant. The authors explained that “the experience of acquiring a second language develops in a person additional sensitivity to certain aspects of speech that carries over to native language tasks” (Dromey, Silveira, and Sandor, 2005, p. 356). The authors speculated that the multilinguals’ superiority in interpreting emotions “may have contributed to their capacity and willingness to master a second language” (p. 357). Another

explanation was attributed to the effect of age of onset of acquisition, since the English L1 multilinguals had acquired their languages early in their childhood, and so might “have developed additional sensitivity to the sounds of human communication when they learned a second language” (p. 357). The authors acknowledged that these findings might be confounded by the participants’ educational levels, as well as cultural and linguistic differences, although the findings did not show any significant link between education levels and the ERA scores. It should be noted that only two emotions were included in Dromey, Silveira, and Sandor’s study, and one of them was *neutral emotion*. One might suggest that including more emotions would have allowed to explore more variations in emotion perception amongst L1 and LX users. In other words, it is unclear whether the ERA of different types of emotions—positive versus negative—would lead to similar patterns of results, particularly for LX users. One negative emotion like *anger* might be easily identified despite the language used in the recording because, as mentioned earlier, this emotion is usually marked by loudness, making it easier to identify through voice (Scherer, Banse, & Wallbott, 2001).

Lorette and Dewaele (2015) conducted a study to find out the sources of variation in the emotion recognition ability of 356 English L1 users and 564 English LX users. The authors investigated the six basic emotions (*anger, disgust, fear, sadness, happiness, and surprise*) portrayed in short videos by a British English-speaking actress. The participants were asked to choose an emotion word from a list that best matched the emotion portrayed in each video. The findings revealed no significant differences between L1 and LX users of English when it came to recognising emotions; however, the negative emotions *sadness* and *anger* were less recognised while the emotion *disgust* was easily recognised (95% correct). The researchers acknowledged that the emotion *disgust* was obvious. In addition, the emotions *sadness* and *anger* had similar accuracy percentages (54% and 51%, respectively), which was attributed to the similarity of the verbal content of the scenarios in the videos that depicted the two emotions (Lorette & Dewaele, 2015). Language proficiency turned out to be significantly and positively linked to the ERA of LX users, but marginally so amongst English L1 users. Moreover, the L1 culture was found to have a significant impact on the ERA of participants, with Asian participants having lower scores than European LX users despite similar levels of proficiency in English.

In an experimental study on a group of bilinguals, Bak (2016) investigated the emotion recognition ability of English emotional prosody (vocalisation of the emotions *happiness* and

*sadness*) in 133 Polish-English bilinguals, who were formal learners of English and had never been to any English-speaking country. They were divided into two groups based on their language proficiency: a lower proficiency group and a higher proficiency group. The findings, interestingly, revealed that those with lower language proficiency were better able to decode emotions than those with higher proficiency. The researcher explained that the latter group, having been exposed to the language for an extended period of time, might rely less on their linguistic competence *per se*, but tended to “opt preferentially for the slower and more costly option of processing emotional prosody for the sake of precision and accuracy” (Bak, 2016, p. 178). In other words, they might have integrated more sources of information to process emotions, which may not be an appropriate technique (Gigerenzer, 2001), resulting in a greater possibility of making an error in decoding vocal cues.

A recent study by Lorette and Dewaele (2018a) has examined individual differences in the ERA amongst 557 L1 and 881 LX English users. The participants were required to guess the emotions depicted in English videos in two modalities—either audio-visual or audio only—embedded in an online questionnaire. The findings showed that LX users scored lower than L1 users in ERA in the audio-only version of the stimuli. However, there was no significant difference in the ERA scores between the two groups when they watched the audio-visual videos. These results demonstrate the importance of integrating more than one emotional channel, especially visual information, when interpreting emotions in the LX. Thus, with the abundant amount of emotional information, LX users’ interpretation of emotions in the LX can approximate that of L1 users. Higher levels of language proficiency were linked to higher ERA scores, particularly in the absence of visual cues. It seems that those with low proficiency levels relied more on visual emotional information to decode emotions. In the absence of visual information, they were less accurate in decoding emotional meaning merely from voices. The researchers also found a significant effect of the cultural distance between L1 and LX, with Asian participants scoring lower in interpreting emotions in English, confirming previous findings on the effect of cultural distance between language and cultures on ERA (Lorette & Dewaele, 2015; Rintell, 1984).

In another study, Lorette and Dewaele (2018b) investigated the relationship between the number of languages known, proficiency, and ERA through a multimodality of emotional channels (audio-vocal-verbal ERA) amongst 564 English LX users and 656 (multilingual) L1 users of English. The participants were required to identify emotions (*anger, fear, sadness,*

*disgust, surprise* and *happiness*) portrayed in six audio-visual videos. The authors found a significant positive relationship between language proficiency and ERA, especially verbal cues. English LX users who were raised as multilinguals outperformed L1 users, which was attributed to the possible interferences from other L1(s). The authors also speculated that “simultaneous acquisition of two languages from birth conferred an advantage for emotion perception amongst LX users of English” (Lorette and Dewaele, 2018b, p. 12).

Taken together, these studies suggest that ERA is mediated by linguistic and cultural variables as well as by the type of the stimuli used. While in Graham et al.’s (2001) study language proficiency did not significantly influence the students’ ability to identify emotions, other studies by Rintell (1984) and Lorette and Dewaele (2015, 2018a, 2018b) demonstrated the significant role of language proficiency in detecting emotional meaning in the stimuli. Furthermore, language history variables might impact the ability to decode emotions. For example, while in Rintell’s study the LX users, having scored lower than L1 users, were **learners** in an intensive language programme, in Lorette and Dewaele’s (2015) study, the LX users, having scored similarly to L1 users, were **authentic** long-term **users** of English. It seems that authentic use of a language might develop LX users’ socio-pragmatic competence, resulting in affective emotional interaction. The cultural distance was also reported to significantly contribute to accuracy in emotion interpretation. This means that individuals belonging to close languages and cultures might need less effort to understand each other’s emotional intentions. However, individuals may need other linguistic tools to enable them to guess the emotions of others from remote cultures.

The literature presented in this section suggests that language and culture have been identified as significant contributing factors in shaping emotion communication (regarding both expression and perception). Indeed, language intrinsically shapes how people perceive the emotions of others, and it impacts how they categorise and experience emotions (Lindquist et al., 2006). The literature review also shows that certain linguistic, cultural, and psychological factors are linked to a multimodality of emotional channels that may affect the emotion perception of bilinguals. Whether speaking an L2 impacts the emotion perception of bilinguals is the focus of the present research, which looks specifically at the existence of in/out-group advantages/disadvantages in the emotion perception of bilinguals and monolinguals (while also considering psychological, linguistic, cultural, and socio-biographical factors).

## 2.8. Summary

The above review of the relevant literature addressed emotion perception and the experience of monolinguals and bilinguals from theoretical perspectives, culture, language, psychological domains, acculturation, as well as bilingualism. Furthermore, the review delved into cross-cultural and linguistic differences in emotion concepts, emotion word categories, and non-verbal emotional behaviours. It also presented the emotion process in bilinguals and multilinguals, namely 1) emotion concepts in bilinguals' lexicon; 2) language preferences in emotion communication and their perception of emotionality in their languages, considering bilingual advantages/disadvantages as well as linguistic proficiency and multi-competence; and 3) emotion perception. The review also focused on the role of trait emotional intelligence, acculturation, and bicultural identity in emotional experiences and perception.

First, it has been shown that the concept of emotion implies more than bodily fingerprints (Ekman, 1972), but incorporates a set of cognitive, cultural, linguistic, social, physiological, and psychological processes (Averill, 1980; Barrett, 2017a, 2017b; Dewaele, 2010a; Lindquist, Satpute, & Gendron, 2015; Pavlenko, 2002; Russell, 2003). Emotions are constructed by past experiences, predictions, and emotion concepts. Emotion concepts are the mental representation of emotions, anchored by the emotion words available in a language/culture.

Second, the literature has shown that emotion concepts shape individuals' predictions about emotional experiences. Individuals who share similar emotion concepts are in sync when communicating their emotions (Barrett, 2017a), suggesting an *in-group advantage* in emotion perception (Elfenbein & Ambady, 2002; Matsumoto, 2009). Therefore, there are cross-cultural and cross-linguistic differences in emotion concepts. Cross-cultural varieties were found in the ways individuals in different cultures display their emotions (Matsumoto, 2009), react to emotional antecedent events (Mesquita & Walker, 2003), show either low or high arousal emotions (Kacen & Lee, 2002; Mesquita & Frijda, 1992; Russell, 2003), rate intensity of emotions (Zhu, Ho, & Bonanno, 2013), experience emotions of pleasure/displeasure, appraise emotional situations (Mesquita & Karasawa, 2002; Mesquita & Walker, 2003), and perceive emotional content (Cho & Dewaele, 2018). Cross-linguistic differences were found in categories of emotion words across different languages. While in some languages emotions are

states, in others emotions are actions and events (Pavlenko, 2002; Wierzbicka, 1999). Cross-linguistic differences are also found in the relationship between emotion concepts across different languages, especially in the absence of exact translation equivalents (Pavlenko, 2008, 2014). The literature review has demonstrated that emotion concepts are acquired early in life and are influenced by external surrounding cultural and linguistic contexts. However, the acquisition of new emotion concepts continues in adulthood by learning new emotion words and constructing emotional experiences (Barrett, 2017a). However, the restructuring of new emotion concepts may alter the previously stored emotion concepts; as is the case for bi/multilinguals (Dewaele, 2017b; Pavlenko, 2005).

Third, it has been shown that bi/multilinguals process, express, and perceive emotions differently than monolinguals. The literature review has demonstrated that LX users' conceptual representation of emotions reflects their socio-pragmatic competence, which indicates how and when to use particular emotions or emotion-laden words and what illocutionary they effects might evoke, what non-verbal behaviours are associated with emotions, what the reactions of interlocutors will be, and what social consequences will result (Dewaele, 2016c). In other words, socio-pragmatic competence is successfully acquired and developed through effective socialisation into L2/LX socio-cultural contexts and through authentic use of emotion-laden words in real situations. Furthermore, bi/multilinguals perceive different levels of emotionality in their languages (Dewaele, 2007, 2016c, 2018b, 2018c; Pavlenko, 2008, 2014). L1 and L2/LX evoke different levels of emotionality, depending on the linguistic profile, social relationship, and situational circumstances. While the majority of multilinguals prefer to use their L1 to communicate emotions, others prefer different languages learned later in life. Emotion concepts and the perception of emotionality are therefore dynamic, constantly changing in different linguistic and cultural contexts (Dewaele, 2016c; Panayiotou, 2004; Pavlenko, 2002). The literature on bilingualism has also shown that bilinguals differ from monolinguals in various domains, most significant of which are cognitive (Bialystok, Majumder, & Martin, 2003), psychological (Dewaele, Petrides, & Furnham, 2008; Dewaele & van Oudenhoven, 2009; Dewaele & Wei, 2012, 2013), socio-emotional (Barac et al., 2014; Genesee, 2008; Han, 2010), and linguistic (Cook, 2002, 2016; Dewaele, 2007a; Grosjean, 1992, 2010). Still, few studies to date have focused on the emotional skills of adult bilinguals.

Fourth, it has been shown that immigrants emotionally acculturate when moving to a new culture (De Leersnyder, Mesquita, & Kim, 2011). Their emotional behaviours approximate those of people in the host culture because of changes in their conceptual representation of emotions (De Leersnyder, Mesquita, & Kim, 2011) or to fit the rules of the host cultural (Mesquita, Boiger, & De Leersnyder, 2016). This phenomenon is determined by the perception of bicultural identities (Benet-Martínez & Haritatos, 2005), which is influenced by the distance between cultures, as well as by personality. Together, acculturation and personality are linked to emotion perception. One of the relevant personality traits here is emotional intelligence, which is an indicator of mental well-being. The ability to experience, predict, and interpret a wide variety of emotions reflects higher levels of trait emotional intelligence (Barrett, 2017a; Petrides & Furnham, 2000).

The literature on emotion perception has revealed individual differences in the ability to interpret emotions (e.g. Hall, 1984; Hall & Matsumoto, 2004; Kirouac & Dore, 1985; Rotter & Rotter, 1988). It has also shown that emotion perception is influenced by the type of emotional channels involved. Although emotions can be interpreted through either visual or verbal cues, it is preferable to integrate multiple channels in emotion research because a multimodality of channels provides a more comprehensive source of emotional information (Paulmann & Pell, 2011). While most of the previous studies have investigated the emotion perception of monolinguals or L1 users, there is still a gap in understanding the ways bilinguals interpret the emotions of others in their languages. Meanwhile, the emotion recognition ability of LX users, as reported in previous studies, was influenced by language proficiency (Bak, 2016; Lorette & Dewaele, 2015, 2018a, 2018b; Rintell, 1984), language history (Lorette & Dewaele, 2015, 2018a, 2018b), cultural distance (Lorette & Dewaele, 2015; Rintell, 1984), and trait emotional intelligence (Dewaele, Lorette, & Petrides, 2019).

It appears from the studies mentioned in this chapter that emotion perception in monolinguals and bilinguals is a complex process involving a number of related socio-biographical, linguistic, psychological, and cultural factors. To the best of my knowledge, no study to date has empirically integrated these factors and linked them to the emotion perception of monolinguals and bilinguals. The present study aims to fill this gap.

## **2.9. Research Questions**

The research for this study was carried out in two stages. Quantitative data were collected from 205 Arabic-English bilinguals, 71 Arabic monolinguals, and 333 English monolinguals, followed by semi-structured interviews with seven Arabic-English bilinguals. The research questions reflect the scope of this study.

### *2.9.1. Quantitative study*

Using the data collected via the online questionnaires, the following research questions and relevant hypotheses were investigated:

**RQ1:** Is there a difference between the EP scores in Arabic and English videos of Arabic-English bilinguals and Arabic/English monolinguals?

*Two hypotheses were formulated to address the first research question:*

1. Arabic-English bilinguals will be adept at identifying emotions in Arabic and English videos.
2. Arabic-English bilinguals will be better at identifying emotions in Arabic and English videos than Arabic and English monolinguals.

**RQ2: a)** Is there a difference in TEI levels between Arabic-English bilinguals and Arabic/English monolinguals?

**b)** Is there a link between TEI levels and the emotion perception and the perceived emotional intensities in Arabic and English videos of Arabic-English bilinguals and Arabic/English monolinguals?

*Two hypotheses were formulated for this research question:*

1. Arabic-English bilinguals will outperform Arabic and English monolinguals in the TEI levels.
2. TEI levels will be positively related to the ability to perceive emotions for all groups of

participants.

**RQ3:** In the case of English monolinguals and Arabic-English bilinguals, is there a link between English language proficiency scores and the EP scores as well as the perceived emotional intensities in English videos?

*One hypothesis was formulated to address the third research question:*

1. Language proficiency levels will be linked to Arabic-English bilinguals' and English monolinguals' perception of the emotions in the English videos.

**RQ4:** Is there a link between socio-biographical variables (age, gender, and education levels) and the emotion perception scores in Arabic and English videos of Arabic-English bilinguals and Arabic/English monolinguals?

*Three hypotheses were formulated to address the fourth research question:*

1. Younger participants will be better at identifying the emotions in the Arabic and English videos than older participants.
2. Females will be better at identifying the emotions in the Arabic and English videos than males.
3. Highly educated participants will be better at identifying the emotions in the Arabic and English videos than less educated participants.

**RQ5:** Is there a link between the linguistic profile variables (the age of onset of acquisition—AOA, the contexts of acquisition, the frequency of English use, and length of stay in an English-speaking environment) and the emotion perception in English videos of Arabic-English bilinguals?

*Four hypotheses were formulated to address the fifth research question:*

1. Participants who started learning English L2 at a younger age will be better at identifying emotions in the English videos than participants who started learning

English later.

2. Participants who learned English in a mixed or naturalistic environment will be better at identifying emotions in the English videos than those who learned English in an instructional setting only.
3. Frequent users of English will be better at identifying emotions in the English videos than less frequent users.
4. Participants who had lived in an English-speaking environment for more than two years will be better at identifying emotions in the English videos than those who were early in their stay.

**RQ6:** Is there an in/out-group advantage in emotion perception of the two groups of Arabic and English monolinguals?

*One hypothesis was formulated for this research question:*

1. An in-group advantage in emotion perception will exist in the emotion perception of the two groups of monolinguals (Arabic and English monolinguals), where each group of monolinguals will be better at perceiving the emotions expressed by members of their own linguistic/cultural group.

**RQ7:** Is bicultural identity orientation linked to the Arabic-English bilinguals' ability to perceive emotions in their L1 and L2?

*One hypothesis was formulated to address this research question:*

1. The relationship between the two cultural identities (i.e. the ethnic culture and the mainstream culture) will be significantly linked to the EP scores in the L1 and L2 for Arabic-English bilinguals.

## 2.9.2 Qualitative study

### 2.9.2.1. Rationale for qualitative research questions

The quantitative research was followed by the qualitative component to add more in-depth understanding of the phenomenon being investigated. One of the qualitative research questions was developed to explore the emotional channels the bilinguals most likely rely on when interpreting emotions, as it was not possible to answer this question in the quantitative study. The second qualitative research question was developed to engage the Arabic-English bilinguals in a broader discussion about their emotion perception in Arabic and English and about the social/cultural situations wherein bilinguals mis/interpret the emotions of interlocutors from different linguistic and cultural backgrounds. It was not possible to answer these two questions in the quantitative study because the inclusion of such questions would have increased the length of the survey, which might have affected the sample size needed. This problem was discovered in the pilot stage of the online survey, as participants could not complete the survey.

The other aim of the qualitative study was to provide further explanations for some of the interesting or unexpected quantitative results. More specifically, the third qualitative research question was developed to explore the interrelationship of emotion perception and acculturation and to what extent residing in English-speaking countries (henceforth ESCs) impacts the perception of emotions across languages and cultures. The fourth qualitative research question was developed to further explore the bilinguals' perception of positive versus negative emotions in both languages, in order to provide more explanations for the quantitative results. Thus, four qualitative research questions were investigated:

**RQ8:** What channels or emotional cues (verbal content, facial configurations, voice, body language, and hand gestures) do interviewees pay attention to when communicating with interlocutors from different linguistic and cultural backgrounds?

**RQ9:** How do the interviewees interpret emotional situations with interlocutors from different linguistic and cultural backgrounds, particularly in Arabic and English?

**RQ10:** What is the impact of the interviewees' residence in ESCs on their identification of the emotions of others?

**RQ11:** What type of emotions—*positive or negative*—do interviewees find easier or more difficult to identify in the L1 and L2? Why?

## **Chapter 3**

### **METHODOLOGY**

#### **3.1. Introduction**

This chapter addresses the methodological decisions made regarding the research design, sample, data collection procedures, and data analysis. The chapter begins with the research approach and design adopted in this study. The remainder of the chapter presents the following sections: participants, instruments, data collection procedures, and data analysis.

#### **3.2. Research approach: Mixed methods**

The present research relies on a design that encourages the integration of the quantitative and qualitative theoretical perspectives, with the aim of corroborating findings of the two components as a means of validation (Dörnyei, 2007). A mixed methods design is defined as “the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the purposes of breadth and depth of understanding and corroboration” (Johnson et al., 2007). The mixed methods design hence allows to obtain findings/evidence from both the quantitative and qualitative components, which can offer a deeper understanding of the phenomenon being investigated. The basic rationale behind the mixed methods approach is to offset the limitations of one method with the strengths of the other method (Creswell & Plano Clark, 2011). For example, the quantitative study examines the topic at a general level of analysis, which allows to generalise the results to the wider population by using large samples to iron out any individual idiosyncrasies. However, the possibility of in-depth understanding of meaning, in particular, is low in the quantitative study. The qualitative analysis, on the other hand, focuses on the unique meaning that can only be gleaned directly from individuals—but it relies on small samples. The integration of both research perspectives in a mixed methods approach increases the strengths while eliminating the weakness (Dörnyei, 2007). Since this study is an attempt to understand the general phenomenon of emotion perception as well as to delve deeper into bilinguals’ experiences of emotion perception in their languages, a mixed methods approach seems to suit the purpose well by approaching the topic from different angles. The triangulation

of data will help to explore the topic through multiple techniques and to validate the findings of one technique through the use of another (Dörnyei, 2007).

The quantitative study aims to explore the interrelationship between the variables included in the investigation of emotion perception by bilingual and monolingual speakers. Hence, the quantitative data helped to get an overall picture of the perception of emotions while considering the related factors. Afterwards, significant or unexpected quantitative results were explored through follow-up qualitative interviews to gain greater insight into the perception and experience of emotions by bilingual speakers. Examples of unexpected or significant results included the perception of positive and negative emotions in the L1 and L2 and the impact of residence in ESCs on EP (such as whether bilingual speakers could understand the cultural and linguistic differences in emotions between their L1 and L2). The qualitative study was also conducted to shed light on other aspects of emotion perception which could not be examined in the quantitative stage, such as the channels of emotional communication and the difficulties bilinguals might face in interpreting emotions across different socio-cultural contexts. These aspects of emotion perception are crucial to investigate, not only because they are relevant to the perception of emotion, but also because they can clarify the way bilinguals interpret emotions and the emotional cues that are important to consider when exploring EP within the field of bilingualism (Pavlenko, 2005).

The qualitative study aims to provide explanations of certain quantitative results to obtain an in-depth understanding of emotion perception and to give the participants the chance to talk about their emotional experiences as bilingual speakers. It also takes into considerations real-life stories, perceptions, and feelings. Creswell (2009) also mentioned that “qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem” (p. 4). The qualitative research, therefore, provides the opportunity to focus on individual experiences. More importantly, it allows the researcher to examine causality amongst variables, which helps to explain the topic from the participants’ point of view (i.e. *an emic perspective*). Several researchers in the field of SLA and multilingualism have emphasised the importance of the emic perspective, particularly in emotion research (Dewaele, 2009, 2010; Ogarkova, Borgeaud, & Scherer, 2009; Pavlenko, 2002; Syed, 2001). Pavlenko (2002) argued that the emic perspective is useful because it allows bi/multilinguals’ voices and opinions about their language behaviour or language affect to be “heard on a par with those of the researchers” (p. 297). Through the emic perspective,

participants can express their feelings about language, which can add a greater depth of understanding of many aspects of language behaviour, and hence provide a global picture of language use (Dewaele, 2009). Participants, within this perspective, are viewed as “capable of meta-linguistic insights on their bi- and multilingualism” (Dewaele, 2009, p. 107). One feature of the qualitative approach is that it utilises “the holistic and emic nature” of the investigation (Syed, 2001, p. 134). More specifically, the emic qualitative perspective allows researchers to “go beyond surface level analysis” obtained in the etic perspective “to discover underlying concepts and rationale” (Syed, 2001, p. 134). This emic perspective is useful in research on emotions as it allows to understand bi/multilinguals’ interpretations of their emotional experiences using their own descriptive language, as Ogarkova, Borgeaud, and Scherer (2009) noted:

Language is an integral part of emotion research at large, be it in the form of language signs, that is, verbal labels conventionally used to designate emotion states in a natural language, or language-in-use, that is, propositional analyses, lay persons’ verbal accounts of past or present emotional experiences, or various scaling instruments that employ language to access a participant’s emotional state. (p. 343)

Indeed, a combination of different research methodologies and perspectives is needed in order to obtain a clearer and broader picture of common research questions (Dewaele, 2009). More specifically, this integration of methodological approaches is useful when investigating various independent variables affecting language use in bi/multilinguals (Dewaele, 2009).

### *3.2.1. Choosing methods: The sequential explanatory design (QUAN → qual)*

This study implemented a fixed mixed methods design, in which the mixing occurred during the data interpretation stage after the data collection and analysis of both sets of data (Creswell & Plano Clark, 2011; Dörnyei, 2007). The selected research design is the sequential explanatory design (Creswell et al., 2003); in the first phase, the data were collected and analysed via a quantitative study (i.e. based on a large quantitative database); the next phase was the qualitative one, which is of secondary importance (i.e. the QUAN → qual type in Dörnyei’s (2007, p. 170) typology). This design is preferable when qualitative research is needed to help explain the results of previously conducted quantitative research and to add

more insight into the interrelationship between the variables (Creswell & Plano Clark, 2011). More specifically, this research design is emergent in nature, providing a straightforward framework for implementation, where the data is collected and analysed at two separate stages (Creswell & Plano Clark, 2011).

Dörnyei (2007) stated that the questionnaire “allows us to collect a large amount of data in a relatively short time” but it “suffers from an inherent weakness”, as it does not allow to “explore complex meaning directly” (p. 170). The addition of the qualitative component can eliminate this weakness. In this second stage, participants can be asked to explain or illustrate, thus adding more detailed information (Creswell & Plano Clark, 2011). Therefore, the greater emphasis is placed on the quantitative data in this study. The qualitative study was added later to provide further interpretations to the quantitative data and rich insights into certain aspects of the phenomenon being studied, which were not possible to examine in the quantitative part. The graph below shows the explanatory design procedures guiding the current project.

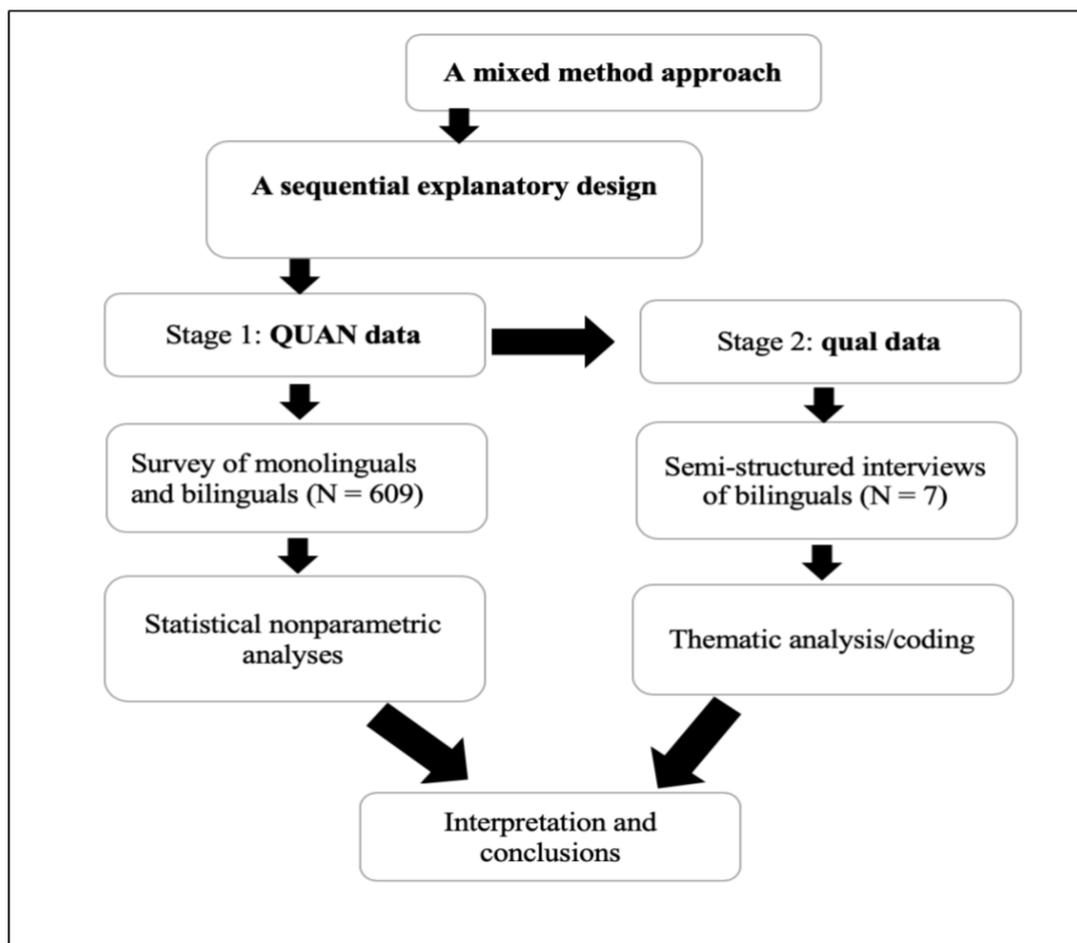


Figure 1. Visual diagram of explanatory design procedures

### **3.3. Participants**

#### *3.3.1. Rationale of choice of sample*

In the present study, sampling occurs at two points: in the quantitative study and in the qualitative study. In the quantitative component, the sample consists of three groups: Arabic monolinguals, English monolinguals, and Arabic-English bilinguals. The basic rationale behind the recruitment of these three groups is to compare emotion perception and to investigate the impact of bilingualism on emotion perception as well as trait emotional intelligence. However, bilingual speakers were compared to monolinguals of their L1 and L2, not to look for a pragmatic deficit in either's abilities to perceive emotions, but instead to understand how each group interprets emotions. This study specifically followed Cook's (2016) suggestion: "comparison of one group of language users to another can sometimes be an effective research tool – amongst many others; we can learn from the variety of language users what is special about each" (p. 15).

A snowball sampling technique was used to recruit participants in the quantitative study. This technique involves a process of identifying a group of people who meet the criteria of the study and then asking them to forward the call for participants to their friends, colleagues, and anyone who fit the selection criteria (Dörnyei, 2003). Thus, the sample in the quantitative research is non-random, as the participants were self-selected. In other words, only people who were interested in the research topic and felt strongly about it, whether positively or negatively, participated in the survey. Therefore, there is a possibility of self-selection bias. Dörnyei (2007) has argued that bias does not necessarily invalidate the research; however, careful interpretation of the data is required, as the resulting sample cannot be similar to the target population due to the loss of its representative character (Dörnyei, 2007).

In the qualitative study, purposive sampling was used, which means that participants were chosen for a specific purpose (Creswell & Plano Clark, 2011; Dörnyei, 2007). Creswell and Plano Clark (2011) stated that "purposeful sampling in qualitative research means that researchers intentionally select (or recruit) participants who have experienced the central phenomenon or the key concept being explored in the study" (p. 173). Participants at this second stage were made up of a small group of Arabic-English bilingual speakers who were invited to follow-up interviews after completing the online questionnaire. Thus, the participants

recruited for the qualitative study were only those from the bilingual group who participated in the quantitative study. From the large sample of bilingual participants in the quantitative study, only seven participants indicated their willingness to participate in the interviews. The aim of the inclusion of a few participants in the qualitative study was basically to “obtain their specific language and voices about the topic” (Creswell, 2009, p. 19). The rationale behind recruiting only bilinguals for the qualitative study was that the key EP concepts being examined here are, in fact, related to bilinguals. Hence, they were selected as “information-rich cases” (Patton, 2002, p. 230). Another reason is that the main aims of the study are centred around emotion perception within the field of bilingualism; consequently, bilingual participants could provide rich and varied insights into this phenomenon. For example, they could relay their experiences about emotion perception in both of their languages/cultures and hence shed light on linguistic and cultural differences in the emotional expressions in these two linguistic and cultural contexts.

### *3.3.2. Participants in the quantitative study*

A total of 609 participants (250 males and 359 females) completed the final version of the survey. Other participants who either did not complete all parts of the survey or did not meet the criteria of this study were excluded. Their ages ranged from 17-69 years old ( $M = 35.33$ ,  $SD = 11.15$ ). 276 participants were Arabic L1 users and 333 participants were English L1 users. Of those who spoke Arabic as their L1, 205 were Arabic-English bilinguals whose English was their L2. Of those bilinguals, 108 participants resided in ESCs (mainly in the United Kingdom) at the time of participation in this study.

Most participants were highly educated, with 137 having a high school diploma (63 males, 74 females), 277 an undergraduate degree (109 males, 168 females), 115 a master’s degree (50 males, 65 females), and 47 a PhD (16 males, 31 females). The ethnic identity of the participants was either Arab ( $n = 276$ ) or a group from an ESC (British English:  $n = 152$ , American English:  $n = 54$ , Australian:  $n = 25$ , and Canadian:  $n = 102$ ). For the purpose of the study, participants with other ethnic identities were excluded.

To compare monolinguals to bilinguals with regard to their emotion perception, the participants were divided by their language profile into two main groups: a control group and an experimental group. The control group consisted of two sub-groups: Arabic monolinguals

and English monolinguals. The experimental group also consisted of two sub-groups: Arabic-English bilinguals who had been to ESCs and Arabic-English bilinguals who had never been to ESCs (at the time of answering the questionnaire). A detailed description of each group is provided in the following sections.

### 3.3.2.1. Control group

A total of 404 participants were in the two control groups. The first control group consisted of 333 English monolinguals. They were recruited from four countries in the English-speaking world: United Kingdom:  $n = 152$ , America:  $n = 54$ , Australia:  $n = 25$ , and Canada:  $n = 102$ . A sample of this population was included from these different ESCs in order to compare the effect of varieties in EP amongst English L1 users for stimuli acted out by a British L1 English-speaking actor and actress. There was, however, no significant difference in the EP scores in English between these ethnic English L1 groups ( $p = ns$ ). Of the English monolinguals, 157 were male and 176 were female. Their average age was 40.3 years ( $SD = 11.1$ ). The majority were between the ages of 31-35 (15.6%). They varied in their education levels: 32.4% had a high school diploma (49 males and 59 females), 43.8% had an undergraduate degree (70 males and 76 females), 13.2% had a master's degree (28 males and 16 females), and 2.7% had a PhD (three males and six females).<sup>1</sup> All of them were self-declared English monolinguals who did not speak any other languages. The mean score of their language proficiency level was 86.1 ( $SD = 16.4$ ). The participants in this group were divided into three groups based on tertiles of their scores, with 56 participants in the low proficiency group, 97 participants in the medium proficiency group, and 180 participants in the high proficiency group.

The second control group consisted of 71 Arabic monolinguals who only spoke Arabic<sup>2</sup> (26 males and 45 females). The Arabic monolinguals were recruited from Saudi Arabia. Their ages ranged from 17-58 years old, with a mean of 29.3 ( $SD = 9.3$ ). Of those Arabic monolinguals, 32.4% were between the ages of 21-25. The education levels of the participants in this group varied: 25.5% had a high school diploma (nine males and nine females), 62% had an undergraduate degree (13 males and 31 females), 5.6% had a master's degree (four

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<sup>1</sup> The remaining 7.8% of the participants did not mention their educational level.

<sup>2</sup> Arabic monolinguals spoke Arabic dialects in Saudi Arabia, mainly a sub-dialect of Gulf Arabic, *Hejazi* Arabic, or *Najdi* Arabic.

females), and 2.8% had a PhD (three males).<sup>3</sup> This group of Arabic monolinguals had not been to any ESC at the time of filling out the questionnaire. Although they self-declared having no knowledge of English, they might have been exposed to the English language and culture through films, news, TV, or social media. Furthermore, most of them had finished high school, and in Saudi Arabia English is taught as a mandatory subject from primary school. Thus, it can be assumed that they might have had a little familiarity with English.

### 3.3.2.2. Experimental group

A total of 205 informants were Arabic-English bilinguals, with Arabic as their L1 and English as their L2. The experimental group was divided into two groups: Arabic-English bilinguals who had never been to any ESC and Arabic-English bilinguals who were in ESCs (mainly in the United Kingdom) at the time of answering the questionnaire.

The first group consisted of 97 Arabic-English speakers (17 males and 80 females) with no previous experience of residing in any ESC. Their ages ranged from 17-49 years old, with a mean of 27.3 ( $SD = 7.5$ ). Their education levels varied: 9.3% had finished high school (3 males and 6 females), 59.8% had an undergraduate degree (nine males and 49 females), 18.6% had a master's degree (one male and 17 females), and a similar percentage (18.6%) had a PhD. All participants spoke English as their L2. 45 began learning English between the ages of 8-13; however, 31 began their learning after age 13. Of those bilinguals, 65.5% learned English through classroom instruction, while 34.5% of the participants acquired English through both naturalistic and formal instruction (see Table 1).

The second experimental group consisted of 108 Arabic-English bilinguals (50 males and 58 females) who had lived in ESCs. Their ages ranged from 19-56 years old ( $M = 30.9$ ,  $SD = 5.9$ ). The majority of the participants in this group were highly educated, with 26.9% having an undergraduate degree, 45.4% having a master's degree, 25% having a PhD, and the remaining 1.9% having finished a high school diploma. With regard to their age of English acquisition/learning, nearly 43.5% began learning English between the ages of 8-13 ( $M = 14.4$ ,  $SD = 6.6$ ), 23.1% began learning after age 13, 14.8% acquired it before age eight, and 17.6%

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<sup>3</sup> The remaining 4.2% did not mention their education level.

learned it later in their lives (i.e. after age 21). Table 1 shows the distribution of bilinguals based on the context of English acquisition and frequency of Arabic and English use.

Statistical analyses revealed that both groups of bilinguals did not significantly differ in their EP scores nor the perceived emotional intensity of the emotions in both languages ( $p = ns$ ). Therefore, one single group of bilinguals was created. Their linguistic proficiency scores varied from a minimum score of 36 to a maximum of 100 ( $M = 63.78$ ,  $SD = 13.4$ ). They were divided, based on tertiles of their scores, into three groups: low proficiency ( $n = 129$ ), medium proficiency ( $n = 66$ ), and high proficiency ( $n = 6$ ).

### 3.3.3 Participants in the qualitative study

As mentioned earlier, the qualitative sample consisted of seven Arabic-English bilinguals. The conceptual criterion was to include bilingual speakers who would provide insightful and rich descriptions of their emotional experiences. Patton (2002) indicated that there are no strict rules regarding sample size for qualitative research; rather, it depends on “what you want to know” and “what will have credibility” (p. 244). Dörnyei (2007) emphasised that, in a qualitative study, “the real challenge is not to generate *enough* data but rather to generate *useful* data [emphasis in the original]” (p. 125). In fact, a small number of participants for a qualitative study is often preferable, as it allows to “yield the saturated and rich data that is needed to understand even subtle meanings in the phenomenon under focus” (Dörnyei, 2007, p. 127). Accordingly, I aimed not to gather too much qualitative data, as it may have distracted me from reflecting on the details. The recruitment of participants stopped when further data did not seem to add new information.

At the end of the online questionnaire, I invited Arabic-English bilingual participants who enjoyed the topic to follow-up interviews. Only seven participants (two males and five females) contacted me to attend the follow-up interview after filling out the questionnaires. All of the participants were adults; their ages ranged from 25-35 years old. All of the participants were Saudis, and they spoke Arabic as their L1 and English as their L2. Only one of the participants had never been to an ESC at the time of the interview and she lived in Saudi Arabia. The other six participants were in the UK at the time of the interviews. The main aim, therefore, was to focus on those bilinguals who had experienced living in the L2 environments, which might shed light on the impact of acculturation on emotion perception and experiences and on

the perception of emotions across languages and cultures. These six participants were international students in the UK, studying in higher education institutions in London. The minimum length of exposure to English in the L2 environment was three years, and the maximum length was five years.

All of the participants were highly educated individuals, and they learned English later in their lives through formal and naturalistic settings. All of the participants started learning English in English language classrooms after age 13 in Saudi Arabia, but the majority were enrolled in extensive English language programmes in the UK. Therefore, their English language learning experience varied, with the majority having learned English in both formal and naturalistic settings. The participants, particularly those who were in the UK, demonstrated motivation to practice speaking English in their everyday lives and were impressed by the English culture, especially life in London. All of the participants who were in London stated that they have English friends and neighbours, so they were exposed to the English language and culture in authentic settings. Two of them had also lived in the United States for two years before moving to London. Thus, these two participants had been exposed to two varieties of the English language and cultures: British and American.

All of the participants were able to speak, understand, read, and write in both languages. All of the interviews (with the exception of one) were conducted in Arabic, which is the participants' L1, and the excerpts presented in the Results chapter are presented both in Arabic and in their English translation. The demographic information for the participants is presented in Table 1 below.

*Table 1.* Background information of the Arabic-English bilingual participants in the interview

<b>Code</b>	<b>Age</b>	<b>Sex</b>	<b>Education level</b>	<b>Language spoken most frequently</b>	<b>Length of residence in ESCs</b>
<i>Bi-1</i>	30	M	Master's	Arabic	3 years
<i>Bi-2</i>	25	M	Undergraduate	Arabic	3 years
<i>Bi-3</i>	35	F	Master's	Arabic/English	4 years
<i>Bi-4</i>	32	F	Master's	Arabic/English	3 years
<i>Bi-5</i>	33	F	Master's	Arabic/English	5 years
<i>Bi-6</i>	31	F	Master's	Arabic/English	4 years
<i>Bi-7</i>	30	F	Undergraduate	Arabic	Never been to ESCs

M = Male; F = Female

### **3.4. Instruments**

Given that emotion perception is a complex phenomenon influenced by a number of psychological, cultural, linguistic, and socio-biographical variables, a combination of different instruments was opted for in order to help explain the quantitative and qualitative results, triangulate different kinds of data, and link them in a meaningful way to explore the complexity as well as the connection of the variables under investigation. All instruments in the quantitative and the qualitative research are described below.

### 3.4.1. *Quantitative study*

#### 3.4.1.1. Pilot study

The online questionnaire was developed and pilot tested with 73 participants to ensure its reliability and validity in November 2016. The data was collected from three groups of participants: English monolinguals ( $n = 29$ ), Arabic monolinguals ( $n = 20$ ), and Arabic-English bilinguals ( $n = 24$ ). The results of the pilot study revealed that the questions were relevant to the context and aim of the study. The length was deemed appropriate. The same instrument has therefore been used in the actual study.

The mean age of the participants was 35.6 ( $SD = 11.9$ ), ranging from 18-69 years old. Of the total sample, 26 were males and 47 were females. With regard to the education levels of participants, 21.9% had finished high school, 34.2% had an undergraduate degree, 20.5% had a master's degree, and 13.7% had a PhD.

The nationalities of the English monolinguals varied, with 48% British, 20.7% Americans, 17.2% Australians, and 13.8% Canadians. All of them spoke English as their L1, and they were self-declared monolinguals. Their ages ranged from 18-69 years old ( $M = 43.24$ ,  $SD = 14.7$ ). Their English linguistic proficiency levels ranged from 35-100 (LEXTALE scores), with a mean score of 83.8 ( $SD = 17.8$ ). They had higher mean language proficiency scores than the Arabic-English bilinguals.

20 Arabic monolinguals participated in the pilot study, with a mean age of 28.35 years old ( $SD = 5.2$ ). All of them spoke Arabic as their L1, and they were self-declared monolinguals.

They had not been to ESCs at the time of the pilot study. Most of them were Saudis, but 5.5% belonged to other Arabic nationalities: Omani ( $n = 3$ ) and Egyptian ( $n = 1$ ).

24 Arabic-English bilinguals participated in the pilot study, and they were in ESCs at the time of the pilot study. Their ages ranged from 26-48 years old ( $M = 32.5$ ,  $SD = 5.4$ ). They spoke Arabic as their L1 and English as their L2. The average length of their stay in ESCs was five years, ranging from six months to 17 years. Most of them were highly educated, with 45.8% having a master's degree and 37.5% a PhD. The majority had learned English in both naturalistic and formal contexts (60.9%) and began their English learning between the ages of 6-28 ( $M = 13.22$ ,  $SD = 5.04$ ). With regard to their English language proficiency level, the mean score on the LEXTALE test was 70.8 ( $SD = 12.4$ ), ranging from 50-100.

Some items on the TEIQue-SF (Trait Emotional Intelligence Questionnaire–Short Form) needed to be reversed prior to analysis. For the items on the TEIQue-SF and BIOS (Bicultural Identity Orientation Scale) scales, mean scores were added and divided by the total number of items for each scale. With regard to the items on the EPT (Emotion Perception Task) scale, two mean scores were calculated: one for the emotions portrayed in the Arabic stimuli (i.e. six videos) and another mean score for the emotions portrayed in the English stimuli (i.e. six videos). For each score, the mean scores of each video were added and divided by the total number of stimuli. The mean scores were used to be comparable with other Likert scales used in the questionnaire. To reduce the possible effects of missing data, all items on the scales were mandatory. Participants who did not complete all of the scales were excluded.

The validity and reliability of the scales were tested. The reliability analysis indicated that all scales were reliable. For the EPT, the value of Cronbach's alpha was good (.85). Cronbach's alpha for the reliability was also calculated for the EP scores in both languages. The alpha values for the EP scale in Arabic (.73) and in English (.83) were good. In addition, the results of the comparisons between each intended emotion in each stimulus and the actual responses had good convergent validity. The values of Cronbach's alpha for the reliability of the LEXTALE (.93), the TEIQue (.87), and the BIOS (.74) were also good.

At the end of the questionnaire, the participants were asked to provide comments which might improve the questionnaire. Most of them were satisfied with the scales, except for one participant, who commented on the length of the survey. However, because the purpose of the

study is to compare participants' perception of emotions presented in Arabic and English, it was difficult to exclude some stimuli. Furthermore, because another aim of this study was to compare the EP of bilinguals and monolinguals, it was essential to include emotions expressed in both languages. In addition, the first version of the questionnaire included three different conditions of the verbal and non-verbal emotional channels: 1) six audio video clips; 2) six visual (i.e. silent) videos; and 3) six audio-visual videos for the six emotion categories in Arabic and English, but because of the long time needed to answer all scales, no participant completed the survey. Another justification for including only the audio-visual stimuli is that the main aim of this study was to examine the effect of bilingualism or familiarity with two languages on the EP of Arabic-English bilinguals. The aim was hence to use an ecologically valid instrument that integrates multiple emotional channels which might provide valuable emotional information to the participants. Accordingly, a decision was made to only include the *audio-visual* stimuli; six in Arabic and six in English. Thus, the estimated time for answering the survey was shortened to 25-35 minutes. Some monolingual participants suggested adding a note to the instructions in the emotion perception task that even if the participant does not speak or understand the language in the conversations in the videos, they could guess the emotional states based on facial configurations, vocal cues, and body positions (i.e. non-verbal cues) instead of the linguistic input (i.e. verbal cues). Accordingly, the instructions in this task were modified to ensure clarity.

Consequently, it was concluded that the instruments and the stimuli were fit for the purposes of the study. The final version of the questionnaire used in the actual study is described below.

#### 3.4.1.2. The use of the questionnaire

To collect quantitative data, an online questionnaire was prepared. It consisted of five instruments which were compiled in order to assess the quantitative research questions posed earlier. All questions on the questionnaire, except the LEXTALE test, were translated into Arabic by Arabic L1 users.<sup>4</sup> Arabic-English bilinguals had an option in the first page of the online questionnaire to choose the language they preferred to answer the survey in (either

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<sup>4</sup> The questionnaire was translated first by me and then by an external reviewer who works as an English language teacher in Saudi Arabia and holds an MA in Arabic-English translation from the University of Leeds.

Arabic or English) to ensure their understanding of the questions. The final version of the questionnaire was uploaded to Survey Gizmo, an online system for collecting questionnaire responses.

The first page of the questionnaire included questions regarding the socio-biographical information of the participants, including age, gender, education level, ethnic group, length of stay in ESCs, and country of residence. This part of the questionnaire also included questions regarding the *linguistic profile*, including L1, L2, and other languages known, the age of L2 acquisition, the context of L2 learning, and the frequency of use of L1, L2, and other languages using a scale from 1 (Not at all) to 5 (All the time). The other parts of the online questionnaire consisted of an English language proficiency test (LEXTALE; Lemhöfer & Broersma, 2012), the Emotion Perception Task (EPT) that included 12 audio-visual videos (six in Arabic and six in English), the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF; Petrides, 2009), and the Bicultural Identity Orientation Scale (BIOS; Comănanu, Noels, & Dewaele, 2018) (see Appendix B).

The Saudi Arabic-English bilinguals answered all of the five parts of the questionnaire; English monolinguals answered all parts except for the BIOS; Arabic monolinguals answered the Background Information, Emotion Perception Task, and TEIQue-SF. A detailed description of each part of the online questionnaire is presented below.

### **Linguistic profile**

#### *The age of onset of acquisition*

The participants were asked about the exact age at which they started their L2 learning/acquisition through the following question: “Age at which you have started learning/acquiring your second language (L2)?” The age of English acquisition for the Arabic-English bilinguals varied from birth to 36 years old ( $M = 13.76$ ,  $SD = 5.75$ ). After data collection, the answers were grouped into three categories: 1) bilinguals who started learning English before the age of three (i.e. bilingual first language users); 2) bilinguals who started learning English before the onset of puberty (i.e. early learners); and 3) bilinguals who started learning English after puberty (at age 13) or later (i.e. late learners).

An analysis of the distribution according to the age of onset of acquisition (AOA) indicated that 62.4% of the bilinguals ( $n = 128$ ) started learning English after the age of three, while 35.6% ( $n = 73$ ) started learning English later in their adulthood. Only 2% of the bilinguals ( $n = 4$ ) were bilingual L1 users of English.

#### *Context of L2 learning/acquisition*

In order to collect information about the context of L2 learning/acquisition, three types of contexts were offered for participants to choose from: 1) formal learning (inside classrooms); 2) naturalistic acquisition (i.e. acquiring the language outside the classroom context); and 3) both formal and naturalistic contexts (i.e. classroom context and naturalistic use of language outside the classroom). The data distribution of both groups of bilinguals (i.e. bilinguals who had or had not been to ESCs) showed differences in the context of English acquisition (see Table 2).

#### *Frequency of language use (L1, L2, other languages)*

To compare the frequencies of Arabic and English languages use (as well as other languages), the participants answered three questions: 1) How often do you use the Arabic language at home? 2) How often do you use the English language at home? And 3) How often do you use other languages at home? They responded on a five-point Likert scale ranging from 1 (Not at all) to 5 (All the time). The distribution of the data revealed that both groups of Arabic-English bilinguals (i.e. bilinguals who had or had not been to ESCs) differ in their frequency of use of Arabic and English (see Table 2).

Table 2. Distribution of bilinguals according to the context of their English learning and frequency of use of Arabic and English (in %)

	<i>Arabic-English Bilingual (Never been to ESCs)</i>	<i>Arabic-English Bilingual (In ESCs)</i>
<b><i>Context of L2 acquisition</i></b>		
<i>Naturalistic</i>	0	3.7
<i>formal</i>	65.5	37.1
<i>Mixed</i>	34.5	59.2
<b><i>Frequency of Arabic use</i></b>		
<i>Not at all</i>	1	4.6
<i>Rarely</i>	1	11.1
<i>Sometimes</i>	4.1	19.4
<i>Often</i>	12.4	13.9
<i>All the time</i>	81.4	50.9
<b><i>Frequency of English use</i></b>		
<i>Not at all</i>	1	15.7
<i>Rarely</i>	32	33.3
<i>Sometimes</i>	33	20.4
<i>Often</i>	24.7	9.3
<i>All the time</i>	9.3	21.3

#### *Length of stay in an English-speaking country (ESC)*

Information about the exact length of stay in an ESC was collected through the following question: How many years have you spent in an English-speaking country? The length of stay in an ESC of Arabic-English bilingual participants varied from less than a year to 17 years ( $M = 3.78$ ,  $SD = 3.13$ ). They were divided into two groups based on their length of stay in ESCs: less than two years (47 participants) and more than two years (61 participants).

#### ***Linguistic proficiency: Lexical Test for Advanced Learners of English (LEXTALE; Lemhöfer & Broersma, 2012)***

The English language proficiency test (LEXTALE—Lexical Test for Advanced Learners of English) consists of 60 trials which include a string of letters. The LEXTALE was

used to test the bilinguals' and English L1 users' awareness of whether each item is an existing English word or not. It is a five minute yes/no vocabulary test, which is appropriate to test the English language proficiency of medium to advanced English speakers. It has been reported that LEXTALE scores were correlated significantly with those of the Test of English for International Communication (TOEIC) and the Quick Placement Test (Lemhöfer & Broersma, 2012). LEXTALE is widely used because it is an easier alternative to other proficiency tests such as multiple-choice tests or L2 aptitude tests (Lemhöfer & Broersma, 2012). Although LEXTALE is most relevant for vocabulary knowledge, it is also applicable to measure "other domains of L2 processing" (p. 326). Even though self-ratings are used to assess the four skills (reading, writing, listening, and speaking) separately, LEXTALE may be a better predictor of general linguistic proficiency (Lemhöfer & Broersma, 2012). The researchers reported that LEXTALE is superior to self-ratings, particularly in bilingual studies that use questionnaires, including language history questions. Previous research has reported that L1 users' scores in vocabulary tests vary depending on factors such as age, education, and multilingualism (Keuleers, Stevens, Mandera, & Brysbaert, 2015). Therefore, the language proficiency of English L1 users was tested as well.

Scores on the questionnaire ranged from 33-100, with a mean of 77.70 ( $SD = 18.8$ ) and were slightly positively skewed. Overall, English monolinguals ( $Mdn = 93.75$ ) scored higher than bilinguals ( $Mdn = 61.25$ ): A Mann-Whitney  $U$ -test ( $538$ ) = 10893,  $z = -13.1$ ,  $p < .0001$  (see Figure 2). No significant differences in LEXTALE scores emerged between males and females ( $U$  ( $538$ ) = 33244,  $z = -.81$ ,  $p = ns$ ). The LEXTALE had high reliability: Cronbach's alpha = .94, ( $n = 538$ ). Three groups were created, roughly based on tertiles: the low linguistic proficiency group ( $n = 185$ ), average linguistic proficiency group ( $n = 163$ ), and high linguistic proficiency group ( $n = 190$ ).

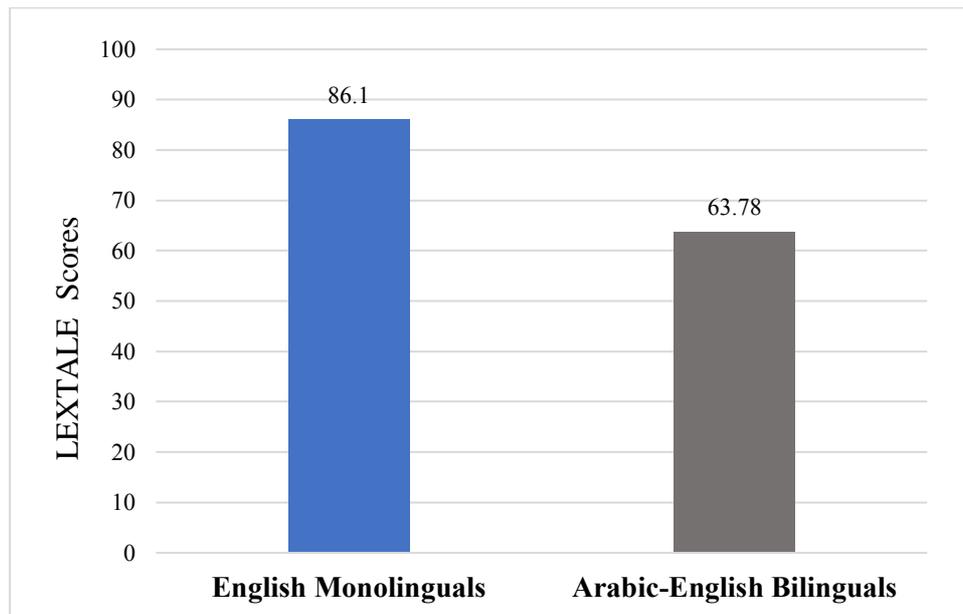


Figure 2. Mean scores of the linguistic proficiency test for Arabic-English bilinguals ( $n = 205$ ) and English monolinguals ( $n = 333$ )

**Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF; Petrides & Furnham, 2006)**

The fourth part of the questionnaire was the short form of the Trait Emotional Intelligence Questionnaire (TEIQue-SF; Petrides & Furnham, 2006), consisting of 30 questions. The full version of the Trait Emotional Intelligence Questionnaire (TEIQue) has 153 items with seven-point Likert scales and was translated into fifteen languages (Petrides, 2009), including English and Arabic, which were used in this study. The scales of this measurement included four factors with 15 TEIQue facets and global TEI. The four factors are: *Self-control* (emotion regulation, impulsiveness (low), adaptability, self-motivation, and stress management), *Well-being* (trait happiness, trait optimism, and self-esteem), *Emotionality* (trait empathy, emotion perception, emotional expression, and relationships) and *Sociability* (emotion management, assertiveness, and social awareness) (Petrides, 2009). It is a self-report questionnaire with a response on a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Mean scores on the questionnaire ranged from 1.9 to 6.67 (*absolute min* = 1, *absolute max* = 7), with a mean of 4.5 ( $SD = .81$ ) and were slightly positively skewed. Based on roughly tertiles, three groups of the total sample were formed, with 204 (33.5%) participants in the low TEI group, 204 (33.5%) in the medium TEI group, and 201 (33%) in the high TEI group.

A Mann-Whitney *U*-test revealed that males ( $Mdn = 4.33, n = 250$ ) significantly differ in their TEI scores from females ( $Mdn = 4.56, n = 359$ ):  $U = 39608, z = -2.46, p < .01$ , with females scoring significantly higher than males. It also appeared that the two groups of bilinguals (Arabic-English bilinguals who had or had not been to ESCs) did not significantly differ in their TEI scores:  $U = 5104, z = -.31, p = ns$ . There was a positive correlation between TEI and age,  $\rho(609) = .085, p < .03$ , with older participants having higher TEI scores than younger participants. The value of the Cronbach's alpha for the reliability of the TEIQue-SF scale (.88) was good.

**Bicultural Identity Orientation Scale (BIOS) (adapted from Comănaru, Noels, & Dewaele, 2018)**

Arabic-English bilinguals (in ESCs) were required to answer this part of the questionnaire. The Bicultural Identity Orientation Scale (BIOS) (Comănaru, Noels & Dewaele, 2018) was adopted in this study to measure the relationship between the perception of bicultural identities and the emotion perception of Arabic-English bilinguals. The scale consisted of a five-dimensional model, which has five variables: *monoculture*, *conflict*, *alternation*, *hybridity*, and *compatibility*; each one has four items, and the participants were asked to respond on a seven-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The *monocultural* model describes the behaviours when bicultural bilinguals tend to be part of one identity group; the *conflict* model addresses the separation or opposition between the two cultural identities; the *alternation* model describes the bilinguals' behaviours of adjusting their cultural identity based on social demands; the *hybridity* model is associated with the way two cultures become an indistinguishable new culture; and the *compatibility* model is when the two cultural identities are in harmony. The compatibility and hybridity models are associated with self-esteem and the ability to easily adapt to other cultures. Because the original version of this scale was developed to measure the European bicultural identity, certain modifications to the names of the cultural groups were made to suit the purpose of the study; for example, instead of using the terms "the ethnic and the European identity", the terms "the ethnic (Arabic) and the mainstream (e.g. British) cultural identities" were used. The distribution of data showed that compatibility had the highest mean ( $M = 4.31, SD = 1.23$ ) (see Table 3).

Table 3. Mean scores and standard deviation of acculturation variables for Arabic-English bilinguals (in ESCs)

	<i>Monoculture</i>	<i>Alternation</i>	<i>Compatibility</i>	<i>Hybridity</i>	<i>Conflict</i>
<b>Mean</b>	3.38	3.84	4.31	3.81	2.96
<b>Std. Deviation</b>	1.29	1.43	1.23	1.43	1.12

### **Emotion Perception Task (EPT)**

This part of the questionnaire consisted of an Emotion Perception Task (EPT), which was designed for the purpose of the study with the express intention to have valid stimuli and to have control over their content. The task consisted of 12 short audio-visual videos (six videos in Arabic and six in English) depicting instances of six emotion categories: four negative emotions (*anger, fear, sadness, and disgust*) and two positive emotions (*pleasant surprise and happiness*). Each one of the videos contained a very short conversation (each between 20-50 seconds long), with one speaker telling her/his friend about a past experience that caused her/him to experience one of the six emotional categories (see Appendix A for the transcripts and URL links to the videos).

In the *Arabic audio-visual videos*, four actors (i.e. two in each video) acted the scenarios out. Two of the actors are professionals (aged 26 and 29), and they are Arabic monolinguals. They speak Arabic with a slight Najdi accent, which is the most common accent in Saudi Arabia and is used widely in the capital city, as well as most cities in the centre and the east. They were born and brought up in Saudi Arabia and work at the Basmat Ata'a Company, a Saudi film-making company. They acted out two of the six Arabic videos (the scenarios of the emotions *fear* and *sadness*). The other two actors (aged 33 and 37) were also Arabic L1 users, but have English as an L2. They were born in Saudi Arabia and were in the UK at the time of recording. They speak Arabic with no clear accent, and they learned English later in their adulthood; however, they used Arabic with a Saudi accent in the videos. They are also professional actors, and they acted out four of the six Arabic videos, which included the scenarios of the emotions *anger, disgust, surprise* and *happiness*. One limitation of this method

is that it was not possible to have actresses act in the Arabic videos because of cultural and religious constraints.

The *English audio-visual videos* contained very short conversations between a 40-year-old professional actor and a 47-year-old professional actress. The actor is a comedian who works in plays while the actress is a historical character actor who works at Hilary Wood Historical Characters Ltd. Both of them are English monolinguals, were born in the UK, and have a British Received Pronunciation (RP) accent. The actress acted in the videos that involved emotional instances of the emotion categories *fear* and *happiness*, while the actor acted out the other emotional instances. It should be noted that the gender of the speaker in the videos was not linked to the EP scores, as participants could identify the intended emotion in each stimulus at high agreement rates despite the gender of the speaker (see Table 5).

All actors were asked to imagine themselves in an emotional state that included an instance of an emotion category (*anger, fear, sadness, disgust, happiness* or *surprise*). In the majority of the videos, the actors talked about real emotional experiences they had in the past. Thus, the actors were free to act out the scenes as they preferred, in order to ensure that the stimuli were rich and ecologically valid. From the perspective of the theory of constructed emotions, the actors' depiction of the emotional instances was constructed in the moment of recording based on their own emotional knowledge and past experiences, which had been constructed by their own cultures and languages. Thus, their depiction of the emotions was not in any way universal. In addition, the actors were instructed not to use direct emotion words (e.g. *sad, sorrow, gloom, grief, dejection, desolation, happy, disappointed, angry, scared, afraid, disgusted*, or other emotion words or expressions that directly described the emotion categories) so that participants would guess the emotion based on verbal and non-verbal cues. Therefore, the participants were asked to indicate the existence of each *emotion category* on a dimensional scale. It should be noted that the main aim of this study is to estimate the degree of agreement in emotion perception of emotion categories amongst participants rather than discovering what type of emotional instances the participants had constructed in their brains. It should also be noted that the videos were recorded three times by the researcher and were pilot tested, as in some of the early versions of the videos it was too easy to identify the emotions (e.g. direct emotion words were used) or there were some technical problems affecting the clarity of the content.

After each video, the participants were asked to answer two questions. The first asked them to rate the existence of the emotional category in the video on a seven-point Likert scale ranging from 1 (*absolutely not*) to 7 (*absolutely yes*). The emotion labels were: *sadness, anger, happiness, disgust, surprise, fear, and neutral*. The term *neutral* does not refer to any specific emotion, but this term was used “to denote the absence of any discernible effect” (Dromey, Silveira, & Sandor, 2005, p. 354). Two mean scores were calculated: 1) a mean score for the emotion perception of the emotions in Arabic, and 2) a mean score for the emotion perception of the emotions in English. Also, the mean scores of each individual emotion were used when needed in analysing the data, particularly when analysing the emotion perception scores of each individual emotion in both languages. The second question in this task asked to rate the perceived intensity of the emotional expression in each stimulus on a five-point Likert scale ranging from 1 (*very weak*) to 5 (*very strong*).

Cronbach’s alpha was calculated for the Emotion Perception Task to measure the correlation between the items (individual emotions) in each language. The alpha values of the EP scale in English (.80) and in Arabic (.78) were good.

To check the validity of the EPT scale, the degree to which each individual emotion in each language (English and Arabic) represents the construct itself (i.e. total scores of the emotion perception in English and in Arabic) was assessed, and the full range for the total score on the EPT scale was checked. The results indicated positive and significant correlations between the perception of each individual emotion in both languages (see Table 4).

*Table 4.* Correlations between EP scores of each emotion and the total score of EP in Arabic for Arabic monolinguals ( $n = 71$ ) and in English for English monolinguals ( $n = 333$ )

		<b>Anger</b>	<b>Fear</b>	<b>Sadness</b>	<b>Disgust</b>	<b>Surprise</b>	<b>Happiness</b>
<i>Spearman’s rank</i>	EP in Arabic	<i>Rho</i> .736**	.693**	.748**	.563**	.702**	.561**
	EP in English	<i>Rho</i> .821**	.526**	.723**	.796**	.776**	.675**

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Moreover, to ensure the validity of each stimulus used in this study, participants’ actual responses to the EPT and the intended emotions for each stimulus were compared. Table 5 shows that participants scored higher on the intended emotions for each audio-visual stimulus.

Table 5. Mean scores of the EP of intended emotions vs. actual responses of emotions in English and Arabic

		<b>Actual Responses</b>													
		<i>Emotions in English</i>													
<b>Intended Emotion</b>	<i>Anger</i>		<i>Fear</i>		<i>Sadness</i>		<i>Disgust</i>		<i>Surprise</i>		<i>Happiness</i>		<i>Neutral Emotion</i>		
	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	
<i>Anger</i>	<b>5.3</b>	<b>1.9</b>	1.9	1.5	2.9	1.9	3.5	2.1	3.5	1.9	1.7	1.4	2.5	1.8	
<i>Fear</i>	4.0	1.9	<b>4.1</b>	<b>1.9</b>	3.7	1.9	3.1	1.9	2.9	1.7	1.7	1.4	2.8	1.8	
<i>Sadness</i>	2.5	1.6	2.2	1.6	<b>4.6</b>	<b>2</b>	2.9	1.8	2.9	1.7	1.7	1.3	2.9	1.9	
<i>Disgust</i>	2.8	1.8	2	1.5	2.3	1.6	<b>5.7</b>	<b>1.8</b>	3.4	1.8	1.9	1.5	2.5	1.9	
<i>Surprise</i>	1.8	1.5	1.9	1.5	1.8	1.4	1.9	1.5	<b>5.5</b>	<b>1.8</b>	3.5	1.9	2.9	1.8	
<i>Happiness</i>	1.4	1.1	1.5	1.2	1.5	1.1	1.5	1.2	4.5	1.9	<b>6.1</b>	<b>1.3</b>	2.4	1.9	
		<i>Emotions in Arabic</i>													
<i>Anger</i>	<b>5.3</b>	<b>2.3</b>	2.9	1.9	3.4	2.1	3.1	1.9	3.1	1.9	1.7	1.4	2.6	1.8	
<i>Fear</i>	3.3	1.9	<b>5.2</b>	<b>2.3</b>	2.1	1.6	3	1.9	3.4	1.9	1.8	1.4	2.6	1.8	
<i>Sadness</i>	2.7	1.8	2.4	1.8	<b>5.1</b>	<b>2.3</b>	2.8	1.9	3.3	1.1	1.7	1.4	2.8	1.9	
<i>Disgust</i>	3.3	1.8	2	1.4	2.4	1.7	<b>5.9</b>	<b>1.9</b>	3.3	1.8	2	1.5	2.7	1.8	
<i>Surprise</i>	1.5	1.2	1.6	1.3	1.4	1.1	1.6	1.3	<b>5.7</b>	<b>1.9</b>	4.4	1.5	2.4	1.8	
<i>Happiness</i>	1.6	1.3	1.6	1.3	1.7	1.4	1.7	1.4	2.6	1.7	<b>5.8</b>	<b>1.9</b>	3	1.9	

### 3.4.1.3. Ethical issues in the quantitative study

The research design and questionnaire obtained ethical approval from the Ethics Board at Birkbeck, University of London. The first page of the online questionnaire was the Informed Consent: participants were told about the nature of the study and the anonymity, voluntariness, and confidentiality of their responses. None of the participants were forced or directly encouraged to participate in the investigation. Anonymity and confidentiality were vital conditions in this project. Everyone was promised absolute confidentiality and anonymity, and were told that their biodata and background information would only be used in ways that would

be beneficial for the research findings of the project. Informed consent was obtained when participants ticked a box at the start of the questionnaire (see Appendix B).

### 3.4.2. *Qualitative study*

#### 3.4.2.1. The use of interviews

Using interviews is the most popular method in qualitative research (Dörnyei, 2007). This method allows to understand the phenomenon under investigation from the interviewees' points of view. The interviews also help to focus on individual perceptions and experiences that could provide "a framework within which respondents can express *their own* understandings in their own terms [emphasis in the original]" (Patton, 2002, p. 348). The main feature of interviews is their emergent and exploratory nature, which can produce exciting results and probe into the findings that might have remained unexplored in the quantitative study. The interview, thus, "allows for flexible approaches" and for the emergence of new issues related to the subject of the study (Dörnyei, 2007, p. 143). The interview has a number of weaknesses, however, such as being time-consuming and requiring good communication skills on the interviewer's part (Dörnyei, 2007). The interviewer, hence, needs to be well prepared by piloting the questions in advance and preparing an interview protocol/guide that will allow to maintain a systematic coverage of the topic under investigation.

#### 3.4.2.2. Interview protocol

The present qualitative study utilised semi-structured interviews. This type of interview can allow interviewees to elaborate on certain aspects of the topic being discussed (Dörnyei, 2007). The format of semi-structured interviews is open-ended, although it includes "a set of pre-prepared guiding questions" (Dörnyei, 2007, p. 136). This open-ended format is essential for developing broader questions and, hence, achieving a deeper and broader understanding of the topic. The guiding questions help interviewers guide the discussion (Dörnyei, 2007). The interview protocol, thus, is more than a list of questions; it includes a script of what the researcher will say at the start and at the conclusion of the interview, and prompts which could remind the interviewers to collect informed consent as well as to remind them of the information they are interested in collecting. Prompts also help to remind the interviewer of the questions, while allowing for unexpected data to emerge (Dörnyei, 2007). Dörnyei (2007)

argued that the interview guide is useful because it offers a template for the opening and closing questions and a list of suggested appropriate question wordings.

The same guiding interview questions were presented to each of the seven participants. The interviewer intervened as little as possible, allowing participants to discuss the interview topics freely without interruption, occasionally asking for real-life emotional experiences they had as examples or explanations, depending on the details the participants provided. Even though the interview protocol provided a relatively systematic coverage of all themes and topics, the participants were free to suggest related topics. The interview topics, thus, were selected to facilitate probing for interesting answers from the interviewees and to give them opportunities for subjective spontaneous contributions.

In the pilot phase of the qualitative study, the interview guides were used with two of the participants to assess their reactions to, as well as their understanding of, the questions in the interviews. The purpose of the pilot phase is to “ensure that the questions elicit sufficiently rich data and do not dominate the flow of the conversation” (Dörnyei, 2007, p. 137). The participants’ answers in the pilot stage were taken into consideration when refining and adjusting the format of the interview protocol. As the questions seemed understandable and the wording of the questions was clear, no changes were made to the interview protocol for the rest of the participants. The full interview protocol can be found in Appendix C.

#### 3.4.2.3. Ethical issues in the qualitative study

All interviewees signed an informed consent form, which included consent for the interview to be audio recorded. They were provided with the necessary information about the project (including details of voluntariness, anonymity, confidentiality, and beneficence). The anonymity clause in informed consent means that the participants were not to be identified by names in any part of the study but rather by codes. The interviewees’ oral consent for recording the conversation digitally was also obtained before each interview. During the interviews, I once again stressed the issues of anonymity and explained how each interviewee’s name and data would be handled. I did my best to make sure that the participants’ real names were not used, instead referring to them by codes throughout the reporting stage of the results. The direct quotations from the interviews were also not credited by demographic information. The interviewees were told that their names, demographic information relating to the questions, and

their answers to the questions would be treated with strict confidence. This was also a point made on the consent form they had to sign before the interview.

During the interviews, the participants were free to skip any question they wanted and were not pushed for answers at any time. In addition, the participants were told that they had the basic right not to answer any question. The participants were also not pushed to talk about sensitive emotions or what made them feel certain emotions (both positive or negative). The discussion in the interviews was about emotion perception, emotional channels, and the impact of residence in ESCs on emotions and the perception of positive or negative emotions. Thus, the participants were not asked about their emotional states in any way, but instead were asked about the ways they interpret emotions in socio-cultural contexts, the criteria and cues they rely on when interpreting emotions, and the differences in interpreting positive or negative emotions. I made sure that they did not feel uncomfortable about the topics of the interviews. The interviews were recorded digitally and stored in a secure place, as per the Ethics Board approval from Birkbeck College, University of London.

### **3.5. Data collection procedure**

#### *3.5.1. Questionnaires*

Snowball sampling was used to recruit participants. Participants were asked to forward the survey link to their friends and colleagues who met one of the criteria: being an English L1 user, Arabic L1 user, or Arabic-English bilingual. The survey was shared through social media (Twitter and Facebook) and mailing lists. Arabic monolinguals, as well as Arabic-English bilinguals, were volunteers. For the recruitment of English monolinguals from English-speaking countries (the UK, US, Canada, and Australia), a panel was constituted using a digital agency (Survey Gizmo), and the English monolingual participants were compensated for their participation. Participants whose L1 is neither Arabic nor English were excluded. For the experimental group, only Saudi Arabic-English bilinguals were included. The online survey was posted from December 2016 to March 2017. Once the target sample was reached, the questionnaires were taken offline, and the collection of the quantitative data was considered complete. Only completed responses were exported to the SPSS software. The data were coded and cleaned to detect any missing or illogical values before statistical analysis was conducted.

### 3.5.2. Interviews

The interviews were conducted in September and October 2017 (i.e. after the initial quantitative data analysis). They were conducted in the language the participant preferred (either Arabic or English). Of the seven participants, only one participant preferred English as the language of the interview. To ensure the validity of the questions, each question was presented in Arabic and in English for each participant in order to confirm their understanding of the content of the questions. The recording of each interview lasted anywhere between 20 minutes to an hour, depending on the willingness of the participant to discuss the topics included in the discussion. All interviews were audio-recorded using the QuickVoice Recorder (an application on a personal Apple iPhone 7) and transcribed by the researcher.

## 3.6. Data analysis

### 3.6.1. Quantitative data

#### 3.6.1.1. Normality of distribution

To explore the normality of data distribution, a series of one-sample Kolmogorov-Smirnov tests were used, which showed that the values for the EPT in both languages are not normally distributed (Kolmogorov-Smirnov Z-values vary between .12 and .23 for emotions portrayed in the Arabic videos (all significant at  $p < .0001$ ) and they range from .12 to .31 for emotions portrayed in the English videos (all significant at  $p < .0001$ )) (see Appendix E). Because of the violation of normality assumption, nonparametric tests were used to analyse data. Consequently, a Kruskal-Wallis test was used as a nonparametric equivalent to one-way ANOVA. In addition, Friedman's ANOVAs were used as nonparametric equivalents of the repeated-measures ANOVA. To compare groups and explore the correlation between the dependent variables and independent variables, the nonparametric Mann-Whitney  $U$ -test was used as an equivalent to the  $t$ -test; likewise, Spearman's  $\rho$  was used instead of Pearson's  $r$ .

The statistical analyses performed to answer RQ1 were comparisons: 1) between EP scores in Arabic and English for the bilingual groups and 2) between Arabic-English bilinguals and Arabic/English monolinguals with regard to their EP in both languages. In order to answer RQ2, Kruskal-Wallis tests, a series of Mann-Whitney  $U$ -tests, and Spearman's rank correlation

tests were performed to explore the differences in TEI scores between groups of participants and to explore correlations between EP scores and TEI scores. For the analysis required by RQ3, Spearman's rank correlations between EP scores in English and language proficiency scores were conducted for English monolinguals and Arabic-English bilinguals. Kruskal-Wallis tests, a series of Mann-Whitney *U*-tests, and Spearman's rank correlation tests were performed to answer RQ4 and RQ5, which address the effect of socio-biographical variables and linguistic profile variables on EP scores in Arabic and English. For RQ6, Kruskal-Wallis tests and a series of Mann-Whitney *U*-tests were used to determine the degree of an in/out-group advantage in the EP scores of the monolingual groups. For RQ7, the correlations between EP scores and bicultural identity orientations (*monoculture, conflict, alternation, hybridity, and compatibility*) of Arabic-English bilinguals were investigated.

#### 3.6.1.2. Missing cases

There were no missing cases. The online survey was constructed to ensure that respondents could not proceed to the next section of the questionnaire without inputting all the responses requested.

#### 3.6.2. Qualitative data

##### 3.6.2.1. Preparation of the data

After conducting the interviews, the transcribed data (i.e. in the written form) were sorted and organised in separate files. The interviews conducted in Arabic were translated by me selectively for citation purposes in the Results chapter. First, I read through the transcripts once to get overall idea of the participants' viewpoints on the topic in each question, writing the emerging ideas. Second, I scanned the written texts to develop a coding scheme. Third, the data in the coding stage were reduced and simplified while highlighting the specific special features of certain data segments in order to link them to broader concepts. Even though the answers appeared in the order of the questions in the interview protocol, answers to the same question were found in various parts of the discussion, as the participants tended to repeat some of their responses. For example, in the discussion of the emotion perception of negative and positive emotions, the participants talked about the emotional channels that were discussed at the beginning of the interview. It seemed that the participants tended to add some points to

their previous thoughts and had to go back to a point that they had made earlier. Thus, a more holistic approach to reading the transcripts was needed to grasp the entirety of the participants' opinions. A separate summary for each participant's response to each question was done, with a list of the participant's age, gender, education level, and years spent in ESCs. These summaries helped me to understand each participant's contributions and thoughts later in the Qualitative Results chapter.

### 3.6.2.2. Developing a coding scheme

Qualitative data analysis is based on an iterative process involving going back and forth between data collection, analysis, and interpretation and drawing conclusions depending on the emergent results (Dörnyei, 2007). This process stops when the data stops producing new ideas, themes, and categories; a key term here is "saturation" (Dörnyei, 2007, p. 244). Saturation indicates that the breadth of the data with the level of analysis used was obtained. The analytical approach used to analyse the qualitative data was thematic analysis in coding forms (Creswell, 2009).

The interviews were coded using first- and second-level coding (Dörnyei, 2007). First, a tentative set of coding categories was developed and defined, especially obvious and simple categories. These initial codes were developed based on previous literature and the quantitative results. Some examples of codes from the existing literature included emotional channels (e.g. verbal channels, non-verbal channels, and visual channels), and emotion perception across different languages and cultures (e.g. emotional reactions, culture-specific emotional expressions, and personality). Other codes from the quantitative results included the impact of residence/acclulturation in ESCs on emotion perception and the emotion perception of negative versus positive emotions. The initial codes were pretested by an independent coder<sup>5</sup> who coded the same interview material using the same definitions to ensure reliability of the coding categories. Where little agreement was found on the number of responses that fell into a given category, the definition of that category was examined, discussed, and revised.

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<sup>5</sup> The independent coder is my friend who has previous knowledge in qualitative study and interviews. He holds a Master degree in International Social work from the University of Bedfordshire.

The second level was assigning category symbols or pattern codes (abbreviations) as a form of meta-code so that each category had its own symbolic label or code. This step allowed to summarise, analyse, and sort the data in relation to both the questions and answers. According to Miles and Huberman (1994), “pattern coding is a way of grouping those summaries [i.e., the first-level codes] into a smaller number of sets, themes, or constructs. For qualitative researchers, it's an analogue to the cluster-analytic and factor-analytic devices used in statistical analysis” (p. 69). Pattern coding, as a means of constructing “a cognitive map”, helps to understand the interaction amongst people (Miles and Huberman, 1994, p. 69). At this point, each code included a name and definition for each category and a symbolic label for each category it contains. The next step was classifying relevant information depending on the nature of the information as well as the size of the verbal units (e.g. individual words, phrases, thoughts, or themes); relevant words and phrases were underlined. Then, the qualitative data were quantified; the number of times each code occurred in the texts was counted in order to draw conclusions and organise the data depending on the most frequently mentioned topics (see Table 16).

At this stage, the reliability of coding was assessed by testing whether two independent codings of the data into categories relevant for the purposes of the interview would be the same or not (Dörnyei, 2007). Accordingly, two different coders (my friend and I) coded the same data independently without any previous discussion of the codes used until both codings were completed. Then, the two codings were compared to assess the degree of agreement or disagreement. According to Creswell (2009), “such an agreement might be based on whether two or more coders agree on codes used for the same passages in the text” (p. 191). The comparisons were done in a qualitative form, by comparing and discussing the disagreements in order to improve the codes of the same material in the final coding form. This final coding form consists of four main themes, which were organised based on the frequency of mentions: emotional channels (34.3%), EP in different linguistic and cultural contexts (30%), the EP and residence in ESCs (25.7%), and the EP of the negative versus positive emotions (10%).

### **3.7. Conclusion**

This chapter offered an in-depth discussion of the methodological decisions made with reference to the research approach and design. A rationale for the qualitative research was presented first in order to explicate the link between the quantitative and qualitative research

perspectives in the sequential explanatory design. Detailed information about the participants, the instruments, and the techniques of data collection and analysis was provided for the quantitative and qualitative components. The following chapter will present the results of the quantitative data and answer the quantitative research questions.

## Chapter 4

### RESULTS (Quantitative Study)

#### 4.1. Introduction

This chapter provides an overview of the statistical results of the quantitative data analyses in light of the quantitative research questions. The web questionnaire formed the basis of the quantitative method of data collection. The focus was on providing evidence and statistical significance of the relationship between the independent variables (i.e. knowledge of two languages, trait emotional intelligence (henceforth TEI), language proficiency, socio-biographical and linguistic profile variables, an in/out-group advantage, and bicultural identity orientations) and the dependent variable (i.e. emotion perception (henceforth EP) and perceived emotional intensities of the emotion categories of *anger*, *fear*, *sadness*, *disgust*, *surprise* and *happiness*) in Arabic and English for Arabic-English bilinguals and Arabic/English monolinguals.

#### 4.2. The EP of Arabic-English bilinguals and Arabic/English monolinguals (RQ1)

The first research question addressed the EP scores of Arabic-English bilinguals in their L1 (Arabic) and L2 (English), as well as comparisons of EP scores of bilinguals to those of monolinguals. As indicated in Chapter 2, this question examined the impact of bilingualism on the ability to identify emotions in both languages, and to what extent bilinguals differ from monolinguals in their EP scores and the way they perceive the emotional intensities of the emotion categories in the Arabic and English videos. Thus, it was hypothesised that Arabic-English bilinguals would be adept at identifying emotions in the Arabic and English videos. It was also hypothesised that Arabic-English bilinguals would be better at identifying emotions in Arabic and English videos than Arabic and English monolinguals. In this section, the results of the EP task are first presented for the Arabic-English bilingual group, followed by a comparison between bilinguals and monolinguals with regard to their EP scores.

A Wilcoxon Signed Ranks test was performed to find out the differences between the EP scores in Arabic and English for bilinguals, and the results revealed that no significant difference existed ( $Z = -.37$ ,  $p = ns$ ). Arabic-English bilinguals interpreted the emotions in

Arabic ( $M = 5.63$ ,  $SD = 1.04$ ) at higher rates than in English ( $M = 5.56$ ,  $SD = 1.22$ ), though the difference was not statistically significant.

Another Wilcoxon Signed Ranks test was conducted to investigate the differences in the EP scores of the individual emotions in Arabic and English for bilinguals, and the scores were significantly different (all  $p < .01$ ), with the exception of the emotion of *anger* ( $p = ns$ ). In other words, Arabic-English bilinguals interpreted the emotion category of *anger* in Arabic and English at similar agreement rates. More interestingly, Arabic-English bilinguals were better at identifying the negative emotions (i.e. *anger*, *fear*, *sadness* and *disgust*) in the L1 than in the L2, but they were better at identifying the positive emotions (i.e. *surprise* and *happiness*) in the L2 than in the L1 (see Figure 3). This result suggests that Arabic-English bilinguals might experience slightly more difficulties in interpreting negative emotions in English than in Arabic.

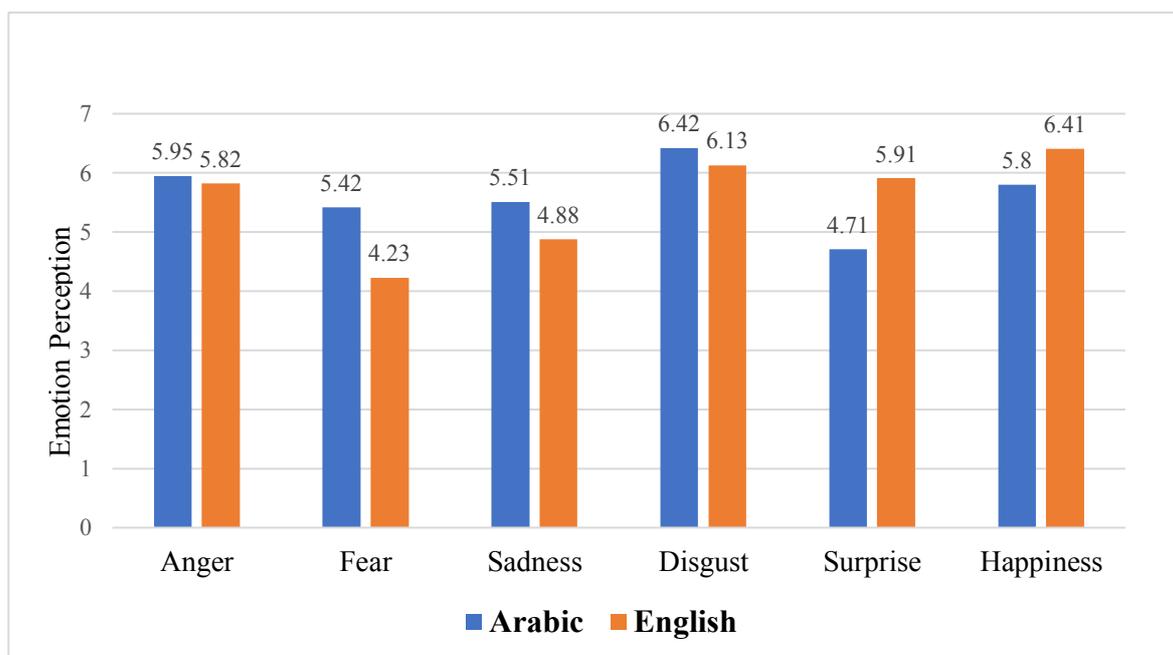


Figure 3. EP (mean) scores of individual emotions in Arabic and English for Arabic-English bilinguals ( $n = 205$ )

The next step was to run additional statistical analyses to find out the differences in the perceived emotional intensities of the emotions in the Arabic and English videos for Arabic-English bilinguals. The results in Figure 4 indicate that Arabic-English bilinguals rated the emotional intensity of the negative emotions *fear*, *sadness*, and *disgust* at higher rates in Arabic than in English, while they perceived the emotional intensity of the emotions *anger* and *happiness* at higher rates in English than in Arabic. A Wilcoxon Signed Ranks test showed

significant differences in the perceived emotional intensities of the emotions of *fear* ( $Z = - 3.21$ ,  $p < .001$ ), *sadness* ( $Z = - 6.12$ ,  $p < .0001$ ) and *happiness* ( $Z = - 7.38$ ,  $p < .0001$ ) in the L1 and L2 for bilinguals.

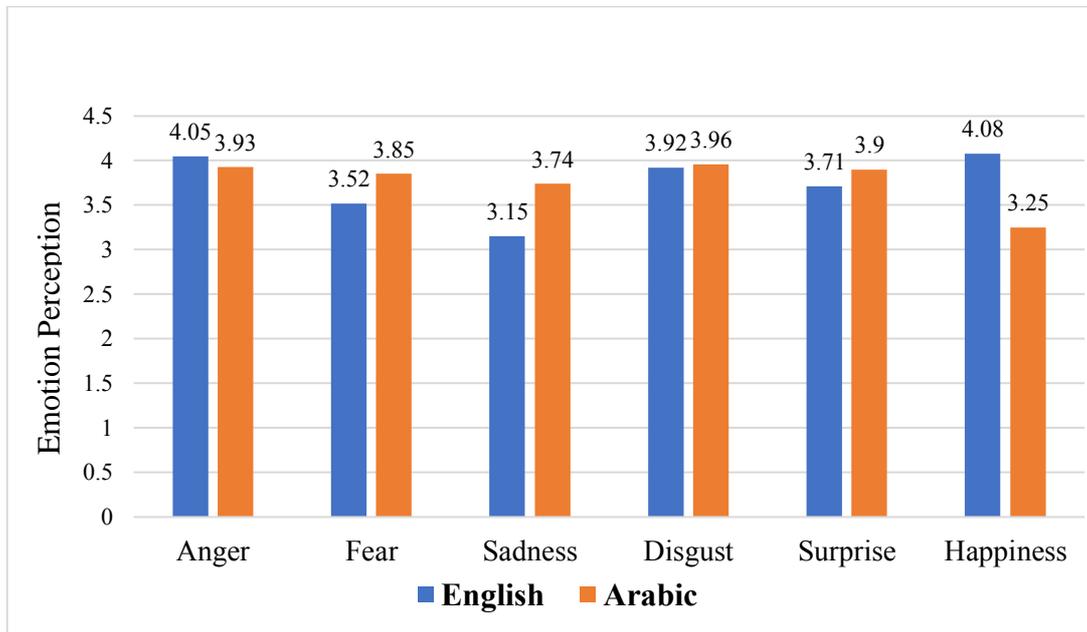


Figure 4. Perceived emotional intensity of the emotions in the L1 and in the L2 for Arabic-English bilinguals ( $n = 205$ )

To explore the relationships between the EP scores and the degree of the emotional intensity perceived for each emotion in the L1 and L2 for Arabic-English bilinguals, Spearman’s rank correlational analyses were run. As shown in Table 6, there are strong and positive correlations between the perceived emotional intensity and the ability to identify emotions in both languages (all  $ps < .001$ ), suggesting that the higher the bilinguals perceived the emotional intensities, the easier they found it to identify the emotions in their L1 and in L2.

Table 6. Spearman's rank correlations between the EP and the perceived intensity of emotions in Arabic and English for bilinguals ( $n = 205$ )

	EP	Intensity of Anger	Intensity of Fear	Intensity of Sadness	Intensity of Disgust	Intensity of Surprise	Intensity of Happiness
<b>Emotions in Arabic</b>	<i>Anger</i>	<b>.270<sup>***</sup></b>					
	<i>Fear</i>	.212 <sup>**</sup>	<b>.385<sup>***</sup></b>				
	<i>Sadness</i>	.221 <sup>**</sup>	.262 <sup>***</sup>	<b>.475<sup>***</sup></b>			
	<i>Disgust</i>	.150 <sup>*</sup>	.121	.020	<b>.224<sup>***</sup></b>		
	<i>Surprise</i>	.139 <sup>*</sup>	.082	.050	.130	<b>.262<sup>***</sup></b>	
	<i>Happiness</i>	.189 <sup>**</sup>	.220 <sup>**</sup>	.197 <sup>***</sup>	.080	.310 <sup>**</sup>	<b>.415<sup>***</sup></b>
<b>Emotions in English</b>	<i>Anger</i>	<b>.489<sup>***</sup></b>					
	<i>Fear</i>	.256 <sup>***</sup>	<b>.273<sup>***</sup></b>				
	<i>Sadness</i>	.305 <sup>***</sup>	.210 <sup>**</sup>	<b>.353<sup>***</sup></b>			
	<i>Disgust</i>	.228 <sup>**</sup>	.170 <sup>*</sup>	.049	<b>.400<sup>***</sup></b>		
	<i>Surprise</i>	.242 <sup>***</sup>	.187 <sup>**</sup>	.144 <sup>*</sup>	.232 <sup>**</sup>	<b>.313<sup>***</sup></b>	
	<i>Happiness</i>	.154 <sup>*</sup>	.091	.155 <sup>*</sup>	.208 <sup>**</sup>	.163 <sup>*</sup>	<b>.371<sup>***</sup></b>

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

The second set of statistical analyses to answer RQ1 were conducted in order to compare Arabic-English bilinguals' EP scores in both languages to those of Arabic/English monolinguals.

#### 4.2.1. EP scores of Arabic-English bilinguals and Arabic and English monolinguals

The results of the Kruskal-Wallis analysis revealed a significant effect of the number of languages known by the participants on the EP scores in **Arabic** ( $\chi^2(2) = 243.7, p < .0001$ ). A series of Mann-Whitney  $U$ -tests indicated that the scores of Arabic-English bilinguals ( $M = 5.63, SD = 1.04$ ) were significantly higher than those of English monolinguals ( $M = 3.79, SD = 1$ ) ( $U = 7317, z = -15.3, p < .0001, Cohen's d = 1.8$  (i.e. a large effect size)).<sup>6</sup> There was,

<sup>6</sup> Cohen (1988, p. 40) proposed that  $d = .20$  describes a small effect,  $d = .50$  a medium effect and  $d = .80$  a large effect. Plonsky & Oswald (2014), however, suggested that L2 researchers should "adopt the new field-specific benchmarks of small ( $d = .40$ ), medium ( $d = .70$ ), and large ( $d = 1.00$ ) in order to interpret the practical significance of L2 research effects more precisely" (p. 12).

however, no statistical difference between bilinguals and Arabic monolinguals ( $M = 5.19$ ,  $SD = 1.5$ ) ( $U = 6350$ ,  $z = -1.6$ ,  $p = .10$ , Cohen's  $d = .33$ ) (see Figure 5).

For the EP scores in **English**, the results of the Kruskal-Wallis analysis indicated a significant effect of the number of languages known on the EP scores ( $\chi^2(2) = 42.6$ ,  $p < .0001$ ). To follow this up, a series of Mann-Whitney  $U$ -tests indicated that Arabic-English bilinguals ( $M = 5.56$ ,  $SD = 1.22$ ) were better at interpreting emotions in the English videos than Arabic monolinguals ( $M = 4.65$ ,  $SD = 1.35$ ) ( $U = 4171$ ,  $z = -5.36$ ,  $p < .0001$ , Cohen's  $d = .70$  (i.e. a large effect size)). Interestingly, the scores of Arabic-English bilinguals were significantly higher than English monolinguals ( $M = 5.01$ ,  $SD = 1.22$ ) ( $U = 24459$ ,  $z = -5.53$ ,  $p < .0001$ , Cohen's  $d = .45$  (i.e. a small effect size)) (see Figure 5).

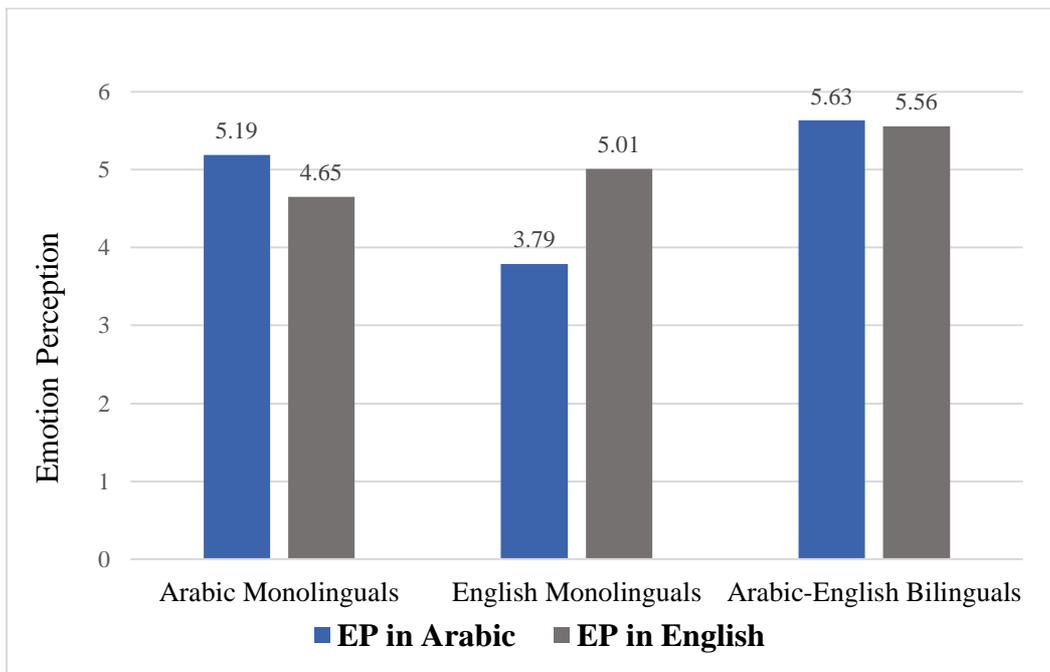


Figure 5. EP (mean) scores of bilinguals and monolinguals in Arabic and English

Interestingly, from Table 7 it is apparent that there were significant statistical differences between bilinguals and monolinguals regarding their EP scores of the individual emotions in both languages (all  $p < .001$ ), with bilinguals scoring higher than monolinguals.

Table 7. The statistical differences between bilinguals and monolinguals in the EP of individual emotions in Arabic and English (Kruskal-Wallis test)

	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>happiness</i>
EP in Arabic	145.5***	235.3***	113.9***	247.6***	9.7**	102.3***
EP in English	40.6***	36.1***	13.1***	39.5***	31.7***	31.5***

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

To further unpack these results, two separate statistical analyses were conducted to examine the variations in the EP scores between Arabic-English bilinguals and Arabic/English monolinguals. First, the comparisons between Arabic-English bilinguals and Arabic monolinguals regarding their EP in Arabic and in English will be presented.

#### 4.2.1.1. EP scores of Arabic-English bilinguals and Arabic monolinguals

As was indicated in the previous section, Arabic-English bilinguals outperformed Arabic monolinguals in the EP scores in English and Arabic, though the score was significant only for the EP in English (see Figure 6).

To find out the variations in the EP scores between Arabic-English bilinguals and Arabic monolinguals, two sets of comparisons were run: one for the EP scores and the perceived emotional intensities of the emotions in the Arabic videos and another for the EP scores and the perceived emotional intensities of the emotion categories in the English videos.

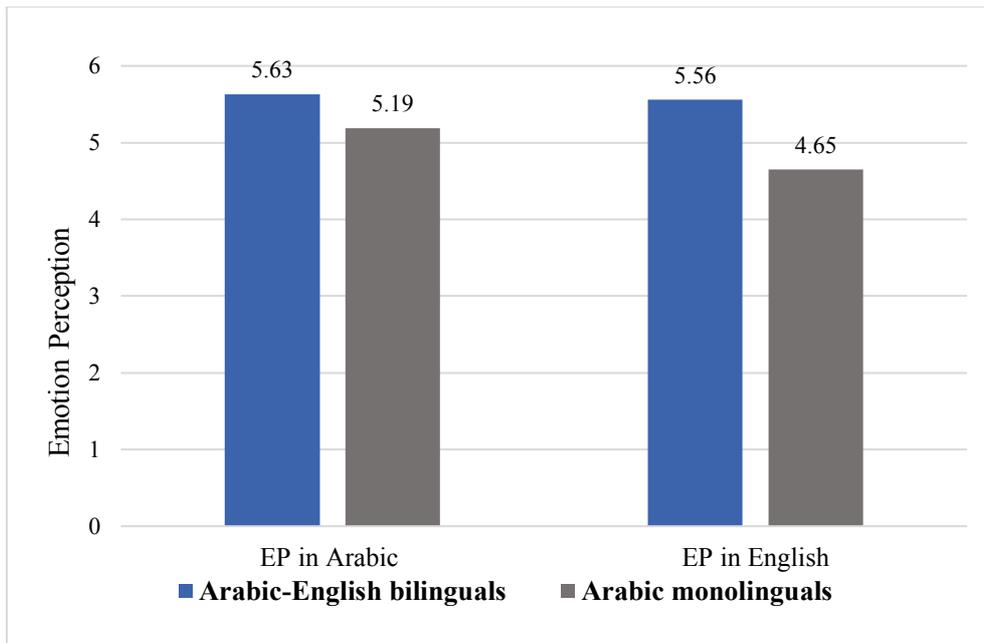


Figure 6. EP (mean) scores of Arabic-English bilinguals ( $n = 205$ ) and Arabic monolinguals ( $n = 71$ ) in Arabic and English

### **EP in Arabic: Arabic-English bilinguals and Arabic monolinguals**

First, a series of Mann-Whitney  $U$ -tests revealed no significant statistical differences in the EP scores of the individual emotions in Arabic, with the exception of the emotion *surprise* ( $U = 6034$ ,  $z = -2.18$ ,  $p < .02$ , Cohen's  $d = .33$  (i.e. a small effect size)). Arabic-English bilinguals perceived most of the emotions depicted by the Arabic stimuli at similar rates as Arabic monolinguals (see Figure 7). This result suggests that acquiring a second language seems to have little impact on the bilinguals' ability to interpret the emotions expressed in their L1.

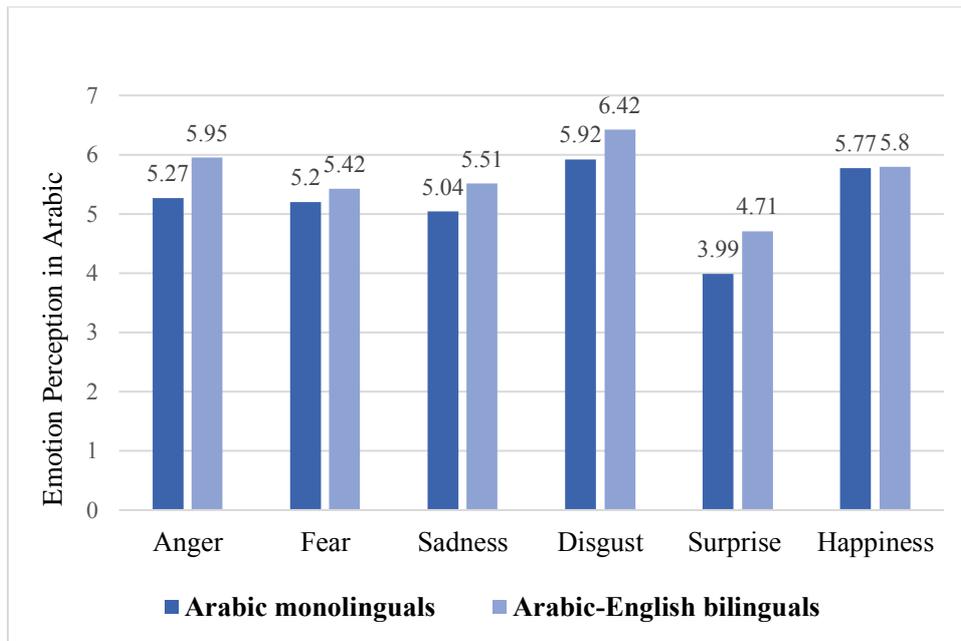


Figure 7. EP (mean) scores of individual emotions in Arabic for Arabic-English bilinguals ( $n = 205$ ) and Arabic monolinguals ( $n = 71$ )

Second, further analyses were run to examine the differences between the two groups (i.e. Arabic-English bilinguals and Arabic monolinguals) regarding their rates of the perceived intensities of the emotions expressed in Arabic. Mann-Whitney  $U$ -tests revealed that there were significant differences in the perceived emotional intensities of the negative emotions of *anger* ( $U = 5813, z = -2.6, p < .008$ ), *fear* ( $U = 5781, z = -2.68, p < .007$ ), *disgust* ( $U = 5659, z = -2.9, p < .003$ ), and *sadness* ( $U = 5985, z = -2.3, p < .02$ ). The values of Cohen's  $d$  for these tests vary between .3 and .4, which can be interpreted as small effect sizes.

There were, however, no significant differences in the perceived emotional intensities of the positive emotions of *happiness* and *surprise* ( $p = ns$ ). In other words, the differences between Arabic-English bilinguals and Arabic monolinguals were found in their perceived emotional intensities of the negative but not the positive emotions in the Arabic videos. Figure 8 shows the mean scores of the perceived emotional intensities of the negative emotions in Arabic between Arabic-English bilinguals and Arabic monolinguals. It can be observed that Arabic-English bilinguals rated the emotional intensities of the negative emotions at higher rates than Arabic monolinguals, suggesting that acquiring a second language might affect the bilinguals' emotion perception of the intensity of the negative emotions in their L1.

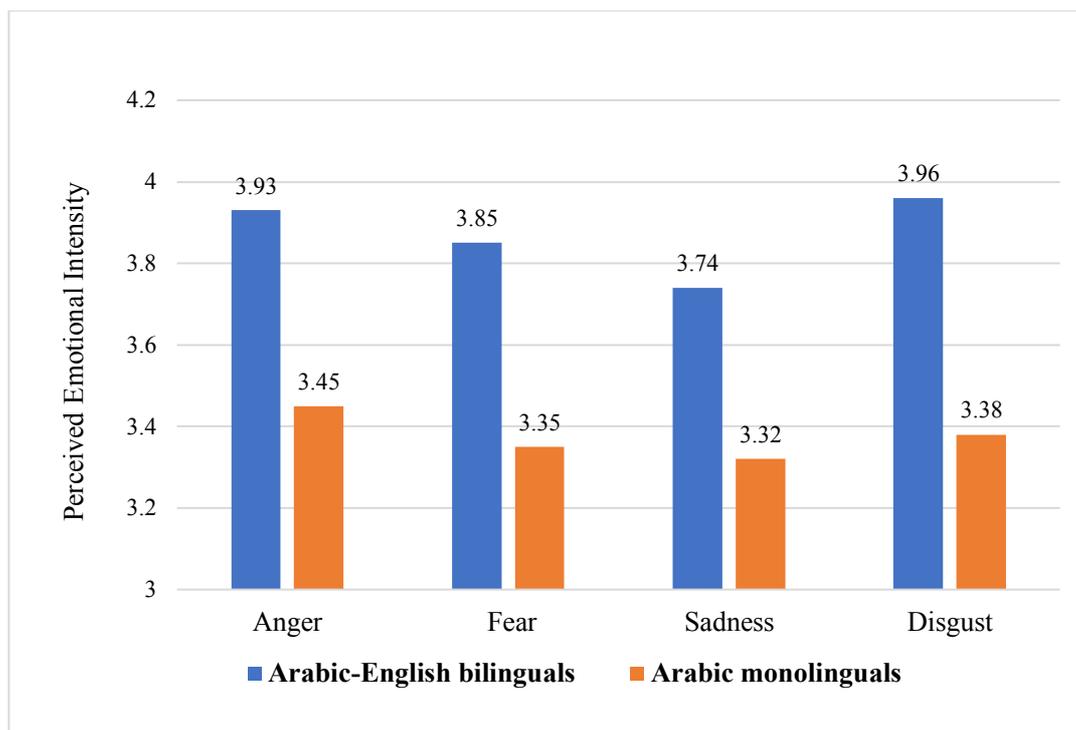


Figure 8. Mean values of the perceived emotional intensity of the negative emotions in Arabic for the bilinguals ( $n = 205$ ) and Arabic monolinguals ( $n = 71$ )

Arabic-English bilinguals, therefore, perceived the emotions expressed in their L1 at similar agreement rates as Arabic monolinguals, but bilinguals perceived the emotional intensities of the negative emotions at higher rates than Arabic monolinguals. A similar set of comparisons were run to compare the EP scores of the emotions in the English videos for the two groups.

### **EP in English: Arabic-English bilinguals and Arabic monolinguals**

As a reminder, Arabic-English bilinguals ( $M = 5.56$ ,  $SD = 1.22$ ) obtained statistically higher scores than Arabic monolinguals ( $M = 4.65$ ,  $SD = 1.35$ ) in EP in English ( $U = 4171$ ,  $z = -5.36$ ,  $p < .0001$ , Cohen's  $d = .7$  (i.e. a large effect size)). To unpack this result, additional comparisons were conducted to find out the variations in the EP scores of the individual emotions in the English videos between Arabic-English bilinguals and Arabic monolinguals. There were significant differences in the EP scores of the individual emotions of *anger*, *fear*, *sadness*, and *surprise* (all  $ps < .001$ ), but there were no significant differences in the EP scores nor the perceived emotional intensities of the emotions of *disgust* and *happiness* ( $p = ns$ ). It can be observed from the graph below (Figure 9) that bilinguals, interestingly, were better at interpreting most of the emotions in the English videos than Arabic monolinguals.

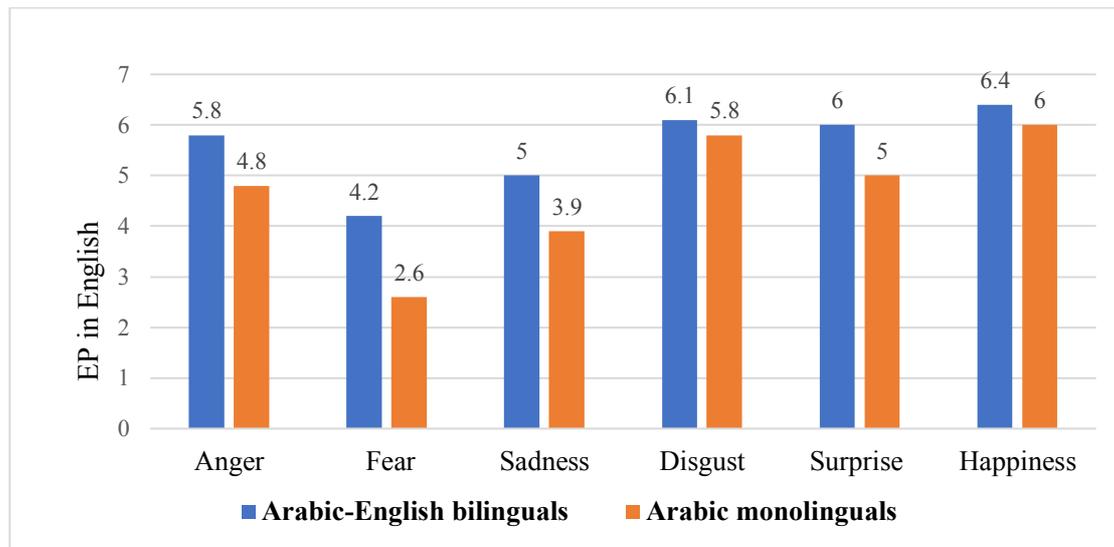


Figure 9. EP (mean) scores of individual emotions in English for Arabic-English bilinguals ( $n = 205$ ) and Arabic monolinguals ( $n = 71$ )

More details about the statistical comparisons between the two groups regarding their EP scores of the individual emotions in the English videos where significant differences were found will be presented below.

### **Anger:**

A Mann-Whitney  $U$ -test revealed a statistically significant difference in the EP of the emotion of *anger* in English between the bilingual group and Arabic monolingual group:  $U = 5293$ ,  $z = -3.77$ ,  $p < .0001$ , Cohen's  $d = .52$  (i.e. a medium effect size), with Arabic-English bilinguals ( $Mdn = 7$ ) outperforming Arabic monolinguals ( $Mdn = 5$ ). Another Mann-Whitney  $U$ -test was run to examine the differences between bilinguals and Arabic monolinguals regarding the perceived emotional intensity of the emotion of *anger* in English. The score revealed a statistically significant difference:  $U = 4605$ ,  $z = -4.82$ ,  $p < .0001$ , Cohen's  $d = .67$  (i.e. a medium effect size), with Arabic-English bilinguals perceiving the emotional intensity at higher rates ( $M = 4.05$ ,  $SD = 1$ ) than Arabic monolinguals ( $M = 3.2$ ,  $SD = 1.2$ ).

### **Fear:**

A Mann-Whitney  $U$ -test showed a statistically significant difference in the EP of the emotion of *fear* in English between bilinguals and Arabic monolinguals:  $U = 4216$ ,  $z = -5.3$ ,

$p < .0001$ , Cohen's  $d = .78$  (i.e. a large effect size), with Arabic-English bilinguals ( $Mdn = 4$ ) outperforming Arabic monolinguals ( $Mdn = 1$ ). Another Mann-Whitney  $U$ -test indicated a significant difference between the two groups in the perceived emotional intensity of the emotion of *fear* in English:  $U = 5591$ ,  $z = -3$ ,  $p < .003$ , Cohen's  $d = .45$  (i.e. a small effect size), with Arabic-English bilinguals perceiving the emotional intensity at higher rates ( $M = 3.5$ ,  $SD = 1$ ) than Arabic monolinguals ( $M = 2.9$ ,  $SD = 1.3$ ).

### **Sadness:**

Another Mann-Whitney  $U$ -test revealed a statistically significant difference in the EP of the emotion of *sadness* in English between the Arabic-English bilinguals and Arabic monolinguals:  $U = 5536$ ,  $z = -3.08$ ,  $p < .002$ , Cohen's  $d = .44$  (i.e. a small effect size), with Arabic-English bilinguals ( $Mdn = 5$ ) outperforming Arabic monolinguals ( $Mdn = 4$ ). However, the results showed a non-significant difference between the two groups in their perceived emotional intensity of this emotion ( $p = ns$ ).

### **Surprise:**

Mann-Whitney  $U$ -tests revealed statistically significant differences between Arabic-English bilinguals ( $Mdn = 7$ ) and Arabic monolinguals ( $Mdn = 5$ ) in their EP of the emotion *surprise* in English: ( $U = 5311$ ,  $z = -3.73$ ,  $p < .0001$ , Cohen's  $d = .49$  (i.e. a medium effect size)) as well as in their perceived emotional intensity ( $U = 5939$ ,  $z = -2.4$ ,  $p < .01$ , Cohen's  $d = .36$  (i.e. a small effect size)). Arabic-English bilinguals perceived the emotional intensity of the emotion of *surprise* in English at higher rates ( $M = 3.71$ ,  $SD = 1$ ) than the Arabic monolingual group ( $M = 3.2$ ,  $SD = 1.2$ ).

Overall, Arabic-English bilinguals perceived most of the emotions depicted in the English video clips at higher agreement rates than Arabic monolinguals, and bilingual participants perceived the emotional intensities of the emotions of *anger*, *fear*, and *surprise* at higher rates than Arabic monolinguals. These results suggest that Arabic-English bilinguals seem to have more awareness of the way emotions are communicated between English interlocutors.

After comparing the EP scores (of both languages) of Arabic-English bilinguals with Arabic monolinguals, the following statistical tests were run to explore the variations in the EP scores in Arabic and English videos between Arabic-English bilinguals and English monolinguals.

#### 4.2.1.2. EP scores of Arabic-English bilinguals and English monolinguals

The second set of comparisons were conducted on the EP scores of Arabic-English bilinguals and English monolinguals regarding emotions expressed in Arabic and English. As was indicated earlier, the EP scores of Arabic-English bilinguals in Arabic were statistically higher than the scores of English monolinguals ( $U = 7317$ ,  $z = -15.3$ ,  $p < .0001$ , Cohen's  $d = 1.8$ , (i.e. a large effect size)). Surprisingly, the EP scores of the bilingual group in English were higher than the scores of English monolinguals ( $U = 24459$ ,  $z = -5.53$ ,  $p < .0001$ ), although the effect size is small (Cohen's  $d = .45$ ) (see Figure 10).

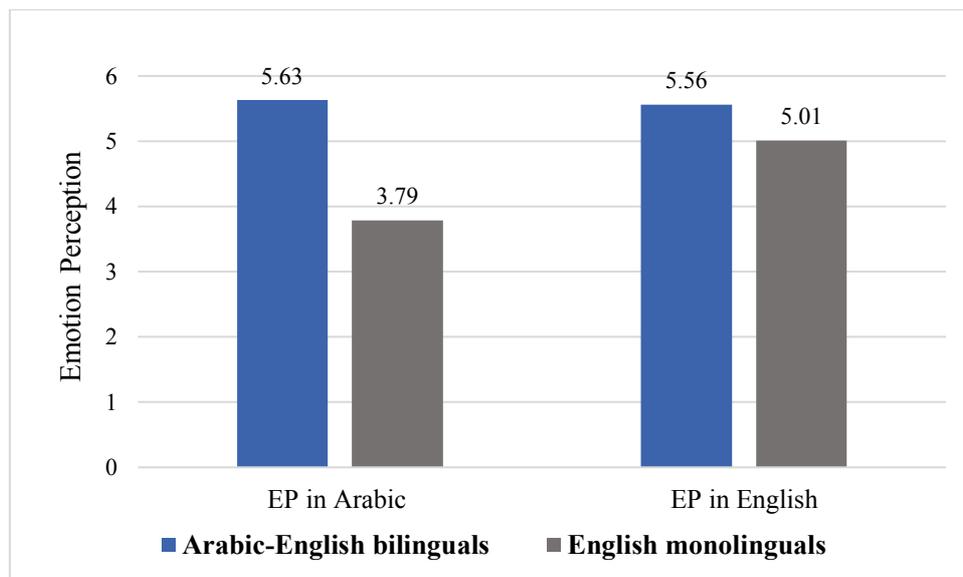


Figure 10. EP (mean) scores of Arabic-English bilinguals ( $n = 205$ ) and English monolinguals ( $n = 333$ ) in Arabic and English

To follow up on these results, further statistical tests were conducted to compare EP scores, as well as the perceived intensity of each individual emotion in both languages of bilinguals and English monolinguals.

#### **EP in Arabic and in English: Arabic-English bilinguals and English monolinguals**

The statistical results revealed significant differences between Arabic-English bilinguals and English monolinguals in their EP of each individual emotion in Arabic and English.<sup>7</sup> It can be observed from the graphs below (Figs. 11 & 12) that bilinguals scored higher than English monolinguals in the EP of all individual emotions in both languages. The following comparisons were conducted for the EP of each individual emotion in both languages.

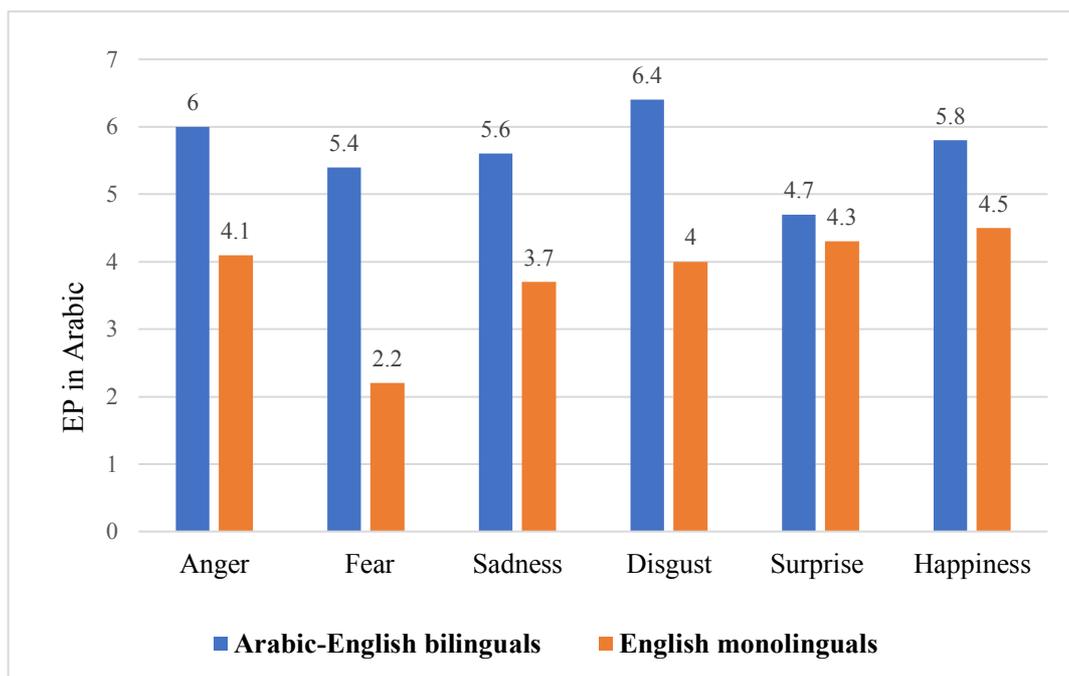


Figure 11. EP (mean) scores of Arabic-English bilinguals ( $n = 205$ ) and English monolinguals ( $n = 333$ ) in Arabic

<sup>7</sup> Additional comparisons regarding EP scores in English were conducted between English monolinguals and those bilinguals whose learning of English was a formal one and the results showed significant differences between them ( $U = 5516$ ,  $z = -3.28$ ,  $p = .001$ ), with bilinguals ( $Mdn = 5.5$ ) outperforming English monolinguals ( $Mdn = 5$ ).

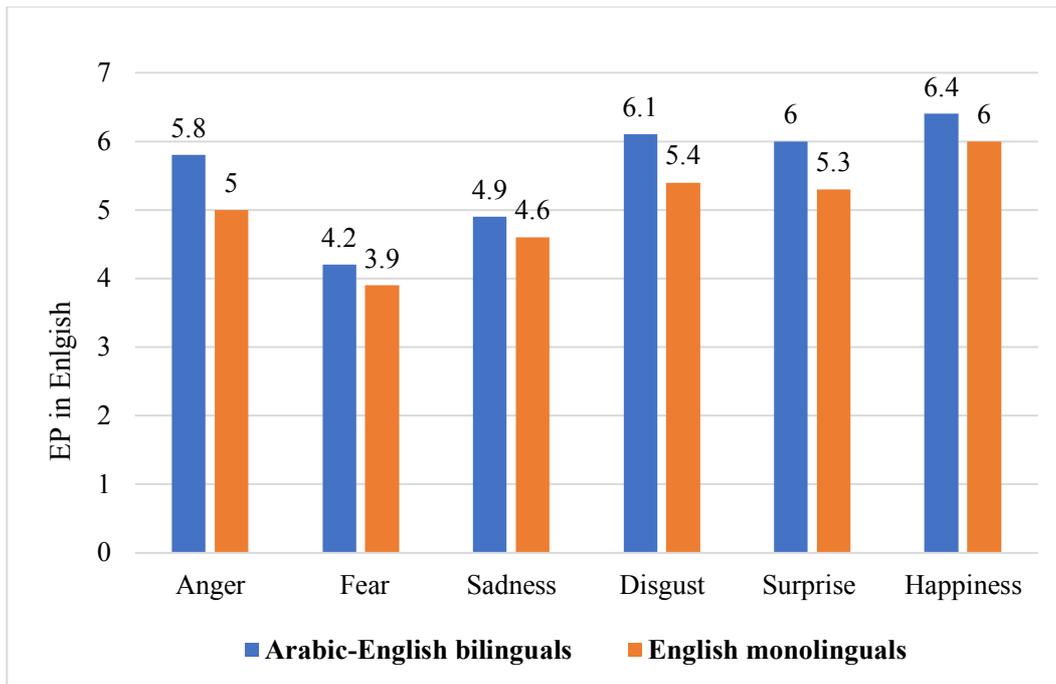


Figure 12. EP (mean) scores of Arabic-English bilinguals ( $n = 205$ ) and English monolinguals ( $n = 333$ ) in English

### **Anger:**

Mann-Whitney  $U$ -tests revealed significant differences between the EP of bilinguals and English monolinguals of the emotion of *anger* in Arabic and in English:  $U = 13418$ ,  $z = -12$ ,  $p < .0001$ , Cohen's  $d = 1.17$  (i.e. a large effect size) and  $U = 2354$ ,  $z = -6.2$ ,  $p < .0001$ , Cohen's  $d = .43$  (i.e. a small effect size), respectively. The results indicated that Arabic-English bilinguals outperformed (in Arabic:  $Mdn = 7$ ; in English:  $Mdn = 7$ ) English monolinguals (in Arabic:  $Mdn = 4$ ; in English:  $Mdn = 5$ ). Another Mann-Whitney  $U$ -test was run to examine the differences between Arabic-English bilinguals and English monolinguals regarding the degree of emotional intensity perceived for the emotion of *anger* in both languages. The score revealed a statistically significant difference only in Arabic:  $U = 2269$ ,  $z = -6.82$ ,  $p < .0001$ , Cohen's  $d = .56$  (i.e. a medium effect size), with Arabic-English bilinguals perceiving the emotional intensity at higher rates ( $M = 3.93$ ,  $SD = 1.06$ ) than English monolinguals ( $M = 3.37$ ,  $SD = .9$ ).

### **Fear:**

For the EP of the negative emotion of *fear*, Mann-Whitney  $U$ -tests revealed a statistically significant difference between bilinguals and English monolinguals in the EP score

in Arabic:  $U = 9555$ ,  $z = -14.4$ ,  $p < .0001$ , Cohen's  $d = 1.72$  (i.e. a large effect size), with bilinguals outperforming ( $Mdn = 7$ ) English monolinguals ( $Mdn = 1$ ). For the perceived emotional intensity of the emotion of *fear*, there was also a significant difference in the perceived emotional intensity in Arabic:  $U = 2371$ ,  $z = -6.18$ ,  $p < .0001$ , Cohen's  $d = .5$  (i.e. a medium effect size), with bilinguals perceiving the emotional intensity at higher rates ( $M = 3.85$ ,  $SD = 1.16$ ) than English monolinguals ( $M = 3.31$ ,  $SD = .9$ ).

### **Sadness:**

Mann-Whitney  $U$ -tests revealed statistically significant differences between bilinguals and English monolinguals in the EP of the emotion of *sadness* in Arabic ( $U = 16103$ ,  $z = -10.4$ ,  $p < .0001$ , Cohen's  $d = .9$  (i.e. a large effect size)) and in English ( $U = 2986$ ,  $z = -2.4$ ,  $p = .01$ , Cohen's  $d = .14$  (i.e. a small effect size)), with bilinguals outperforming (in Arabic:  $Mdn = 7$ ; in English:  $Mdn = 5$ ) English monolinguals (in Arabic:  $Mdn = 4$ ; in English:  $Mdn = 5$ ). The results revealed only a significant difference in the perceived emotional intensity of *sadness* in Arabic:  $U = 2309$ ,  $z = -6.57$ ,  $p < .0001$ , Cohen's  $d = .5$  (i.e. a medium effect size), with bilinguals perceiving the emotional intensity ( $M = 3.74$ ,  $SD = 1.1$ ) at higher rates than English monolinguals ( $M = 3.16$ ,  $SD = .95$ ).

### **Disgust:**

Mann-Whitney  $U$ -tests revealed statistically significant differences between bilinguals and English monolinguals in their EP of the negative emotion of *disgust* in Arabic and in English:  $U = 8391$ ,  $z = -15$ ,  $p < .0001$ , Cohen's  $d = 1.6$  (i.e. a large effect size) and  $U = 24188$ ,  $z = -6.2$ ,  $p < .0001$ , Cohen's  $d = .44$  (i.e. a small effect size), respectively. Arabic-English bilinguals outperformed (in Arabic:  $Mdn = 7$ ; in English:  $Mdn = 7$ ) English monolinguals (in Arabic:  $Mdn = 4$ ; in English:  $Mdn = 6$ ). The results revealed significant differences in their perceived emotional intensity of this emotion in Arabic:  $U = 1762$ ,  $z = -9.8$ ,  $p < .0001$ , Cohen's  $d = .88$  (i.e. a large effect size) and in English:  $U = 2823$ ,  $z = -3.5$ ,  $p < .0001$ , Cohen's  $d = .24$  (i.e. a small effect size). Arabic-English bilinguals perceived the emotional intensity (in Arabic:  $M = 3.96$ ,  $SD = 1.1$ ; in English:  $M = 3.9$ ,  $SD = 1.1$ ) at higher rates than English monolinguals (in Arabic:  $M = 3.04$ ,  $SD = .9$ ; in English:  $M = 3.6$ ,  $SD = .9$ ).

### **Surprise:**

For the EP of the positive emotion of *surprise*, there was a statistically significant difference between the bilinguals and English monolinguals both in Arabic:  $U = 29277$ ,  $z = -2.8$ ,  $p < .005$ , Cohen's  $d = .21$  (i.e. a small effect size) and in English  $U = 2511$ ,  $z = -5.4$ ,  $p < .0001$ , Cohen's  $d = .37$  (i.e. a small effect size). Arabic-English bilinguals outperformed (in Arabic:  $Mdn = 5$ ; in English:  $Mdn = 7$ ) English monolinguals (in Arabic:  $Mdn = 4$ ; in English:  $Mdn = 6$ ). The results also revealed significant differences in their perceived emotional intensity of this emotion only in Arabic:  $U = 2879$ ,  $z = -3.2$ ,  $p < .001$ , Cohen's  $d = .27$  (i.e. a small effect size), with bilinguals perceiving the emotional intensity ( $M = 3.9$ ,  $SD = .9$ ) at higher rates than English monolinguals ( $M = 3.64$ ,  $SD = .9$ ).

### **Happiness:**

Mann-Whitney  $U$ -tests indicated significant differences in the EP of the positive emotion of *happiness* between the bilinguals and English monolinguals in Arabic and English:  $U = 1829$ ,  $z = -9.23$ ,  $p < .0001$ , Cohen's  $d = .83$  (i.e. a large effect size) and  $U = 2532$ ,  $z = -5.5$ ,  $p < .0001$ , Cohen's  $d = .38$  (i.e. a small effect size), respectively. Arabic-English bilinguals outperformed (in Arabic:  $Mdn = 7$ ; in English:  $Mdn = 7$ ) English monolinguals (in Arabic:  $Mdn = 5$ ; in English:  $Mdn = 6$ ). The results also revealed only marginally significant differences in the perceived emotional intensity of *happiness* in Arabic:  $U = 3026$ ,  $z = -2.28$ ,  $p = .02$ , Cohen's  $d = .16$  and in English:  $U = 3055$ ,  $z = -2.1$ ,  $p = .03$ , Cohen's  $d = .16$  (i.e. both small effect sizes). Thus, Arabic-English bilinguals perceived the emotional intensity of this emotion (in Arabic:  $M = 3.25$ ,  $SD = 1.2$ ; English:  $M = 4.1$ ,  $SD = .9$ ) at higher rates than English monolinguals (in Arabic:  $M = 3.06$ ,  $SD = 1$ ; in English:  $M = 3.9$ ,  $SD = .9$ ).

In short, Arabic-English bilinguals perceived all emotions presented in the Arabic videos at higher agreement rates than English monolinguals. The bilingual group, moreover, perceived the emotional intensities of the emotions in Arabic at higher rates than the English monolinguals. The results suggest that bilingual participants were better able than English monolinguals to interpret and consider the emotional intensities of the emotions in the Arabic videos. For the emotions in English, Arabic-English bilinguals could easily perceive all of the emotions, with the exception of the emotion of *anger*, at higher agreement rates than English monolinguals, suggesting a *small* bilingual advantage in the EP in the L2 for the bilingual group. Most of the emotional intensities of the emotions in the English videos were perceived

as similar by bilinguals and English monolinguals (with the exception of the emotions of *disgust* and *happiness*, which were rated as having higher emotional intensities by the bilingual group). Thus, Arabic-English bilinguals outperformed both groups of monolinguals in the EP in English, suggesting a significant but small bilingual advantage in the EP in the L2.

**Returning to the hypotheses of RQ1:**

1. Arabic-English bilinguals will be adept at identifying emotions in Arabic and English videos. The hypothesis was confirmed: Arabic-English bilinguals could identify the emotions in the Arabic and English videos at higher agreement rates. There were strong and positive correlations between the perceived emotional intensities and the abilities to identify the emotions in the L1 and L2.
2. Arabic-English bilinguals will be better at identifying emotions in Arabic and English videos than the Arabic and English monolinguals. The hypothesis was partly confirmed: Arabic-English bilinguals outperformed both groups of monolinguals in the EP in English. However, the bilingual group did not statistically differ from Arabic monolinguals in their EP in Arabic.

So, to answer RQ1, it can be confirmed that most Arabic-English bilinguals could identify the emotions in the Arabic and English videos at high agreement rates. Notably, Arabic-English bilinguals could easily interpret the positive emotions in the English videos while they could easily identify the negative emotions in the Arabic videos. It was interesting that Arabic-English bilinguals were better than monolinguals at interpreting the emotions in the Arabic and English videos. The results, more specifically, demonstrated a significant (albeit with a small effect size) bilingual advantage in the EP in the L2.

The research questions that follow will investigate the source of individual variations in the EP scores amongst the three groups of participants, considering the language proficiency and linguistic profile, as well as psychological, socio-biographical, and cultural variables.

The following section presents the results of the second research question, which addresses the levels of TEI of the participants as well as the relationship between TEI and EP scores in both languages.

### 4.3. TEI levels and the relationship between TEI and EP (RQ2)

RQ2 addresses two sub-questions. The first one compares the TEI levels of the bilinguals to those of the monolinguals. It was hypothesised that Arabic-English bilinguals would outperform Arabic and English monolinguals in the TEI levels. The second sub-question explores the statistical relationship between TEI levels and bilinguals' and monolinguals' ability to interpret the emotions in the Arabic and English videos. It was hypothesised that TEI levels would be positively related to the ability to perceive the emotions in the videos for all groups of participants. In other words, participants with high levels of TEI will more easily identify the emotions in the videos. To answer this question, correlational analyses between EP scores, TEI scores, and the four facets of TEI (*self-control*, *well-being*, *emotionality*, and *sociability*) will be performed. Before performing the correlational analyses, however, a set of comparisons was conducted to examine the levels of TEI for the groups of participants.

#### 4.3.1. TEI levels of Arabic-English bilinguals and Arabic and English monolinguals

First, both groups of bilinguals (who had or had not been to ESCs) were compared with regard to their TEI scores. A Mann-Whitney *U*-test revealed a non-significant difference in TEI scores between the two groups of bilinguals:  $U = 5104$ ,  $z = -.31$ ,  $p = ns$ . Accordingly, the two groups were combined into one group of Arabic-English bilinguals for the subsequent statistical tests.

Second, bilinguals and monolinguals were compared with regard to their TEI scores. A Kruskal-Wallis test showed a significant group effect in levels of TEI:  $\chi^2(2) = 11.23$ ,  $p < .004$ . A series of Mann-Whitney *U*-tests indicated that Arabic-English bilinguals ( $M = 4.8$ ,  $SD = .72$ ) had significantly higher TEI scores than Arabic monolinguals ( $M = 4.58$ ,  $SD = .74$ ) ( $U = 6164$ ,  $z = -1.92$ ,  $p = .05$ , Cohen's  $d = .30$ ) and English monolinguals ( $M = 4.57$ ,  $SD = .9$ ) ( $U = 28424$ ,  $z = -3.26$ ,  $p < .001$ , Cohen's  $d = .28$ ). The effect sizes are small in both cases. There was—interestingly—no statistical difference in TEI scores between the two groups of monolinguals:  $U = 11347$ ,  $z = -.53$ ,  $p = ns$  (see Figure 13).

It can be observed from the graph below that the bilingual group scored significantly higher than the monolingual groups on three out of four facets of TEI, but they scored lower than English monolinguals on *self-control*.

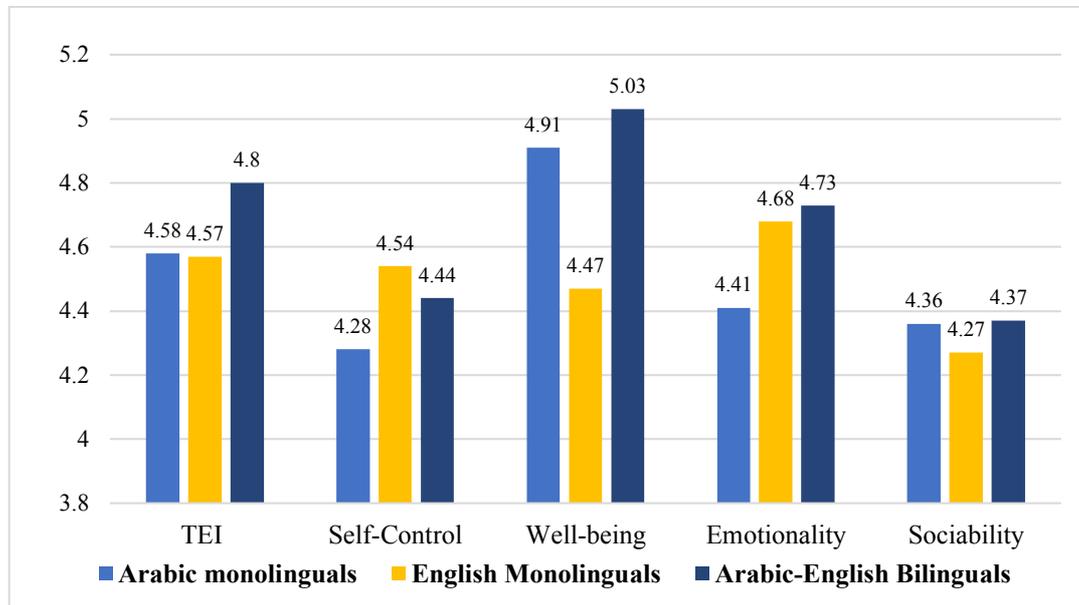


Figure 13. Mean values of TEI and the four facets for Arabic-English bilinguals ( $n = 205$ ), Arabic monolinguals ( $n = 71$ ), and English monolinguals ( $n = 333$ )

The following statistical analyses were conducted to examine the relationship between TEI and EP scores for each group of participants, starting with Arabic-English bilinguals.

#### 4.3.2. The relationship between TEI and EP

##### 4.3.2.1. Arabic-English bilinguals: TEI and EP scores

A Spearman's rank correlational analysis between the TEI and EP scores in both languages for the bilinguals showed that the TEI was positively and strongly correlated with the EP score in Arabic ( $\rho = .216, p < .002$ , representing 4.6% of the shared variance, i.e. a small effect size<sup>8</sup> (Plonsky & Oswald, 2014)) and in English ( $\rho = .226, p < .001$ , representing 5% of the shared variance, i.e. a small effect size). TEI was positively and significantly correlated with the EP of the negative emotions of *fear* and *disgust* and with the perceived emotional intensity of the emotions of *anger* and *fear* in Arabic. The results also showed

<sup>8</sup> Plonsky and Oswald (2014, p. 12) suggest that “ $r$ s close to .25 be considered small, .40 medium, and .60 large.”

significant positive correlations between TEI score and the EP of the emotions of *sadness* and *surprise* in the English videos (all  $ps < .01$ ), suggesting that bilinguals with high TEI levels were better at interpreting these emotions in the L1 and L2 than those with low TEI levels. To unpack these results, further correlational analyses between the four facets of TEI (*self-control*, *well-being*, *emotionality*, and *sociability*) and the EP scores of each individual emotion in the Arabic and English videos were conducted for the bilingual group.

### **The four facets of TEI and the EP in Arabic for Arabic-English bilinguals**

The correlational analysis between the TEI factor of *self-control* and the EP in Arabic revealed a significant and positive correlation:  $\rho = .215, p < .002$ , suggesting that Arabic-English bilinguals with high levels of *self-control*, the trait that enables them to regulate their own emotions, might more easily interpret the emotions of others in L1 social contexts. Table 8 below illustrates that the TEI factor of *self-control* was significantly and positively correlated with the EP of the emotions of *sadness* and *disgust* in Arabic. The factor of *self-control*, however, was not significantly correlated with any perceived emotional intensities of the individual emotions in Arabic for Arabic-English bilinguals.

The second factor of TEI was *emotionality*. As indicated in Chapter 2, this facet is expected to affect EP, as this factor is related to relationship skills that may enhance communication skills. The statistical results of the correlations between *emotionality* and the EP scores and the correlations between *emotionality* and perceived emotional intensities of the emotions in Arabic indicated only a marginally significant positive correlation:  $\rho = .157, p < .02$ . Table 8 shows significant and positive correlations between this facet and the emotion perception of the negative emotions of *anger* and *disgust* in Arabic for bilinguals.

Table 8. Spearman's rank correlations between the TEI and its facets and EP scores, and the correlations between TEI and the perceived emotional intensities of individual emotions in Arabic for Arabic-English bilinguals ( $n = 205$ )

<b>Emotion Perception in Arabic</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	.149	<b>.166*</b>	.157	<b>.200**</b>	.041	.107
<i>Self-control</i>	.080	.138	<b>.165*</b>	<b>.190**</b>	.114	.148
<i>Emotionality</i>	<b>.158**</b>	.119	.122	<b>.173*</b>	-.042	.079
<i>Well-being</i>	.139	<b>.182**</b>	<b>.230**</b>	<b>.200**</b>	.079	.107
<i>Sociability</i>	.039	<b>.174*</b>	.069	.086	.102	.085
<b>Perceived Emotional Intensities of Emotions in Arabic</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	<b>.191**</b>	<b>.190**</b>	.041	.148	.062	-.009
<i>Self-control</i>	.125	.084	.030	.034	.122	-.018
<i>Emotionality</i>	.137	.106	.088	.083	.056	.092
<i>Well-being</i>	<b>.212**</b>	<b>.223**</b>	.079	<b>.288**</b>	.118	-.030
<i>Sociability</i>	.087	<b>.175*</b>	-.017	<b>.172*</b>	.013	-.121

\* $p < .01$ , \*\* $p < .001$

The third facet of TEI is *well-being*, which indicates the sense of well-being extending from past achievements to future expectations, accompanied by high self-esteem. The scores of a Spearman's rank correlational analysis revealed a significant positive correlation between *well-being* and the EP score in the Arabic videos ( $\rho = .253, p < .0001$ ), indicating that bilinguals with high levels of *well-being* could more easily interpret emotions in their L1. Interestingly, as shown in Table 8, there were significant and positive correlations between *well-being* and the EP of most negative emotions (*fear*, *sadness*, and *disgust*) in Arabic for bilinguals. In addition, this facet was significantly and positively correlated with the bilinguals' perceived emotional intensities of most negative emotions in Arabic: *anger*, *fear*, and *disgust* (all  $ps < .0001$ ) (see Table 8).

The fourth facet is *sociability*, which involves social skills that enable individuals to assert themselves and to influence the emotions or decisions of others. This facet had no significant correlation with bilinguals' EP scores in Arabic ( $\rho = .132, p = ns$ ), but further correlational analyses indicated significant and positive correlations between it and the EP of

the negative emotion of *fear* and the perceived emotional intensities of the negative emotions of *fear* and *disgust* in Arabic.

The effect sizes for the above tests range from 1.7% to 6.4%, which can be interpreted as small. Therefore, TEI and the four facets of *self-control*, *emotionality*, *sociability*, and *well-being* had strong to moderate associations with the EP scores in Arabic for Arabic-English bilinguals. Interestingly, the results showed that the TEI and its facets were more significantly related to the EP of the negative emotions than the positive ones in Arabic videos.

### **EP and the four facets of TEI in English for Arabic-English bilinguals**

As was indicated in this section, TEI was significantly and positively correlated with the EP scores in English ( $\rho = .226, p < .001$ , representing 5% of the shared variance, i.e. a small effect size) for bilinguals. Table 9 below illustrates that TEI and its four facets were significantly and positively correlated with the EP scores of most emotions in the English videos for the bilingual group. More specifically, TEI was positively and strongly correlated with the EP scores of the emotions of *sadness* and *surprise*. It was, however, not correlated with any of the perceived emotional intensities of the emotions in English.

The results showed that the factor of *self-control* was significantly and positively correlated with the EP scores in English for the bilingual group:  $\rho = .192, p < .006$ , representing 3.6 of the shared variance, i.e. a small effect size. Interesting, the results showed a strong and positive correlation between this facet and the EP of the positive emotion of *surprise* in English (see Table 9). It was also significantly and positively correlated with the EP score of the negative emotion of *sadness*. However, this facet does not seem to be linked to the bilinguals' perceived emotional intensities of the emotions in their L2.

A Spearman's rank test showed a significant positive correlation between the factor of *emotionality* and the EP scores in English:  $\rho = .189, p < .007$ , representing 3.5% of the shared variance, i.e. a small effect size. Further analyses revealed only significant and positive correlations between this facet and the EP of the negative emotion of *sadness*, and it was significantly and positively correlated with the perceived emotional intensity of the negative emotion of *anger* in the English video (see Table 9).

The factor of *well-being*, moreover, was significantly and positively correlated with the EP score in English for the bilingual group:  $\rho = .200, p < .004$ , representing 4% of the shared variance, i.e. a small effect size. This facet was significantly and positively correlated with the EP of the positive emotion of *surprise* and with the perceived emotional intensity of the positive emotion of *happiness* in the English videos. Furthermore, Table 9 illustrates that *well-being* was significantly and positively correlated with the EP of the negative emotion of *disgust* in English. The results suggest that higher levels of *well-being* and self-esteem might be linked to high agreement rates of the EP of the emotions of *disgust* and *surprise* in the L2 as well as to high degrees of emotion perception of most negative emotions in the L1 for bilinguals.

The factor of *sociability* was significantly and positively correlated with the EP score in English for the bilingual group:  $\rho = .191, p < .006$ , representing 3.6% of the shared variance, i.e. a small effect size. Moreover, it had a strong positive correlation with the EP of the negative emotions of *anger* and *disgust* ( $p < .01$ ) and with the perceived emotional intensities of the emotions of *fear* and *disgust* in English. Therefore, it can be noted that social skills might be linked to the EP of most negative emotions in the L2 for the bilingual group, suggesting that those skills might have a positive influence on the ability to identify negative emotional expressions in the L2.

The effect sizes for these correlations between the EP in English and the four facets of TEI, however, range from 3.5% to 4%, which can be interpreted as small. The findings, therefore, suggest that TEI might have a significant but small effect on the EP scores in the L1 and L2 for the bilinguals.

Table 9. Spearman's rank correlations between the TEI and its facets and EP scores, and correlations between TEI and the perceived emotional intensities of individual emotions in English for Arabic-English bilinguals ( $n = 205$ )

<b>Emotion Perception in English</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	.129	.113	<b>.183**</b>	.146	<b>.167*</b>	.125
<i>Self-control</i>	.127	.116	<b>.169*</b>	.068	<b>.197**</b>	.140
<i>Emotionality</i>	.104	.044	<b>.193**</b>	.112	.107	.073
<i>Well-being</i>	.115	.104	.126	<b>.222**</b>	<b>.207**</b>	.146
<i>Sociability</i>	<b>.167*</b>	.102	.161	<b>.166*</b>	.124	.052
<b>Perceived Emotional Intensities of Emotions in English</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	.153	.119	.077	.140	.043	.081
<i>Self-control</i>	.061	.040	.070	-.023	.061	.077
<i>Emotionality</i>	<b>.166*</b>	.086	.080	.138	.077	.012
<i>Well-being</i>	.113	.138	.049	.162	.065	<b>.173*</b>
<i>Sociability</i>	.151	<b>.224**</b>	.098	<b>.172*</b>	-.050	.145

\* $p < .01$ , \*\* $p < .001$

After examining the relationship between TEI and the EP scores for the bilinguals, similar statistical correlational analyses were conducted to assess the relationship between TEI and the EP scores in both languages for the Arabic monolingual group.

#### 4.3.2.2. Arabic monolinguals: TEI and the EP scores in Arabic and in English

A Spearman's rank correlational analysis between the TEI and the EP scores for Arabic monolinguals was conducted. The scores of this analysis showed that the TEI was not significantly correlated with EP scores in both languages (all  $ps = ns$ ).

Further correlational analyses between the four facets of TEI (*self-control*, *well-being*, *emotionality*, and *sociability*) and the EP scores in the Arabic and English videos were run for the Arabic monolinguals. The results indicated that all facets of TEI were not significantly correlated with any of the EP scores in both languages. The correlational analyses between the facets of TEI and the EP of each individual emotion showed only a significant positive

correlation between the facet of *well-being* and the EP of the emotion of *disgust* in Arabic:  $\rho = .322, p < .006$ , representing 10% of the shared variance (i.e. a small effect size). There was also a significant correlation between the facet of *sociability* and the EP of the emotion of *sadness* in English:  $\rho = .287, p < .01$ , representing 8.2% of the shared variance, i.e. a small effect size. These results suggest that Arabic monolinguals with a high sense of *well-being* could more easily interpret the emotional patterns of the negative emotion of *disgust* in their L1, while those with high levels of social skills could more easily interpret the negative emotion of *sadness* in English, despite their inability to understand the linguistic input in the video clip used in this study.

Although TEI was expected to be significantly related to EP, it had little impact on the EP of Arabic monolinguals. Similar statistical analyses were conducted for the other group of monolinguals (i.e. English monolinguals) to investigate the relationship between TEI and the EP scores in both languages.

#### 4.3.2.3. English monolinguals: TEI and the EP scores in Arabic and in English

The results of a Spearman's rank correlational analysis between the TEI score and the EP scores showed a significant and positive correlation for EP in English:  $\rho = .215, p < .0001$ , which represents 4.6% of the shared variance (i.e. a small effect size). There was a non-significant correlation between TEI and the EP scores in Arabic ( $p = ns$ ) for English monolinguals. TEI was positively and strongly correlated with the EP scores of all emotions (with the exception of the emotion of *fear*) and all perceived emotional intensities of the emotions in English (see Table 10). For the EP in Arabic, TEI was positively and significantly correlated with the perceived emotional intensity of the emotion of *anger*. There was a negative and strong correlation between this variable and the EP of the emotion of *fear* in Arabic, with English monolinguals with high scores in TEI scoring lower in the EP of *fear*.

Thus, the results indicate that English monolinguals with high TEI scores had an advantage in perceiving the emotions in fellow English speakers, but their high TEI scores were not linked to their EP if the emotions were expressed in an unknown language. This result might be attributed to the effect of the linguistic competence and degree of familiarity with linguistic input in the videos.

To unpack these results, further correlational analyses between the factors of TEI and the EP scores of the emotions in the Arabic and English videos were conducted for English monolinguals.

### **The four facets of TEI and the EP in Arabic and in English for English monolinguals**

The correlational analysis between the factor of *self-control* and the EP in English revealed only a marginally significant and positive correlation ( $\rho = .127, p < .02$ , which represents 1.6% of the shared variance (i.e. a small effect size)) for English monolinguals. Other correlational analyses were performed in order to assess the relationship between *self-control* and the EP of individual emotions in both languages. As shown in Tables 10 and 11, the results indicated significant positive correlations between *self-control* and the EP of the emotions of *anger*, *surprise*, and *happiness* in the English videos. Therefore, the facet *self-control* seems to be linked to English monolinguals' EP scores and the perceived emotional intensities of most emotions in their L1. One unanticipated finding was that there was a significant negative correlation between the EP of the emotion of *fear* in Arabic and the facet of *self-control*:  $\rho = -.256, p < .0001$ , representing 6.5% of the shared variance. This result suggests that English monolinguals with high levels of *self-control* could not identify the emotional situation involving the negative emotion of *fear* in Arabic and that they may interpret it inaccurately. This result points to the importance of understanding the linguistic input in interpreting the emotions of others in cross-linguistic and cultural contexts.

The correlational analyses indicated significant and positive correlations between the facet of *well-being* and the EP scores in Arabic ( $\rho = .132, p < .01$ , representing 1.7% of the shared variance) and in English ( $\rho = .149, p < .006$ , representing 2.2% of the shared variance). English monolinguals with a high sense of *well-being* were better at identifying most of the emotions in the English and the Arabic videos as well. Further correlational analyses were performed in order to assess the relationship between this facet and the perceived emotional intensity of each individual emotion in Arabic and English for English monolinguals. The results indicated significant positive correlations between this facet and the perceived emotional intensities of most of the emotions in both languages. It was significantly correlated with the EP of the positive emotions of *surprise* and *happiness* in both languages (see Tables

10 and 11). The results strongly suggest that the factor of *well-being* is an important variable that is linked to English monolinguals' ability to perceive the intensity of the emotional states in English and in Arabic. It can, therefore, be speculated that most English monolingual participants with a high sense of *well-being* might be sensitive to the emotional intensities of all emotions in the Arabic and English videos.

Table 10. Spearman's rank correlations between the TEI and its facets and EP scores, and the correlations between TEI and the perceived emotional intensities of individual emotions in Arabic for English monolinguals ( $n = 333$ )

<b>Emotion Perception in Arabic</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	.005	<b>-.316**</b>	.043	.037	.034	.075
<i>Self-control</i>	.008	<b>-.256**</b>	.014	.040	-.027	-.029
<i>Emotionality</i>	-.031	<b>-.374**</b>	-.003	.003	.001	.059
<i>Well-being</i>	.098	-.065	.106	<b>.139*</b>	<b>.164**</b>	<b>.137*</b>
<i>Sociability</i>	.084	-.047	.077	.062	.073	.070
<b>Perceived Emotional Intensities of Emotions in Arabic</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	<b>.187**</b>	.122	.103	-.009	<b>.145**</b>	.039
<i>Self-control</i>	.077	.033	.047	-.092	.051	-.040
<i>Emotionality</i>	.103	.027	.038	-.091	.110	-.029
<i>Well-being</i>	<b>.315**</b>	<b>.234**</b>	<b>.251**</b>	<b>.174**</b>	<b>.236**</b>	<b>.141*</b>
<i>Sociability</i>	<b>.220**</b>	<b>.173**</b>	<b>.185**</b>	<b>.150*</b>	<b>.153**</b>	<b>.150**</b>

\* $p < .01$ , \*\* $p < .001$

The results revealed a significant positive correlation between the *emotionality* facet and the EP score in English ( $\rho = .243$ ,  $p < .0001$ , representing 5.9 % of the shared variance) but a non-significant negative correlation with the EP score in Arabic ( $\rho = -.107$ ,  $p = ns$ ). These results suggest that high levels of *emotionality* or emotional skills are positively linked to the English monolinguals' ability to interpret emotions in the L1. Thus, their emotional skills and their abilities to perceive emotions seem to be affected by their understanding of the linguistic content.

Table 11. Spearman's rank correlations between the TEI and its facets and EP scores, and the correlations between TEI and the perceived emotional intensities of individual emotions in English for English monolinguals ( $n = 333$ )

<b>Emotion Perception in English</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	<b>.176**</b>	-.004	<b>.134*</b>	<b>.159**</b>	<b>.260**</b>	<b>.224**</b>
<i>Self-control</i>	<b>.135*</b>	-.078	.026	.103	<b>.193**</b>	<b>.170*</b>
<i>Emotionality</i>	<b>.210**</b>	.019	<b>.149**</b>	<b>.192**</b>	<b>.267**</b>	<b>.245**</b>
<i>Well-being</i>	.091	.039	<b>.156**</b>	.093	<b>.150**</b>	<b>.154*</b>
<i>Sociability</i>	.046	.060	.082	.066	.111	.119
<b>Perceived Emotional Intensities of Emotions in English</b>						
	<i>Anger</i>	<i>Fear</i>	<i>Sadness</i>	<i>Disgust</i>	<i>Surprise</i>	<i>Happiness</i>
<i>TEI</i>	<b>.167**</b>	<b>.141*</b>	<b>.135*</b>	<b>.223**</b>	<b>.233**</b>	<b>.153**</b>
<i>Self-control</i>	.124	.087	.062	<b>.153**</b>	<b>.135*</b>	.105
<i>Emotionality</i>	.115	.074	.065	<b>.206**</b>	<b>.186**</b>	<b>.175**</b>
<i>Well-being</i>	.127	<b>.178**</b>	<b>.191**</b>	<b>.197**</b>	<b>.256**</b>	<b>.151*</b>
<i>Sociability</i>	<b>.173**</b>	.115	<b>.171**</b>	<b>.159**</b>	<b>.186**</b>	.101

\* $p < .01$ , \*\* $p < .001$

Additional correlational analyses were performed in order to assess the relationship between the *emotionality* facet and the perception of each individual emotion for the English monolinguals. The variable *emotionality* was linked to the EP scores of most of the emotions in English, including *anger*, *sadness*, *disgust*, *surprise*, and *happiness* (see Table 11). Interestingly, as in the *self-control* facet, *emotionality* had a significant negative correlation with the EP of the emotion of *fear* in the Arabic video. This kind of correlation suggests that English monolinguals with high levels of *self-control* and emotional skills seem to have difficulty in interpreting the emotional cues of the emotion category of *fear* when it was expressed by Arabic L1 actors. These negative associations might be a result of the inability to understand the linguistic input of the situation.

The results of the correlational analyses between the factor of *sociability* and the EP scores for English monolinguals revealed only a marginally significant positive correlation in English ( $\rho = .108$ ,  $p < .04$ , representing 1.1% of the shared variance). The findings revealed that the *sociability* facet was not significantly correlated with the EP score in Arabic ( $\rho = .051$ ,  $p = ns$ ). Nevertheless, it was significantly and positively correlated with the perceived

emotional intensities of all emotions in the Arabic videos (all  $ps < .01$ ), suggesting that English monolinguals with high scores in the factor of *sociability* perceived the strength of the emotional cues at high levels, despite the lack of linguistic awareness. Table 11 shows significant and positive correlations between *sociability* and the EP scores and the perceived emotional intensities of most emotions (i.e. *anger*, *sadness*, *disgust*, and *surprise*) in English for English monolinguals.

To sum up, the four facets of TEI were strongly associated with the English monolinguals' EP scores and the way they perceived the emotional intensities of the emotions in the English and Arabic videos. However, it should be noted that the effect sizes for the correlations between the EP scores and the four facets of TEI range from 1.1% to 6.5%, which can be interpreted as small. The findings, thus, suggest that TEI may have a significant but small effect on the EP scores of the English monolinguals.

Therefore, the results indicated that the psychological variable TEI was positively and significantly correlated with the EP scores for Arabic-English bilinguals and English monolinguals, although the effect sizes were mostly small. Additional comparisons were conducted to examine the variations in the EP scores amongst the participants in the three TEI groups (i.e. low, average, and high TEI).

For the Arabic-English bilingual group, the results of a Kruskal-Wallis test revealed a significant effect of TEI on the EP score in Arabic ( $\chi^2(2) = 7.82, p < .02$ ) and in English ( $\chi^2(2) = 13.94, p < .001$ ). To follow this up, a series of Mann-Whitney *U*-tests indicated that the low and average TEI groups significantly differed in their EP in Arabic ( $U = 1562.5, z = -2.06, p < .03$ , Cohen's  $d = .37$  (i.e. a small effect size)) and in English ( $U = 1464.5, z = -2.53, p < .01$ , Cohen's  $d = .46$  (i.e. a small effect size)), with those with low TEI levels scoring lower than the average TEI group in the EP tasks in both languages. Similarly, significant differences were found between the low and high TEI groups in their EP scores in Arabic ( $U = 1065, z = -2.7, p < .006$ , Cohen's  $d = .53$  (i.e. a medium effect size)) and in English ( $U = 887, z = -3.8, p < .0001$ , Cohen's  $d = .69$  (i.e. a medium effect size)), with participants scoring high in TEI also scoring high in the EP task in both languages (see Figure 14).

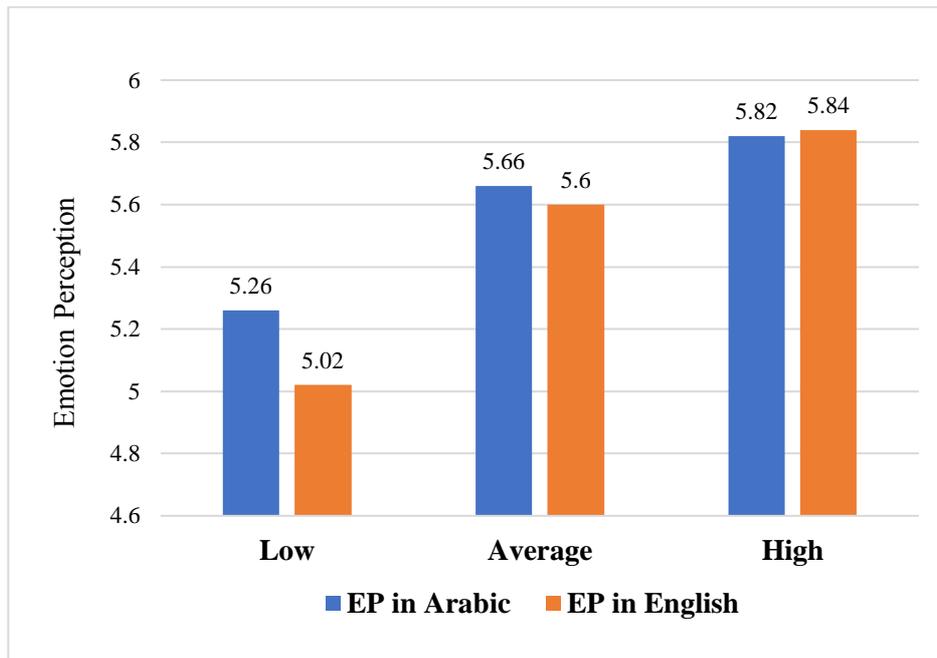


Figure 14. EP scores of the three TEI groups: Arabic-English bilinguals ( $n = 205$ )

As was illustrated before, TEI was not statistically linked to the EP scores of Arabic monolinguals. A Kruskal-Wallis test also revealed no significant effect of TEI on the EP scores amongst the three TEI groups (all  $ps = ns$ ). Figure 15 shows that Arabic monolinguals with average TEI scores scored higher than those with high TEI scores in the EP tasks in both languages, although the differences between them were not statistically significant.

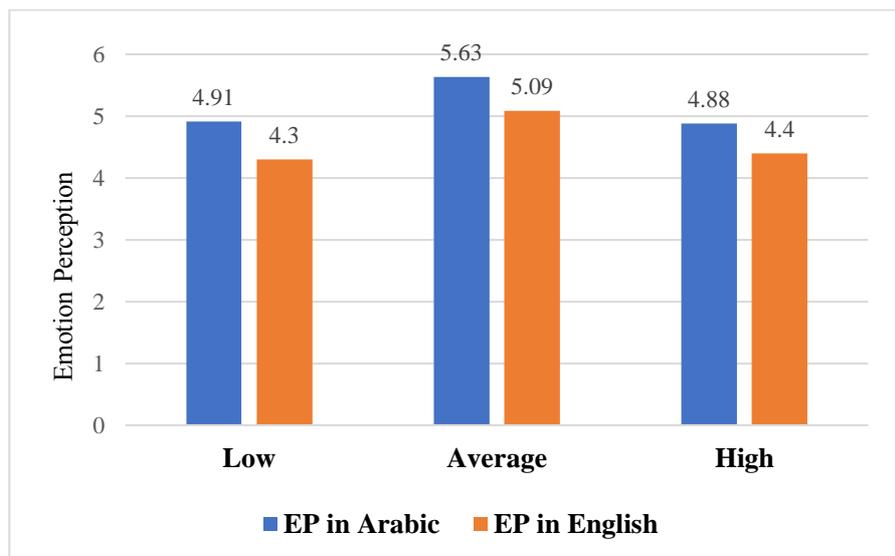


Figure 15. EP scores of the three TEI groups: Arabic monolinguals ( $n = 71$ )

For English monolinguals, the results of a Kruskal-Wallis test revealed a significant effect of TEI on the EP in English:  $\chi^2(2) = 27.83, p < .0001$ . A series of Mann-Whitney  $U$ -tests indicated that the low TEI group ( $Mdn = 4.66$ ) scored significantly lower than the average TEI group ( $Mdn = 5.33$ ) in EP in English:  $U = 4022, z = -3.89, p < .0001$ , Cohen's  $d = .54$ . The results also showed that the low TEI group ( $Mdn = 4.66$ ) scored significantly lower than the high TEI group ( $Mdn = 5.66$ ) in EP in English:  $U = 4923.5, z = -4.82, p < .0001$ , Cohen's  $d = .59$ . The effect sizes are medium in both cases. There was, however, no significant difference in the EP scores between the average and the high TEI groups ( $p = ns$ ) (see Figure 16 below). It can be observed that TEI only influenced the EP scores in English for the English monolinguals, suggesting a possible relationship between language proficiency, TEI, and the EP (in English) for the English monolinguals.

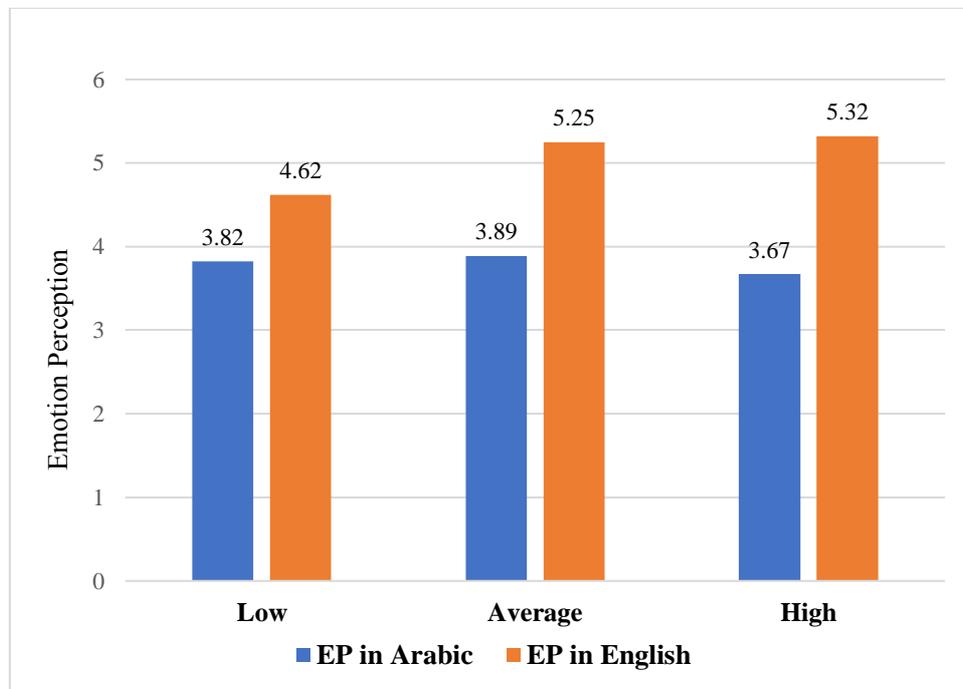


Figure 16. EP scores of the three TEI groups: English monolinguals ( $n = 333$ )

In short, the results of RQ2 showed that TEI and its four facets were significantly linked to the ability to interpret most of the emotions and to perceive the emotional intensities of most emotions in the Arabic and English videos. As was indicated by the results above, TEI was statistically related to the EP scores for both groups of Arabic-English bilinguals and English monolinguals, but it was not related to the EP scores of Arabic monolinguals. Thus, it can be speculated that an interaction exists between TEI and language proficiency on the EP for

bilinguals and English monolinguals, which will be explored in the results of the third research question.

### **Returning to the hypotheses of RQ2:**

1. Arabic-English bilinguals will outperform Arabic and English monolinguals in the TEI levels. The hypothesis was confirmed.
2. TEI will be positively related to the ability to interpret emotions for all groups of participants. The hypothesis was partly confirmed: TEI levels were positively and significantly related to the EP scores of Arabic-English bilinguals and English monolinguals but not of Arabic monolinguals.

So, to answer RQ2, it can be confirmed that there is a significant (but small) bilingual advantage in TEI. Moreover, TEI is a crucial variable that is linked to the EP and the perceived emotional intensity of the emotions for Arabic-English bilinguals and English monolinguals.

The following section presents the results of the third research question, which addresses the relationship between EP scores in the English videos and the language proficiency of Arabic-English bilingual and English monolingual groups (i.e. groups of participants who could speak and understand English based on their scores in the English proficiency test (LEXTALE)). The possible interactions between the two independent variables (i.e. TEI and language proficiency levels) on the EP in English were examined for the Arabic-English bilinguals and English monolinguals.

#### **4.4. The relationship between language proficiency and EP scores in English (RQ3)**

RQ3 addresses the relationship between the language proficiency levels and the EP scores of the emotions depicted by the English stimuli for Arabic-English bilinguals and English monolinguals. It was hypothesised that language proficiency levels would be linked to the Arabic-English bilinguals' and English monolinguals' EP scores and the perceived emotional intensity of the emotions in the English videos. More specifically, it was expected that participants with high levels of English language proficiency would be better at interpreting the emotions in the English videos than those with low proficiency scores.

To answer this RQ, two sets of correlational analyses were conducted: one for Arabic-English bilinguals and another for the English monolinguals.

#### 4.4.1. Language proficiency and EP: Arabic-English bilinguals

Figure 17 shows a strong positive correlation between language proficiency scores and EP scores in English for the bilingual group:  $\rho = .188, p < .008$ , representing 3.5% of the shared variance, i.e. a small effect size. The results suggest that bilinguals with high scores in the English proficiency test performed well in interpreting the emotions in the English videos by understanding the linguistic input despite the absence of direct emotion words. The findings, however, revealed only weak correlations between language proficiency scores and the EP scores of the individual emotions in English. There was only a weak positive correlation between language proficiency scores and the EP of the emotion of *disgust* ( $\rho = .145, p = .04$ , which represents 2.1% of the shared variance, i.e. a small effect size). Further analyses were run to assess the relationship between language proficiency scores and the perceived emotional intensities of the emotions. Overall, language proficiency scores were significantly and positively correlated only with the perceived emotional intensities of the emotions of *anger* ( $\rho = .235, p < .001$ , representing 5.5% of the shared variance) and *surprise* ( $\rho = .143, p < .04$ , representing 2% of the shared variance, i.e. a small effect size). A further Kruskal-Wallis test revealed no significant effect of language proficiency on the EP scores amongst the three language proficiency groups (all  $ps = ns$ ). Although the average proficiency group scored slightly higher than the high and low proficiency groups, it was not statistically significant (see Figure 18).

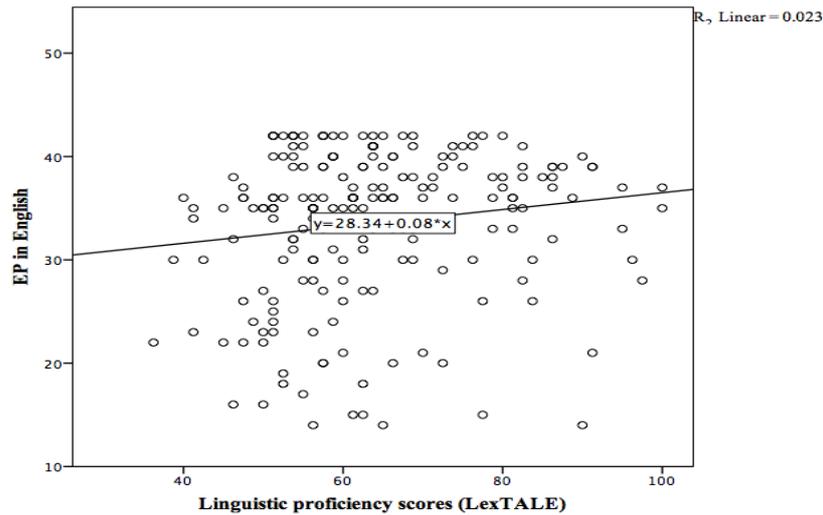


Figure 17. Scatterplot of Arabic-English bilinguals' proficiency scores and the EP scores in English

As was shown in the results of RQ2, TEI was strongly correlated with the EP scores of Arabic-English bilinguals. Consequently, further analyses were run to estimate the possible interactions between the independent variables *TEI* and *language proficiency* on the dependent variable: the *EP* scores in English for the bilingual group. The results of the Kruskal-Wallis test showed no significant effect of TEI on the three groups of language proficiency ( $p = ns$ ). There was also a non-significant correlation between TEI and language proficiency scores ( $\rho = 074, p = ns$ ) for the bilingual group. Therefore, it can be observed from the graph below (Figure 18) that TEI had a stronger impact than language proficiency on the bilinguals' EP in the L2.

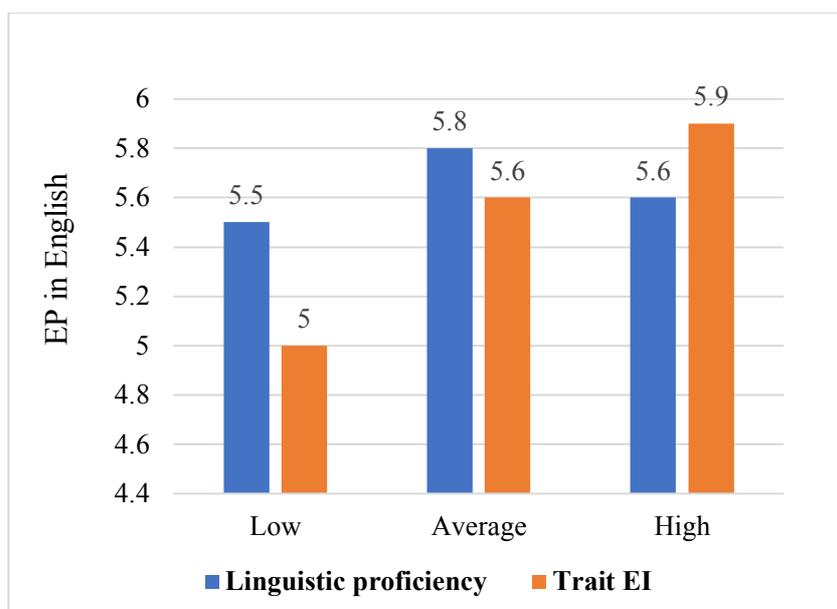


Figure 18. EP scores in English of the three levels of language proficiency and TEI groups: Arabic-English bilinguals ( $n = 205$ )

Therefore, linguistic proficiency was significantly and positively correlated with the EP scores in the L2 for Arabic-English bilinguals, with no significant interaction with the TEI. Next, the following statistical analyses was conducted for the English monolinguals.

#### 4.4.2. Linguistic proficiency and the EP: English monolinguals

As a reminder, English monolinguals reported the highest mean score in the language proficiency test ( $M = 86.1$ ,  $SD = 16.4$ ). The results of the correlations between language proficiency scores and EP in English showed a strong positive correlation ( $\rho = .274$ ,  $p < .0001$ , representing 7.4% of the shared variance, i.e. a small effect size). Figure 19 below shows that English monolinguals who scored high in the language proficiency test also scored high in the EP task in English.

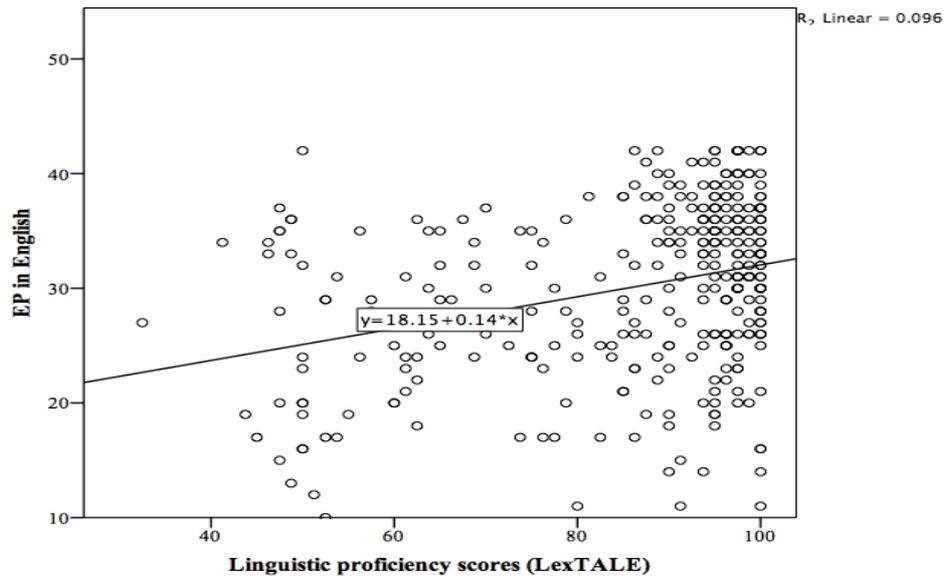


Figure 19. Scatterplot of English monolinguals' proficiency scores and EP scores in English

To unpack this result, additional analyses were run to find out the statistical relationship between the language proficiency scores and the EP of each individual emotion in English. The results showed strong and positive correlations between the language proficiency scores and the EP of all emotions (with the exception of the negative emotion of *fear*). The results, more specifically, revealed that language proficiency scores were significantly correlated with the EP of the emotions of *anger* (EP:  $\rho = .271, p < .0001$ ; perceived emotional intensity:  $\rho = .154, p = .005$ ), *sadness* (EP:  $\rho = .129, p = .01$ ), *disgust* (EP:  $\rho = .366, p < .0001$ ; perceived emotional intensity:  $\rho = .169, p < .0001$ ), *surprise* (EP:  $\rho = .318, p < .0001$ ) and *happiness* (EP:  $\rho = .314, p < .0001$ ; perceived emotional intensity:  $\rho = .206, p < .0001$ ). The effect sizes range from 1.6% to 13.3%—in other words, ranging between small and medium. These results strongly suggest that language proficiency is related to the English monolinguals' ability to perceive and interpret the emotions in the English videos.

Because both independent variables *TEI* and *language proficiency* had strong and positive correlations with the EP scores for the English monolingual group, additional statistical analyses were performed to examine the possible interactions between the two independent variables on the dependent variable (EP) and to see whether those participants with low linguistic proficiency relied more on their psychological advantage (TEI) to understand the emotional content in the conversations or vice versa. The results of the Kruskal-Wallis test revealed that TEI ( $\chi^2(2) = 11.87, p < .003$ ) had a significant effect on the three

language proficiency groups. A series of Mann-Whitney *U*-tests revealed significant differences in the TEI scores between the low (*Mdn* = 4.06) and the average proficiency group (*Mdn* = 4.36) ( $U = 2158, z = -2.11, p < .03$ , Cohen's  $d = .37$  (i.e. a small effect size)), and between the low and the high proficiency group (*Mdn* = 4.73) ( $U = 3506, z = -3.43, p < .001$ , Cohen's  $d = .5$  (i.e. a medium effect size)), but a non-significant difference between the average and the high proficiency group ( $p = ns$ ), with the latter scoring higher. Thus, it seems that the effect of TEI varied across the three language proficiency groups, with the strongest effect seen at the low language proficiency level (see Figure 20).

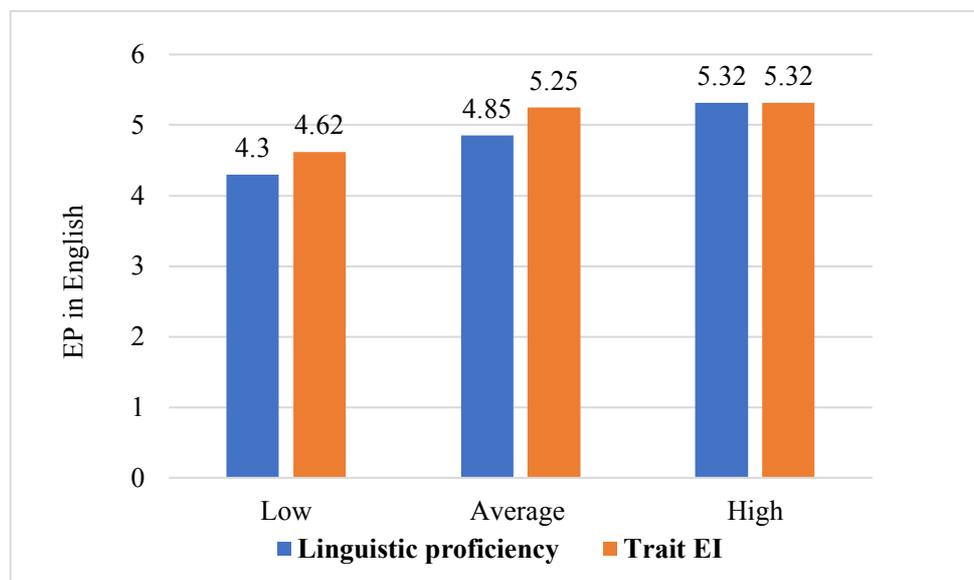


Figure 20. EP scores in English of the three levels of language proficiency and TEI groups: English monolinguals ( $n = 333$ )

Finally, a Spearman's rank correlation analysis was run to check whether there was a link between TEI scores and the language proficiency scores for English monolinguals. The results indicated a significant positive correlation:  $\rho = .176, p < .001$  (which represents 3% of the shared variance, i.e. a small effect size). The results suggested that those with higher language proficiency levels had higher levels of TEI and achieved higher scores in the EP task. The results showed that language proficiency is more significantly linked to the EP scores of English monolinguals than the scores of bilinguals.

While there was no significant interaction between TEI scores and language proficiency levels on the EP of Arabic-English bilinguals, the results showed that the high language proficiency group of English monolinguals still had lower *TEI scores* ( $M = 4.67, SD = 0.97$ ) than the low language proficiency group of bilinguals ( $M = 4.8, SD = 0.71$ ) (see Table 12).

Table 12. TEI (mean) scores of the three language proficiency bilingual groups of ( $n = 205$ ) and English monolinguals ( $n = 333$ )

Linguistic proficiency groups	TEI scores			
	Arabic-English bilinguals		English monolinguals	
	Mean	Std. Deviation	Mean	Std. Deviation
<b>Low</b>	4.8	.71	4.27	.54
<b>Average</b>	4.77	.74	4.55	.91
<b>High</b>	5.45	.58	4.67	.97

The findings of the comparisons between the three language proficiency groups of bilinguals and English monolinguals showed that while English monolinguals with high language proficiency levels could easily identify emotions in English, bilinguals (even those with lower language proficiency scores) outperformed the English monolinguals (see Figure 21).

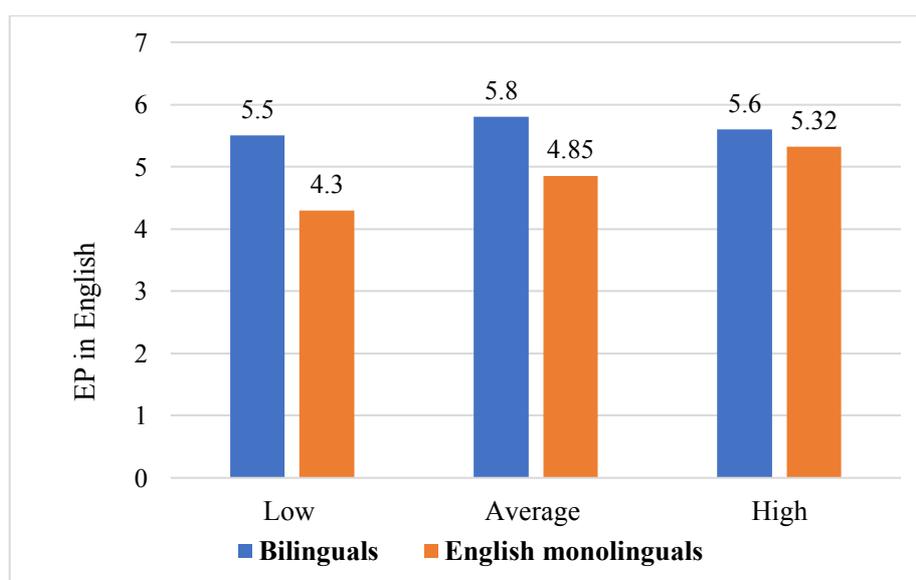


Figure 21. EP (mean) scores of the three language proficiency groups of bilinguals ( $n = 205$ ) and English monolinguals ( $n = 333$ )

**Returning to the hypothesis of RQ3:**

1. Language proficiency levels will be linked to Arabic-English bilinguals' and English monolinguals' perception of the emotions in the English videos. The hypothesis was confirmed. Language proficiency scores were statistically related to the EP of English monolinguals and Arabic-English bilinguals. However, the variations in the EP scores across the three language proficiency groups amongst bilinguals were not as expected;

bilinguals with average language proficiency levels scored higher in the EP task than those with high proficiency levels.

So, to answer RQ3, it can be confirmed that language proficiency was significantly and positively correlated with the EP scores in English for Arabic-English bilinguals, with no significant interaction with the independent variable *TEI*. Moreover, language proficiency scores were significantly and positively correlated with the EP scores of emotions in the English videos for English monolinguals, with a marginally significant interaction with the *TEI* scores.

#### **4.5. The relationship between the socio-biographical variables and EP scores (RQ4)**

This research question addresses the statistical relationship between socio-biographical variables—namely *age*, *gender*, and *education level*—and EP scores in Arabic and English. The purpose of this research question was to explore the individual differences in the EP scores in both languages amongst the three groups of participants. Three hypotheses were formulated for this research question. First, it was hypothesised that younger participants would be better at identifying the emotions in the Arabic and English videos than older participants. Second, females would be better at identifying the emotions in the Arabic and English videos than males. Third, highly educated participants would be better at identifying the emotions in the Arabic and English videos than less educated participants.

The following statistical analyses was conducted on the monolinguals and the bilinguals to explore the link between socio-biographical variables and the EP of the emotions in the Arabic and English videos.

##### *4.5.1. Age*

A Spearman's rank correlation analysis revealed a significant negative correlation between age and EP in Arabic:  $\rho(609) = -.398, p < .0001$ , representing 16% of the shared variance, i.e. a small effect size. In other words, younger participants were better than older participants at interpreting the emotional states depicted in the Arabic videos (see Figure 22).

There was, however, a non-significant negative correlation between age and EP scores in English ( $\rho(609) = -.01, p = ns$ ).

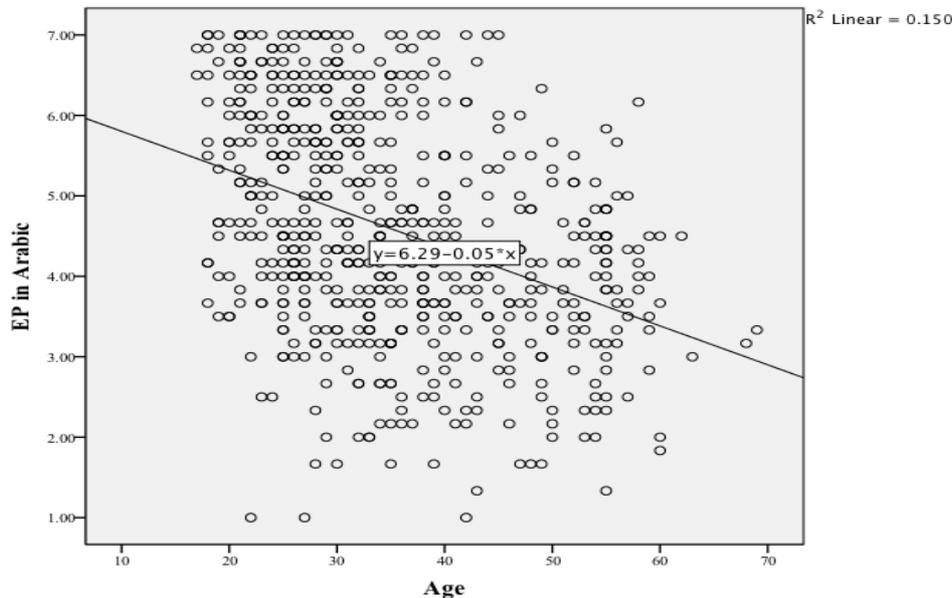


Figure 22. Scatterplot of participants' ages and their EP scores in Arabic

For **Arabic monolinguals**, age was negatively and significantly correlated with EP scores in Arabic ( $\rho(71) = -.315, p < .007$ , representing 9.9% of the shared variance, i.e. a small effect size), but there was a non-significant and negative correlation between age and the EP score in English ( $p = ns$ ). Age was negatively and significantly correlated with the EP of the emotions of *anger* ( $\rho(71) = -.280, p < .01$ ) and *surprise* ( $\rho(71) = -.327, p < .005$ ) in the Arabic videos. Age was also negatively and significantly correlated with the EP of the emotion of *fear* ( $\rho(71) = -.269, p < .02$ ) in the English video.

For the **English monolingual** group, Spearman's rank correlation analyses showed a significant and negative correlation between age and the EP score in Arabic ( $\rho(333) = -.141, p < .01$ ). Meanwhile, age was *positively* and significantly correlated with the EP score in English ( $\rho(333) = .122, p < .02$ ). The effect sizes in both cases are small. The results indicated that younger English monolingual participants were better at identifying the emotions in the Arabic videos than older participants, but the latter outperformed the former in the EP of the emotions in the English videos. Further analyses showed a negative and significant correlation between age and the EP of the emotion of *fear* ( $\rho(333) = -.222, p < .0001$ ) in the Arabic video. Age was positively and significantly correlated with the EP of the emotions of *disgust* ( $\rho(333)$

= .133,  $p < .01$ ), *surprise* ( $\rho(333) = .173, p < .002$ ) and *happiness* ( $\rho(333) = .168, p < .002$ ) in the English videos.

For **Arabic-English bilinguals**, Spearman's rank analyses between age and EP scores in both languages revealed no significant correlations ( $p = ns$ ).

#### 4.5.2. Gender

A Mann-Whitney  $U$ -test revealed significant gender differences between males and females in EP scores in both English (males:  $M = 5, SD = 1.24$ ; females:  $M = 5.3, SD = 1.28$ ;  $U = 3748, z = -3.97, p < .001$ , Cohen's  $d = .23$  (i.e. a small effect size)) and Arabic (males:  $M = 4.4, SD = 1.26$ ; females:  $M = 4.7, SD = 1.45$ ;  $U = 3787, z = -3.97, p < .001$ , Cohen's  $d = .22$  (i.e. a small effect size)). Females, therefore, were better than males at identifying emotions in both languages. On average, the results revealed that both genders more easily identified emotions in English better than in Arabic (see Figure 23).

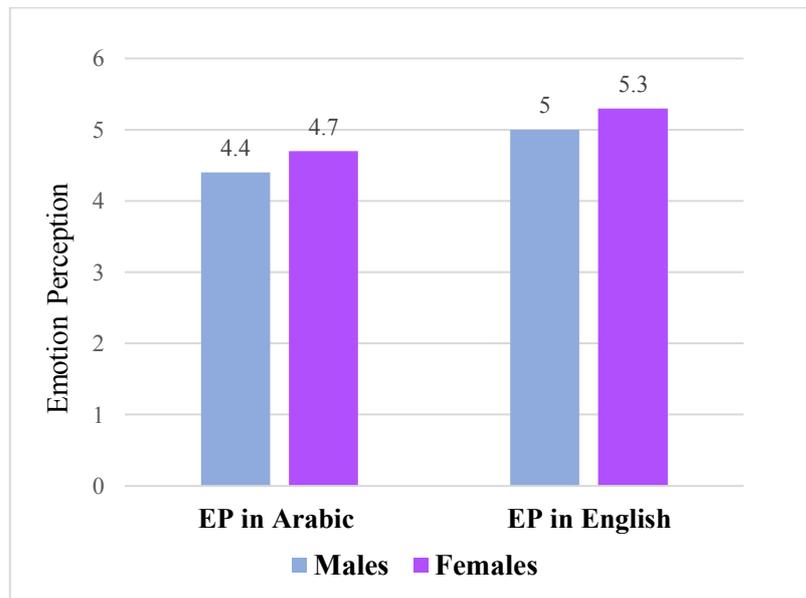


Figure 23. EP (mean) scores in both languages of males ( $n = 250$ ) and females ( $n = 359$ )

Table 13 shows the differences in mean scores and standard deviations between males and females with regard to EP scores of individual emotions in Arabic and English. Overall, females identified most of the emotions at higher agreement rates than males, suggesting that women might be more sensitive to emotional situations and that they might pay more attention to emotional behaviours and emotional expressions.

Table 13. Gender differences in the EP scores of individual emotions in Arabic (A) and English (E) for the total sample ( $n = 609$ )

		<i>Anger</i>		<i>Fear</i>		<i>Sadness</i>		<i>Disgust</i>		<i>Surprise</i>		<i>Happiness</i>	
		A	E	A	E	A	E	A	E	A	E	A	E
<b>Males</b> ( $n = 250$ )	<i>Mean</i>	4.66	5.12	3.42	3.94	4.22	4.36	4.69	5.30	4.28	5.17	4.84	5.96
	<i>SD</i>	1.88	1.85	2.18	1.86	2.02	1.93	1.95	1.92	1.80	1.77	1.74	1.35
<b>Females</b> ( $n = 359$ )	<i>Mean</i>	<b>4.99</b>	<b>5.37</b>	<b>3.82</b>	3.79	<b>4.60</b>	<b>4.77</b>	<b>5.26</b>	<b>5.92</b>	<b>4.50</b>	<b>5.66</b>	<b>5.23</b>	<b>6.23</b>
	<i>SD</i>	1.90	1.94	2.55	2.2	2.12	2.07	1.93	1.69	1.91	1.74	1.76	1.23

Further analyses were conducted to explore the relationship between gender and the EP scores for each group of participants. For the **Arabic monolinguals**, gender was not statistically related to the EP scores in both languages ( $p = ns$ ).

For the **English monolingual** group, there was only a significant difference in the EP score in English ( $U = 11546$ ,  $z = -2.59$ ,  $p < .01$ , Cohen's  $d = .25$ ) between females ( $M = 5.16$ ,  $SD = 1.24$ ) and males ( $M = 4.85$ ,  $SD = 1.18$ ), with females outperforming males. Additional analyses showed that there were significant differences between males and females in their EP of the emotion of *fear* ( $U = 11312$ ,  $z = -3.06$ ,  $p < .002$ , Cohen's  $d = .24$ ) in the Arabic video and the emotions of *disgust* ( $U = 11669$ ,  $z = -2.54$ ,  $p < .01$ , Cohen's  $d = .27$ ), *surprise* ( $U = 11801$ ,  $z = -2.36$ ,  $p < .01$ , Cohen's  $d = .21$ ) and *happiness* ( $U = 11558$ ,  $z = -2.73$ ,  $p < .006$ , Cohen's  $d = .26$ ) in the English videos. The effect sizes in all cases are mostly small.

For the **Arabic-English bilingual** group, gender was only statistically linked to their EP scores in Arabic. The EP scores of females ( $M = 5.69$ ,  $SD = 1.12$ ) were significantly higher than the EP scores of males ( $M = 5.5$ ,  $SD = .87$ ) in Arabic ( $U = 3745$ ,  $z = -2.2$ ,  $p < .02$ , Cohen's  $d = .18$ ). There was only a significant difference between males ( $M = 5.76$ ,  $SD = 1.91$ ) and females ( $M = 6.3$ ,  $SD = 1.47$ ) in the EP of the emotion of *disgust* ( $U = 3810$ ,  $z = -2.52$ ,  $p < .01$ , Cohen's  $d = .31$ ) in the English videos. The effect sizes in both cases are mostly small.

#### 4.5.3. Education level

A Kruskal-Wallis test was run to identify the effect of education levels on EP scores in both languages for the total sample. The results revealed that education levels had a significant

effect on EP in Arabic ( $\chi^2(3) = 35.285, p < .0001$ ), with highly educated participants scoring higher (see Figure 24). However, education levels had only a marginally significant effect on EP in English ( $\chi^2(3) = 8.5, p = .03$ ). A series of Mann-Whitney *U*-tests revealed only significant differences in EP scores in Arabic between high school (*Mdn* = 4.1) and undergraduate (*Mdn* = 4.5) ( $U = 16573, z = -2.2, p < .02, \text{Cohen's } d = .25$ ), between high school and master's (*Mdn* = 5.2) ( $U = 5336, z = -4.48, p < .0001, \text{Cohen's } d = .59$ ), between high school and PhD (*Mdn* = 5.5) ( $U = 1921, z = -4.1, p < .0001, \text{Cohen's } d = .74$ ), between undergraduate and master's ( $U = 13086, z = -2.78, p < .005, \text{Cohen's } d = .32$ ), and between undergraduate and PhD ( $U = 4815, z = -2.85, p < .004, \text{Cohen's } d = .46$ ). The values of Cohen's *d* for these tests vary between .25 and .74, which can be interpreted as small to large effect sizes. In general, Figure 24 below shows that participants with high education levels were better at interpreting emotions in Arabic and in English.

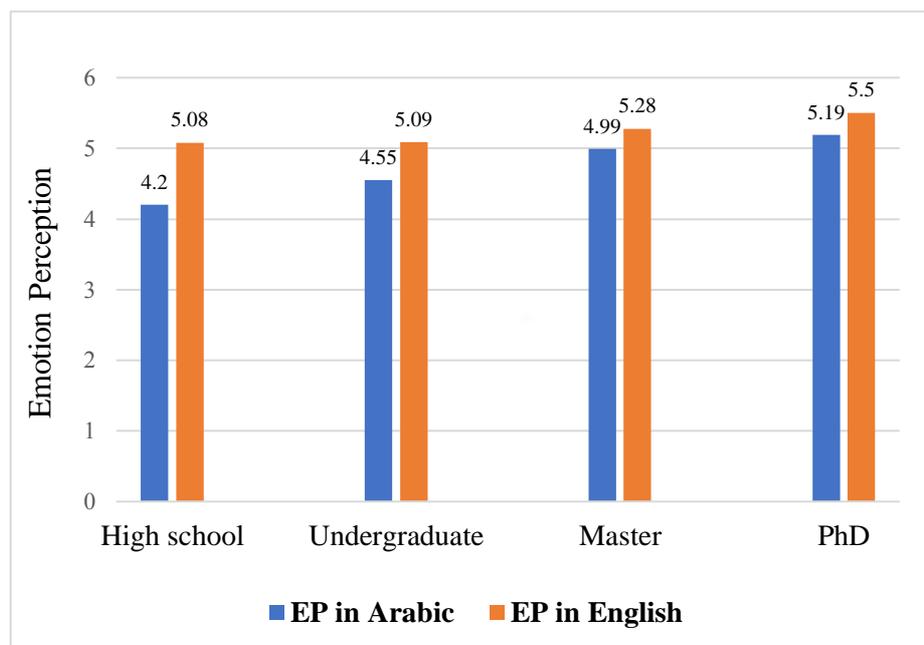


Figure 24. EP (mean) scores in both languages based on education levels of participants ( $n = 609$ )

For the **Arabic and English monolingual** groups, Kruskal-Wallis tests indicated no significant effect of education levels on the EP scores in both languages ( $p = ns$ ).

For the **Arabic-English bilingual** group, a Kruskal-Wallis test also indicated no significant effect of education levels on the EP scores in both languages ( $p = ns$ ). Additional Mann-Whitney *U*-tests indicated a marginally significant difference in the EP in English ( $U = 134, z = -1.96, p = .05, \text{Cohen's } d = .7$ ) between high school ( $M = 4.68, SD = 1.55$ ) and PhD

( $M = 5.7$ ,  $SD = 1.13$ ). A significant difference also existed in the EP in English ( $U = 247$ ,  $z = -2.12$ ,  $p < .03$ , Cohen's  $d = .71$ ) between high school ( $M = 4.68$ ,  $SD = 1.55$ ) and master's ( $M = 5.68$ ,  $SD = 1.22$ ). The effect sizes in both cases are large. The results indicated that highly educated participants were better at interpreting the emotions in the English videos than less educated participants.

#### **Returning to the hypotheses of RQ4:**

1. Younger participants will be better at identifying emotions in the Arabic and English videos than older participants. The hypothesis was partly confirmed: age was negatively and significantly correlated with the EP scores in Arabic, particularly for the Arabic and English monolingual groups. There was a significant and positive correlation between age and the EP scores in English for the English monolingual group, with older participants being better at identifying emotions in the English videos than younger participants; however, younger participants outperformed older participants in the EP in Arabic. Age was not significantly linked to the EP scores of the bilingual group.
2. Females will be better at identifying emotions in the Arabic and English videos than males. The hypothesis was confirmed: females outperformed males in EP scores in both languages. More specifically, the EP scores in English of females in the English monolingual group were significantly higher than the males'. For the bilingual group, females outperformed males in the EP in Arabic.
3. Highly educated participants will be better at identifying emotions in the Arabic and English videos than less educated participants. The hypothesis was confirmed: highly educated participants were better at interpreting emotions in both languages than less educated participants. Less educated participants amongst the bilingual group were worse at interpreting the emotions in the English videos than highly educated participants. Education levels were not significantly linked to the EP scores of the monolingual groups.

Therefore, to answer RQ4, we can generally confirm that socio-biographical variables—*age*, *gender*, and *education level*—were significantly linked to the EP scores of the participants. A superior ability to identify emotions in cross-linguistic and cultural stimuli was found in younger participants; a small female advantage was found in the EP in L1, but this advantage was absent in cross-linguistic and cultural EP; and education levels were likely related to the EP of bilinguals.

The next research question addresses the relationship between the bilinguals' linguistic profile variables and their EP scores in English.

#### **4.6. The relationship between linguistic profile variables and the EP of Arabic-English bilinguals (RQ5)**

This research question aimed to investigate individual variations in EP scores based on the bilinguals' linguistic profile variables, namely their age during English acquisition, the contexts of English acquisition, the frequency of English use, and the length of stay in an English-speaking environment. It was hypothesised that bilinguals who started learning English at a young age would be better at interpreting emotions in the English videos than participants who started learning English later; those who learned English in a mixed or naturalistic environment would be better at identifying emotions in English videos than those who learned English in a formal setting only; and frequent users of English would be better at identifying emotions in English videos than less frequent users. Furthermore, it was hypothesised that participants who had lived in an English-speaking environment for more than two years would be better at identifying emotions in English videos than those who were early in their stay.

##### *4.6.1. The age of onset of acquisition (AOA)*

The Kruskal-Wallis test indicated no significant effect of AOA on the EP scores of the bilingual group ( $p = ns$ ).

##### *4.6.2. Context of L2 acquisition*

The Kruskal-Wallis test revealed that the acquisition context had no significant effect on the EP scores of the bilingual group.

##### *4.6.3. Frequency of language use*

The results of the Spearman's rank correlation analysis revealed that the frequency of English language use had a positive and moderate correlation with the EP scores in English ( $\rho$

= .152,  $p < .03$ , representing 2% of the variance, i.e. a small effect size). Frequent users of English, therefore, were better at interpreting emotions in the English videos than less frequent users. The frequency of Arabic use, however, was not related to the EP scores in both languages.

#### *4.6.4. Length of stay in an English-speaking environment*

A Mann-Whitney  $U$ -test revealed that no significant difference existed in the EP scores in both languages between bilinguals who had been in ESCs for less than two years and those who had been in ESCs for more than two years. Length of stay in ESCs, therefore, was not statistically linked to the EP scores of bilinguals.

#### **Returning to the hypotheses of RQ5:**

1. Participants who started learning English L2 at a younger age will be better at identifying emotions in English videos than participants who started learning English later. The hypothesis was rejected: there was no significant effect of AOA on the EP scores for the bilingual group.
2. Participants who learned English in a mixed or naturalistic environment will be better at identifying emotions in English videos than those who learned English in a formal setting only. The hypothesis was rejected: the context of the acquisition was not related to the EP scores.
3. Frequent users of English will be better at identifying emotions in English videos than less frequent users. The hypothesis was confirmed: frequent users of English were better at interpreting the emotions in the English videos than less frequent users.
4. Participants who had lived in an English-speaking environment for more than two years will be better at identifying emotions in English videos than those who were early in their stay. The hypothesis was rejected: the length of stay in ESCs was not related to the EP scores.

Therefore, to answer RQ5, it can be confirmed that only the frequency of English use had a moderate positive association with the EP scores in English. When and how English was learned was not statistically related to the EP scores in English for the bilingual group. The

length of stay in an English-speaking environment was also not related to the bilinguals' ability to interpret the emotions in the English videos.

The following section presents the results of the sixth research question, which addresses the existence of an in/out-group advantage in the EP of the two groups of monolinguals.

#### **4.7. An in/out-group advantage in EP (RQ6)**

This research question examines the extent to which the un/familiarity with the culture and the language of the actors in the videos influenced the participants' EP scores (i.e. cultural/linguistic match and mismatch between the expressers and the perceivers of the emotions). It was hypothesised that an in-group advantage in EP would exist in the two groups of monolinguals (Arabic and English monolinguals), where each group would be better able to interpret the emotions expressed by members of their own linguistic/cultural group.

To answer this RQ, statistical analyses were performed to compare Arabic monolinguals' EP scores, as well as the perceived emotional intensity of the emotions in both languages, to those of English monolinguals. The first Mann-Whitney *U*-test on the EP scores in the Arabic videos indicated that the scores of Arabic monolinguals ( $M = 5.19$ ,  $SD = 1.51$ ) were significantly higher than the scores of English monolinguals ( $M = 3.79$ ,  $SD = 1$ ) ( $U = 5296$ ,  $z = -7.31$ ,  $p < .0001$ , Cohen's  $d = 1.09$  (i.e. a large effect size)). A second Mann-Whitney *U*-test on the EP scores in the English videos revealed that the scores of English monolinguals ( $M = 5.01$ ,  $SD = 1.22$ ) were significantly higher than the scores of Arabic monolinguals ( $M = 4.65$ ,  $SD = 1.35$ ) ( $U = 10097$ ,  $z = -1.93$ ,  $p = .05$ , Cohen's  $d = .27$  (i.e. a small effect size)) (see Figure 25).

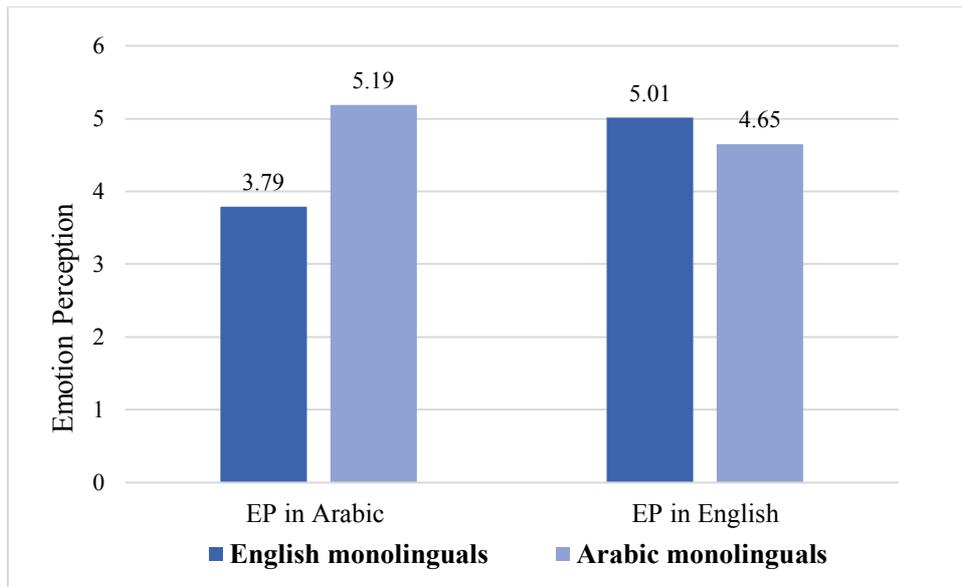


Figure 25. EP (mean) scores of Arabic and English monolinguals in Arabic and English

Further statistical analyses were then conducted on the EP scores and the perceived emotional intensity of each individual emotion in the Arabic and English videos for the Arabic and English monolinguals.

#### 4.7.1. Emotion perception in Arabic

Figure 26 shows that Arabic monolinguals could perceive most of the emotions in the Arabic videos at higher agreement rates than English monolinguals. Additionally, Arabic monolinguals perceived the emotional intensities of the emotions in Arabic at higher rates than English monolinguals, suggesting an in-group advantage in the EP scores as well as in the perceived emotional intensities of the emotions in the Arabic videos (see Figure 27).

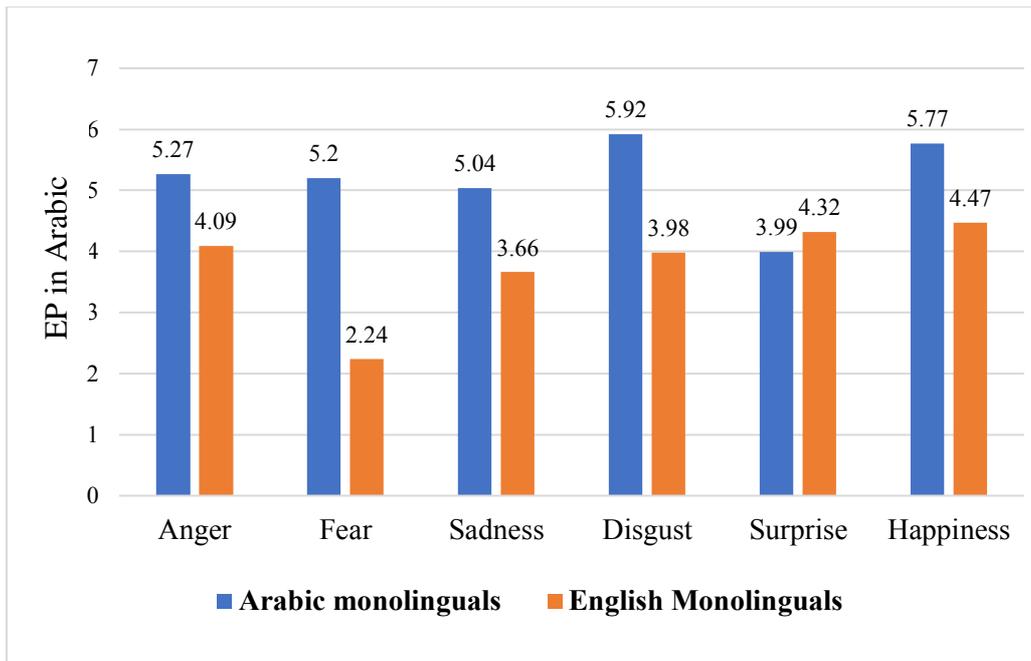


Figure 26. EP (mean) scores of individual emotions in Arabic for Arabic monolinguals ( $n = 71$ ) and English monolinguals ( $n = 333$ )

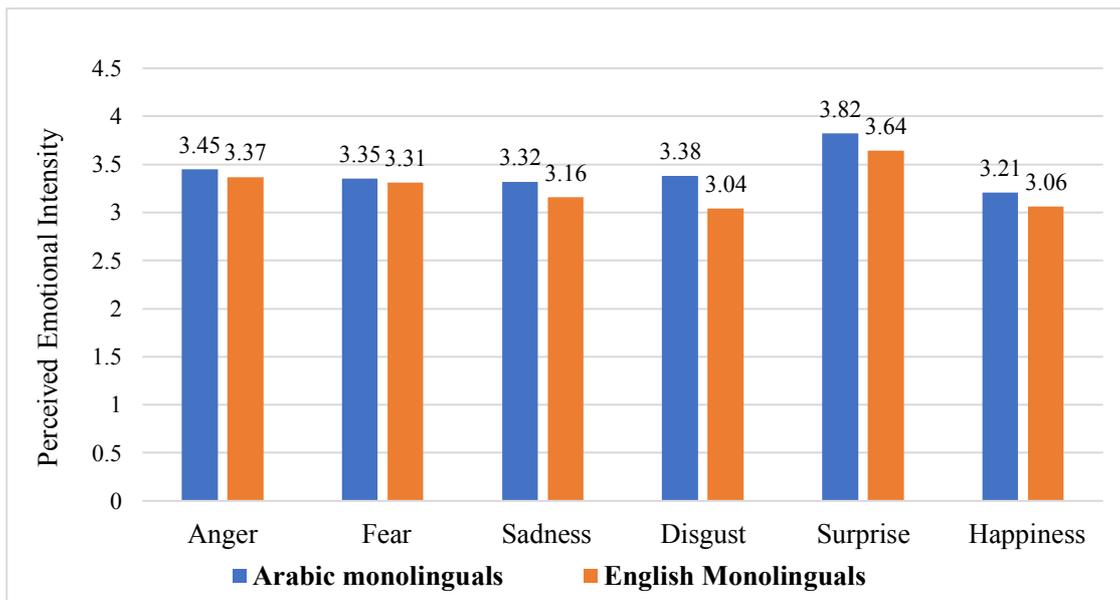


Figure 27. Mean values of the perceived emotional intensities of the emotions in Arabic for Arabic monolinguals ( $n = 71$ ) and English monolinguals ( $n = 333$ )

The following comparisons were conducted to examine whether the differences in the EP of the emotions in the Arabic videos between the two groups of monolinguals were significant and above chance level:

**Anger:**

A Mann-Whitney *U*-test revealed a significant difference in the EP of *anger* in Arabic between English and Arabic monolinguals:  $U = 7397$ ,  $z = -5.02$ ,  $p < .0001$ , Cohen's  $d = .59$  (i.e. a medium effect size), with Arabic monolinguals scoring ( $Mdn = 7$ ) higher than English monolinguals ( $Mdn = 4$ ). There was, however, no significant difference between the two groups in their perceived emotional intensity of the emotion of *anger* in Arabic ( $p = ns$ ).

### **Fear:**

A Mann-Whitney *U*-test revealed a statistically significant difference in the EP of the emotion of *fear* in Arabic between Arabic monolinguals and English monolinguals:  $U = 4172$ ,  $z = -8.99$ ,  $p < .0001$ , Cohen's  $d = 1.5$  (i.e. a large effect size), with Arabic monolinguals outperforming ( $Mdn = 7$ ) English monolinguals ( $Mdn = 1$ ). Another Mann-Whitney *U*-test revealed no significant difference in the perceived emotional intensity between the two groups:  $U = 1112$ ,  $z = -.81$ ,  $p = ns$ .

### **Sadness:**

For the EP of the negative emotion of *sadness* in Arabic, the scores of Arabic monolinguals ( $Mdn = 6$ ) were significantly higher than the scores of English monolinguals ( $Mdn = 4$ ):  $U = 7387$ ,  $z = -5.02$ ,  $p < .0001$ , Cohen's  $d = .67$  (i.e. a medium effect size). However, there was a non-significant difference between them in their perceived emotional intensity of the emotion of *sadness*:  $U = 1066$ ,  $z = -1.3$ ,  $p = ns$ .

### **Disgust:**

Mann-Whitney *U*-tests revealed a significant difference in the EP of *disgust* in Arabic between Arabic and English monolinguals:  $U = 4913$ ,  $z = -7.84$ ,  $p < .0001$ , Cohen's  $d = 1.07$  (i.e. a large effect size) and also revealed a marginally significant difference between them in their perceived emotional intensity:  $U = 9968$ ,  $z = -2.2$ ,  $p < .02$ , Cohen's  $d = .28$  (i.e. a small effect size). The results showed that Arabic monolinguals interpreted this emotion ( $Mdn = 7$ ) at higher agreement rates than English monolinguals ( $Mdn = 4$ ), and that Arabic monolinguals perceived the emotional intensity of this emotion ( $M = 3.38$ ,  $SD = 1.4$ ) at higher rates than the English monolinguals ( $M = 3.04$ ,  $SD = .9$ ) as well.

### **Surprise:**

For the EP of the positive emotion *surprise* in Arabic, there was a non-significant difference between Arabic and English monolinguals:  $U = 1093$ ,  $z = -1.01$ ,  $p = ns$ . This was the only individual emotion perceived by both groups of monolinguals at similar agreement levels, despite their linguistic and cultural backgrounds. However, there was a marginally significant difference between the two groups in their perceived emotional intensity of this emotion in Arabic:  $U = 9869$ ,  $z = -2.2$ ,  $p < .02$ , Cohen's  $d = .16$  (i.e. a small effect size), with Arabic monolinguals perceiving the emotional intensity of this emotion ( $M = 3.82$ ,  $SD = 1.3$ ) at higher rates than English monolinguals ( $M = 3.64$ ,  $SD = .9$ ).

### **Happiness:**

A Mann-Whitney  $U$ -test indicated a significant difference between the EP scores of Arabic monolinguals and English monolinguals regarding the emotion of *happiness* in Arabic:  $U = 6321$ ,  $z = -6.25$ ,  $p < .0001$ , Cohen's  $d = .74$  (i.e. a large effect size), with Arabic monolinguals scoring higher ( $Mdn = 7$ ) than English monolinguals ( $Mdn = 5$ ). Another Mann-Whitney  $U$ -test revealed a non-significant difference between the two groups of monolinguals in their perceived emotional intensity of this emotion in Arabic:  $U = 10786$ ,  $z = -1.2$ ,  $p = ns$ .

Overall, Arabic monolinguals were better than English monolinguals at interpreting the emotions (with the exception of the positive emotion of *surprise*) in the Arabic videos, suggesting the vital role of language and culture in EP. The unfamiliarity with the Arabic language and culture seemed to hinder English monolinguals' ability to interpret emotions in the Arabic videos. Although the existence of the in-group advantage was strong in the EP scores, it had little impact on the perceived emotional intensities of emotions in the Arabic videos. After examining the existence of an in-group advantage in the EP of the emotions in the Arabic videos, the next step was to repeat the same comparisons but for the emotions in the English videos, and to explore whether English monolinguals will be better at identifying the emotions in the English videos than Arabic monolinguals.

#### *4.7.2. Emotion perception in English*

As was previously noted, the EP scores of English monolinguals were significantly higher than the scores of Arabic monolinguals in English ( $U = 10097$ ,  $z = -1.93$ ,  $p = .05$ , Cohen's  $d = .27$  (i.e. a small effect size). To follow this up, statistical analyses indicated that English monolinguals were better than Arabic monolinguals at interpreting most of the emotions in the English videos (see Figure 28). English monolinguals also perceived most of the emotional intensity of the emotions in the English videos at higher rates than Arabic monolinguals (see Figure 29).

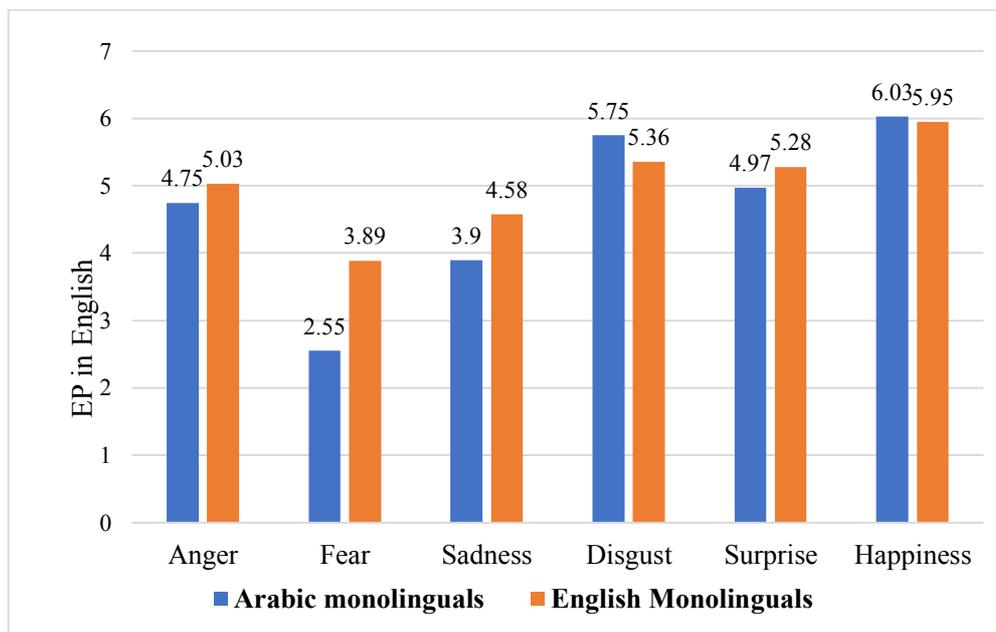


Figure 28. EP (mean) scores of Arabic monolinguals ( $n = 71$ ) and English monolinguals ( $n = 333$ ) in English

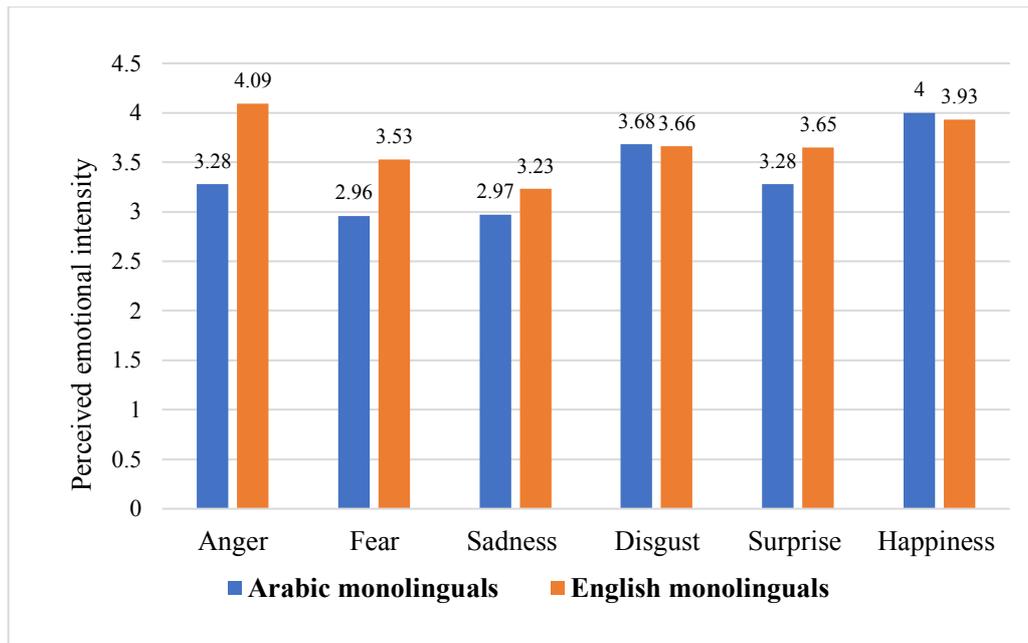


Figure 29. Mean values of the perceived emotional intensities of the emotions in English for Arabic monolinguals ( $n = 71$ ) and English monolinguals ( $n = 333$ )

Additional statistical tests were needed to unpack these results and see whether the differences between the EP scores and the perceived emotional intensities of the English video of the two groups of monolinguals were above chance levels.

### **Anger:**

A Mann-Whitney  $U$ -test revealed a non-significant difference in the EP of *anger* in English between the two groups of monolinguals:  $U = 115$ ,  $z = -.367$ ,  $p = ns$ . There was, however, a significant difference at the  $p < .0001$  level between the two groups regarding their perceived emotional intensity of the emotion of *anger* in English:  $U = 7341$ ,  $z = -5.29$ , Cohen's  $d = .71$  (i.e. a large effect size), with English monolinguals perceiving the emotional intensity of *anger* in English ( $Mdn = 4$ ) at higher rates than Arabic monolinguals ( $Mdn = 3$ ).

### **Fear:**

The results revealed a significant difference in the EP of the emotion of *fear* in English between Arabic monolinguals and English monolinguals:  $U = 6928$ ,  $z = -5.54$ ,  $p < .0001$ , Cohen's  $d = .68$  (i.e. a medium effect size), with English monolinguals outperforming ( $Mdn = 4$ ) Arabic monolinguals ( $Mdn = 1$ ). Another statistical test showed a significant difference in the perceived emotional intensity of *fear* in English:  $U = 9054$ ,  $z = -3.27$ ,  $p < .001$ , Cohen's  $d$

= .5 (i.e. a medium effect size), with English monolinguals ( $Mdn = 4$ ) perceiving the intensity of this emotion at higher rates than Arabic monolinguals ( $Mdn = 3$ ).

### **Sadness:**

A Mann-Whitney  $U$ -test also revealed a marginally significant difference in the EP of the emotion of *sadness* in English between Arabic monolinguals and English monolinguals:  $U = 9762$ ,  $z = -2.33$ ,  $p = .02$ , Cohen's  $d = .32$  (i.e. a small effect size), with English monolinguals ( $Mdn = 5$ ) outperforming Arabic monolinguals ( $Mdn = 4$ ); however, there was a non-significant difference between them in the perceived emotional intensity of this emotion ( $p = ns$ ).

### **Disgust:**

Similar results were obtained for the EP of the negative emotion of *disgust* in English:  $U = 9488$ ,  $z = -2.74$ ,  $p < .006$ , Cohen's  $d = .2$  (i.e. a small effect size). This result was surprising, as Arabic monolinguals were better at interpreting this emotion in English ( $Mdn = 7$ ) than English monolinguals ( $Mdn = 6$ ), suggesting an out-group advantage. Still, both groups scored high in their EP of this emotion. The two groups of monolinguals, nevertheless, did not significantly differ in their perception of the emotional intensity of this emotion ( $p = ns$ ).

### **Surprise:**

There was no significant difference between Arabic and English monolinguals in their EP of the emotion of *surprise* in English ( $U = 1125$ ,  $z = -.64$ ,  $p = ns$ ) nor in the perceived emotional intensity ( $U = 1025$ ,  $z = -1.8$ ,  $p = ns$ ).

### **Happiness:**

The results revealed only a marginally significant difference between Arabic monolinguals and English monolinguals in their EP of *happiness* in English:  $U = 9952$ ,  $z = -2.24$ ,  $p < .02$ , Cohen's  $d = .05$  (i.e. a small effect size). Again, though both groups had high scores, it was surprising that Arabic monolinguals outperformed ( $Mdn = 7$ ) English

monolinguals ( $Mdn = 6$ ). There was no significant difference in the perceived emotional intensity of this emotion ( $U = 1044, z = -1.61, p = ns$ ).

In short, the results obtained from statistical comparisons between English monolinguals and Arabic monolinguals regarding their EP of emotions in English revealed that English monolinguals could more easily interpret the emotions expressed by English actors than those expressed by Arabic actors. The results demonstrated a significant existence of an in-group advantage in the EP scores in Arabic but a small one in the EP scores in English. The most striking results emerging from the data were that Arabic monolinguals outperformed English monolinguals in the EP of the emotions of *disgust* and *happiness* in the English videos, despite their unfamiliarity with the English language, suggesting an out-group advantage for Arabic monolinguals and an in-group *disadvantage* for English monolinguals. It might be that Arabic monolinguals are aware of the non-verbal emotional behaviours associated with these emotions as a result of their exposure to the English culture, for example through watching English films (in the Arabic translations).

Thus, it can be observed from the results that there was a small in-group advantage in the EP of monolingual participants. In other words, Arabic monolinguals were better than English monolinguals at interpreting the emotions of *anger, fear, sadness, disgust, surprise, and happiness* in the Arabic videos, whereas English monolinguals outperformed Arabic monolinguals in the EP of the emotions of *anger, fear, sadness, and surprise* in the English videos. Furthermore, the in-group advantage existed in the perceived emotional intensities of the Arabic emotions of *disgust* and *surprise* for Arabic monolinguals as well as the English emotions of *anger* and *fear* for English monolinguals.

### **Returning to the hypothesis of RO6:**

1. An in-group advantage will exist in the EP of the two groups of monolinguals (Arabic and English monolinguals), wherein each group of monolinguals will be better at interpreting the emotions expressed by members of their own linguistic/cultural group. The hypothesis was partly confirmed: Arabic monolinguals were better than English monolinguals at interpreting *all* of the emotions in the Arabic videos; English monolinguals, on the other hand, identified *most* of the emotions in English better than Arabic monolinguals.

Thus, to answer research question RQ6, it can be confirmed that there is a small in-group advantage in the EP scores of most emotions in the Arabic and in the English videos for Arabic and English monolinguals.

The following section presents the results of the last research question, which addresses the link between Arabic-English bilinguals' bicultural identity orientations and their EP scores in the L1 and L2.

#### **4.8. The relationship between bicultural identity orientations (BIOS) and the emotional perception of Arabic-English bilinguals (in ESCs) (RQ7)**

RQ7 aims to investigate whether or not bicultural identity orientations are statistically linked to the EP scores in the L1 and L2 for Arabic-English bilinguals who were in the UK at the time of the study. It was hypothesised that the perception of the relationship between the two cultural identities (i.e. the ethnic (Arabic) cultural identity and the mainstream (British) cultural identity) would be significantly linked to the EP scores in the L1 and L2 for Arabic-English bilinguals. This task was only performed by the bilingual group that had lived in ESCs. As a reminder, there were five bicultural identity orientation variables included in the Bicultural Identity Orientation Scale (BIOS): *monoculture*, *conflict*, *alternation*, *hybridity*, and *compatibility*. The graph below shows the means of BIOS variables for the bilingual group. The *compatibility* variable was the most endorsed by the bilingual participants. This points to the fact that most Arabic-English bilinguals perceived their two cultural identities as compatible. The least endorsed cultural orientation was the *conflict* one, suggesting that the participants did not struggle to find balance between their cultural identities, but instead, they preferred to be part of both cultures. The other two variables—*alternation* and *hybridity*—had moderate levels of endorsement from bilingual participants.

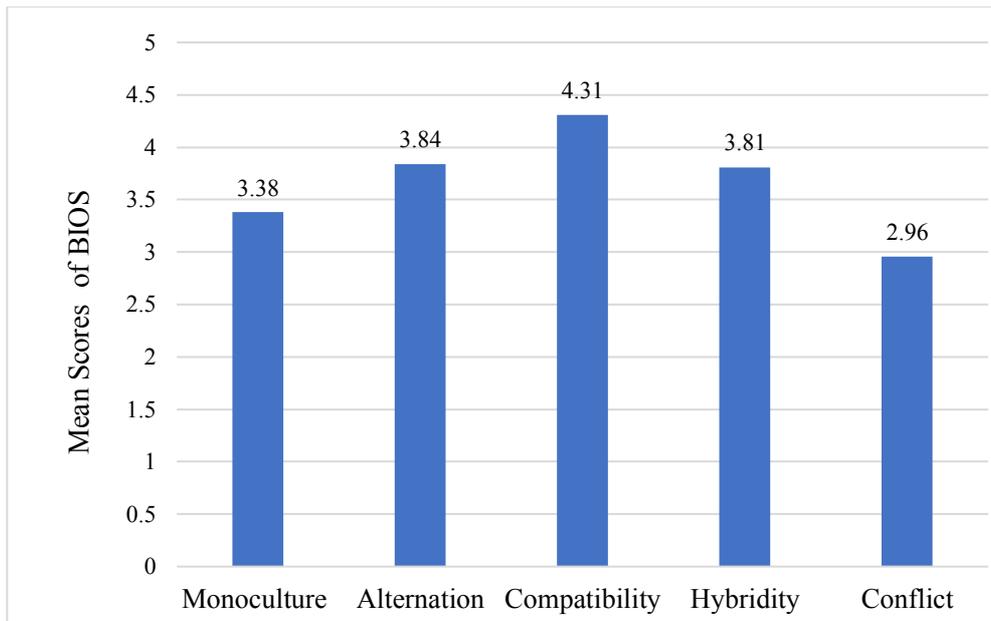


Figure 30. Mean values of BIOS variables for Arabic-English bilinguals (in ESCs,  $n = 108$ )

The patterns of correlations between the BIOS variables and the total EP scores in the L1 and L2 for Arabic-English bilinguals are presented in the table below (Table 14).

Table 14. Spearman's rank correlations between BIOS variables and the EP scores in Arabic and English for Arabic-English bilinguals in ESCs ( $n = 108$ )

<b>BIOS variables</b>	<b><i>EP in Arabic</i></b>	<b><i>EP in English</i></b>
<i>Monoculture</i>	.013	-0.08
<i>Alternation</i>	.02	.072
<i>Compatibility</i>	.02	.22*
<i>Hybridity</i>	-0.03	.11
<i>Conflict</i>	-0.14	-0.24*

\* $p < .05$ , \*\* $p < .01$

From the table above, it can be observed that the correlations between the EP scores and the BIOS variables indicate only moderate positive correlations between the variable *compatibility* and the EP scores in English ( $\rho = .22$ ,  $p < .03$ , representing 4.8% of the shared variance, i.e. a small effect size). The results also suggest that superior ability to interpret emotions in the L2 is predicted by bilingual/bicultural individuals' positive—*compatible*—views regarding their two cultural identities. In other words, bilinguals who perceived their cultural identities as compatible seemed to more easily interpret the emotions of speakers from their L2 culture (i.e. English L1 users).

The variable *conflict* had a significant negative correlation with the EP scores in English ( $\rho = -.24, p < .01$ , representing 5.7% of the shared variance, i.e. a small effect size), as well as the EP scores in Arabic, although it was not significant ( $\rho = -.14, p = ns$ ). The results suggest that participants with conflicting attitudes towards their cultural identities achieved lower scores in their EP in English. The other BIOS variables, *hybridity* and *alternation*, were not statistically linked to EP scores in both languages for the bilingual participants in this study.

More correlational tests were run to examine the relationship between BIOS variables and the EP scores and BIOS variables and the emotional intensities of each individual emotion in Arabic and English for the bilinguals. Spearman's rank correlational analyses revealed that the variable *monoculture* was not significantly correlated with any EP score. The other four BIOS variables were significantly correlated with the EP scores of the individual emotions of *sadness* and *anger* in English, and they were significantly correlated with the perceived emotional intensities of some individual emotions as shown below:

#### 4.8.1. *Alternation variable and the EP of Arabic-English bilinguals (in ESCs)*

The results of a Spearman's rank correlational test indicated that the *alternation* variable was significantly correlated with the emotional intensities of the emotions of *disgust* in Arabic ( $\rho = .287, p < .004$ , 8.2% of the shared variance, i.e. a small effect size) and *happiness* in English ( $\rho = .252, p < .01$ , 6.3% of the shared variance, i.e. a small effect size). No significant correlations were found between this variable and the EP scores in both languages.

#### 4.8.2. *Compatibility variable and the EP of Arabic-English bilinguals (in ESCs)*

The second variable was *compatibility* orientation. The results indicated that the variable *compatibility* was significantly and positively correlated with the EP of the emotion of *sadness* in the English video ( $\rho = .358, p < .0001$ , which represents 12.8% of the shared variance, i.e. a medium effect size). This result suggests that the bilingual participants who perceived their two cultural identities as compatible seemed to identify the negative emotion of *sadness* in their L2 easily. The results also showed that this variable had the highest number of correlations with the perceived emotional intensities of individual emotions expressed in the

L1 and L2. First, there were positive and strong correlations between the variable *compatibility* and the perceived intensities of the emotions of *fear* ( $\rho = .274, p < .007$ ) and *sadness* ( $\rho = .262, p < .009$ ) in the Arabic videos. Second, the results showed strong positive correlations between the variable *compatibility* and the perceived emotional intensities of the emotions of *anger* ( $\rho = .218, p < .03$ ), *fear* ( $\rho = .307, p < .002$ ), *sadness* ( $\rho = .274, p < .007$ ), and *surprise* ( $\rho = .254, p < .01$ ) in the English videos. The effect sizes range from 4.7% to 9.4%, which can be interpreted as small.

#### 4.8.3. Hybridity variable and the EP of Arabic-English bilinguals (in ESCs)

The results indicated a weak positive correlation between the variable *hybridity* and the EP of the emotion of *sadness* in the English video ( $\rho = .205, p < .04$ , representing 4.2% of the shared variance, i.e. a small effect size). In addition, the results indicated significant positive correlations between the variable *hybridity* and the perceived emotional intensities of the emotions of *fear* ( $\rho = .265, p < .009$ ) and *disgust* ( $\rho = .252, p < .01$ ) in the Arabic videos. It was also significantly and positively correlated with the perceived emotional intensity of the negative emotion of *sadness* in the English videos ( $\rho = .363, p < .0001$ ). The effect sizes range from 6.3% to 13.1%, in other words, ranging between small and medium.

#### 4.8.4. Conflict variable and the EP of Arabic-English bilinguals (in ESCs)

The variable *conflict* was significantly and negatively correlated with the EP of the emotion of *anger* in the English video recording ( $\rho = -.213, p < .03$ , representing 4.5% of the shared variance, i.e. a small effect size). The results also showed that the variable *conflict* was significantly and negatively correlated with the perceived emotional intensity of the positive emotion of *happiness* in the Arabic video ( $\rho = -.235, p < .02$ ). It was also negatively and significantly correlated with the perceived emotional intensities of the emotions of *anger* ( $\rho = -.211, p < .03$ ) and *sadness* ( $\rho = -.294, p < .003$ ) in the English videos. The effect sizes range from 4.4% to 8.6%, which can be interpreted as small.

In short, the five variables of BIOS had a significant (but small) effect on the perceived emotional intensities; this was a greater effect than on the EP scores for Arabic-English bilinguals. The only statistically significant relationships found by the results were between the

variables of *hybridity* and *conflict* and the EP of the emotions of *sadness* and *anger* in the English videos.

More analyses were conducted to examine the relationships between the BIOS variables and the other independent variables: the length of stay in ESCs, TEI, and the language proficiency of Arabic-English bilinguals.

#### 4.8.5. BIOS variables and the length of stay in ESCs: Arabic-English bilinguals (in ESCs)

The patterns of correlations between the length of stay in ESCs and BIOS variables for Arabic-English bilinguals in ESCs showed that the length of stay in ESCs was significantly and positively correlated with the variable *hybridity* ( $\rho = .311, p < .002$ , which represents 9.6% of the shared variance). The results suggested that the longer bilinguals had stayed in ESCs, the more they perceived their L1 and L2 cultures as mixed. Interestingly, the length of stay was negatively correlated with the variable *conflict* ( $\rho = -.213, p < .03$ , i.e. 4.5% of the shared variance), suggesting that bilinguals who had been in ESCs for long periods of time are less likely to have conflicting attitudes regarding belonging to their two cultures.

#### 4.8.6. BIOS variables and TEI: Arabic-English bilinguals (in ESCs)

Spearman's rank correlational analyses were run between the five variables of BIOS (*monoculture*, *alternation*, *hybridity*, *compatibility*, and *conflict*) and TEI and its four facets (*self-control*, *well-being*, *emotionality*, and *sociability*). The table below showed that only the BIOS variables of *conflict* and *compatibility* were significantly correlated with TEI factors (at the  $p < .01$  level).

Table 15. Spearman's rank correlations between BIOS variables and TEI and its facets for Arabic-English bilinguals in ESCs ( $n = 108$ )

<b>BIOS variables</b>	<b>TEI</b>	<b>Self-control</b>	<b>Well-being</b>	<b>Emotionality</b>	<b>Sociability</b>
<i>Monoculture</i>	-.15	- 0.05	- 0.01	- 0.15	.09
<i>Alternation</i>	- 0.1	- 0.11	0.07	- 0.16	.01
<i>Compatibility</i>	.31**	.25*	.31*	.17	.19
<i>Hybridity</i>	.15	.068	.15	.01	.18
<i>Conflict</i>	- 0.43**	- 0.43**	- 0.27**	- 0.35**	- 0.16

\* $p < .01$ , \*\* $p < .001$

### **Conflict and TEI: Arabic-English bilinguals in ESCs**

The results of the correlational analyses showed a negative and strong correlation between the variable *conflict* and the TEI levels ( $\rho = -.43$ ,  $p < .0001$ , representing 18.5% of the shared variance, i.e. a medium effect size). It was also negatively and significantly correlated with the factors of *self-control* ( $\rho = -.43$ ,  $p < .0001$ ), *well-being* ( $\rho = -.27$ ,  $p < .008$ ), and *emotionality* ( $\rho = -.35$ ,  $p < .001$ ). The effect sizes range from 7.2% to 18.5%, in other words, ranging between small and medium. These results suggest that bilinguals who have low levels of TEI, particularly in the facets of *self-control*, *well-being*, and *emotionality*, might have negative or conflicting attitudes about maintaining both of their cultural identities.

### **Compatibility and TEI: Arabic-English bilinguals in ESCs**

The variable *compatibility* was positively and significantly correlated with the TEI levels ( $\rho = .31$ ,  $p < .003$ , which represents 9.6% of the shared variance). The results, moreover, indicated significant and positive correlations between the variable *compatibility* and the factors of *self-control* ( $\rho = .25$ ,  $p < .01$ , representing 6.2% of the shared variance) and *well-being* ( $\rho = .31$ ,  $p < .01$ , i.e. 9.6% of the shared variance). These results suggest that Arabic-English participants who score higher in the TEI and the facets of *self-control* and *well-being*, in particular, might perceive their two cultural identities to be in harmony.

#### 4.8.7. BIOS variables and language proficiency: Arabic-English bilinguals (in ESCs)

A Spearman's rank correlation between the BIOS variables and the language proficiency scores was run. The results showed a significant positive correlation between the variable *compatibility* and the language proficiency scores ( $\rho = .278, p < .006$ , representing 7.7% of the shared variance), indicating that Arabic-English bilinguals who had higher levels of English proficiency perceived their cultural identities as compatible. Language proficiency in L2, therefore, seems to have a strong relationship with the degree of acculturation and adjustment into an L2 culture.

In short, the results of RQ7 suggest that the BIOS variables of *monoculture*, *conflict*, *hybridity*, *alternation*, and *compatibility* are moderately correlated with the EP of the emotions in the Arabic and English videos, but are strongly correlated with the perceived emotional intensities of the emotions for the bilinguals. The variables of *conflict* and *hybridity* were significantly correlated with the length of stay in the L2 environment. TEI levels were found to have a strong negative relationship with the variable *conflict* and a strong positive relationship with the variable *compatibility*. Finally, language proficiency levels were significantly related to the *compatibility* variable for bilingual participants.

#### **Returning to the hypothesis for RQ7:**

1. The relationship between the two cultural identities (i.e. the ethnic and the mainstream cultures) will be significantly linked to the EP scores in the L1 and L2 for Arabic-English bilinguals. The hypothesis was partly confirmed: The bicultural identity orientations of *compatibility* and *conflict* were significantly correlated with the EP scores in the L2 for the bilinguals. Bilinguals who perceived their two cultures to be in harmony scored higher in the EP task in English. On the other hand, bilinguals who had *conflicted* attitudes about the relationship between their ethnic and mainstream cultures achieved lower scores in the EP of emotions in the English videos.

Thus, to answer RQ7, it can be confirmed that the bicultural identity orientations had a significant, but small, correlation with the EP scores and the perceived emotional intensities of the emotions in the L2 for the Arabic-English bilinguals.

#### **4.9. Conclusion**

The results indicated a significant (but small) bilingual advantage in the EP in the L2 as well as in TEI levels for bilinguals who outperformed their monolingual peers in emotional and personality domains. Therefore, it can be inferred that speaking another language can be emotionally and psychologically advantageous (Dewaele, 2016b). Another interesting and quite surprising result was that Arabic-English bilinguals could identify positive emotions at high agreement rates in their L2 and negative emotions at high agreement rates in their L1. This result suggests that identification and perception of negative emotions in the L2 may be challenging for Arabic-English bilinguals, which might result in miscommunication and negative social consequences in L2 socio-cultural contexts.

The statistical comparisons between the EP scores of Arabic-English bilinguals and Arabic monolinguals indicated no significant differences between the two groups in their EP in Arabic. This result suggests that L2 acquisition does not impair the bilinguals' ability to interpret the emotions expressed in their L1. Interestingly, while Arabic-English bilinguals identified the emotions in their L1 at similar agreement rates as Arabic monolinguals, they perceived the emotional intensities of the negative emotions at higher rates.

The statistical analysis showed significant differences between the EP of Arabic-English bilinguals and English monolinguals in Arabic and English. It was interesting to note that Arabic-English bilinguals outperformed English monolinguals in EP in English (albeit with a small effect size). However, the bilingual group perceived the emotional intensities of most emotions in English at similar rates as English monolinguals, which could be traced to the perceptual-emotional shift in EP in the case of the bilinguals.

Interestingly, the results revealed that the bilinguals did score higher than monolinguals on TEI, although the effect size was small. The results showed that TEI and its four facets of *self-control*, *well-being*, *emotionality*, and *sociability* were significantly related to the ability to interpret emotions and to perceive the emotional intensities of the emotions in the Arabic and the English videos for Arabic-English bilinguals and English monolinguals.

The results show that language proficiency is moderately linked to EP in English for Arabic-English bilinguals. Interestingly, it has a strong positive relationship with the EP scores in English for English monolinguals. Another notable result is the interaction between language

proficiency scores and the TEI scores in the low language proficiency group for English monolinguals. The results showed that English monolinguals who had lower language proficiency levels also had lower TEI levels.

The results suggest that a significant relationship exists between the socio-biographical variables and the EP scores of monolinguals and bilinguals. Young participants, highly educated participants, and females were better at interpreting most of the emotions in the videos. The bilinguals' linguistic profile had little impact on their EP scores; only frequency of English use was linked to EP scores in English, with frequent users of English having a distinct advantage over less frequent users in interpreting emotions in the English videos.

The results, moreover, demonstrated the crucial role of linguistic and cultural familiarity in emotion perception, generally showing a significant in-group advantage in the EP in Arabic but a small in-group advantage in the EP in English. Arabic monolinguals were better able to identify the emotions depicted by the Arabic stimuli (*anger, fear, sadness, disgust, and happiness*) than English monolinguals, with the latter outperforming the former in the EP of the negative emotions of *fear* and *sadness* depicted in the English stimuli. The results, however, showed an out-group advantage in the EP of *disgust* and *happiness* in the English videos, where Arabic monolinguals outperformed English monolinguals.

The results of the association between the BIOS variables of *monoculture, conflict, hybridity, alternation, and compatibility* and the EP of Arabic-English bilinguals who were in ESCs showed only a moderate correlation, but that there was a strong association between the BIOS and the perceived emotional intensities of the emotions.

The results presented here shed light on many aspects of EP and perceived emotional intensity. They revealed a significant relationship between EP and bilingualism, personality traits, language proficiency, socio-biographical variables, language history variables, in/out-group advantage, and bicultural identity in Arabic and English for bilingual and monolingual individuals. The following chapter will present the results of the interviews conducted for Arabic-English bilinguals and will attempt to provide some nuances and clarifications for the statistical results presented so far.

## **Chapter 5**

### **RESULTS (Qualitative Study)**

#### **5.1. Introduction**

Whereas the aim of the web questionnaires was to investigate the statistical relationship between the knowledge of two languages, psychological, socio-biographical, linguistic, and cultural variables and emotion perception, the focus of the semi-structured interviews was to address Arabic-English bilinguals' emotional experiences in their L1 and L2. The web questionnaire results indicated that Arabic-English bilinguals could easily perceive the emotions at high agreement rates both in their L1 and L2 and that they outperformed monolinguals in EP in the L2, as well as in TEI. Thus, the semi-structured interviews were conducted after quantitative data collection to provide an interpretation of the quantitative findings related to the bilinguals' EP of positive and negative emotions. In addition, the quantitative findings showed bicultural identities and residence in ESCs, might determine the ability to interpret emotions. However, it was not possible to explore how these variables impact emotion perceptions and whether bilingual speakers could see the differences in emotional expression in their languages/cultures. Thus, the qualitative study aimed to delve deeper into these issues to shed light on the impact of residence in ESCs on EP. The semi-structured interviews were also conducted to provide further insights into emotion perception related to emotional channels and the interpretation of emotions in different linguistic and cultural contexts, which could not be explored in the quantitative study.

Seven Arabic-English bilingual participants were interviewed in this study. Excerpts selected from the participants' interviews were used to explain the quantitative findings (Creswell & Plano Clark, 2011) and to clarify their opinions regarding their interpretation of the emotions of interlocutors from different linguistic and cultural backgrounds. The qualitative data that was collected from the seven interviews have been coded and categorised under the themes summarised in Table 16. The qualitative data analysis below will start with the most recurring theme in the participants' interviews, namely the emotion channels the participants tend to rely on to interpret the emotions of others.

Table 16. Theme categories and frequency of mentions

Theme Categories	Frequency of mentions <sup>9</sup>	Sub-categories	Frequency of mentions
<b>Emotional channels/cues</b>	24	Verbal channels	5
		Linguistic input	4
		Feedback	5
		Non-verbal channels	4
		Visual channels	6
<b>EP in different linguistic and cultural contexts</b>	21	Emotional reaction	3
		Cultural differences in emotional expressions by Arabs and English peoples	7
		Common versus culture-specific non-verbal emotional expressions	4
		Psychological factors: personality	5
		Emotion interpretation based on degree of closeness	2
<b>EP and residence in ESCs</b>	18	Opportunities for more emotion communication	6
		More awareness of cultural differences in emotional expressions	7
		Ability to interpret emotions	5
<b>Negative vs. positive emotions</b>	7	EP of negative emotions	5
		EP of positive emotions	2

## 5.2. Emotional cues/channels in the L1 and L2

Emotional channels or cues were defined as expressions displayed by faces, bodies, gestures, hand movements, voices, and even linguistic units, which allow to elicit different types of emotional states. Emotional cues could also involve interlocutors' feedback, which helps anticipate emotional meaning.

<sup>9</sup> The theme categories were organised based on the total frequency of mentions of the subcategories in the different parts of the questions in the interviews and not based on the number of participants.

### 5.2.1. Verbal channels

Verbal channels in emotion communication were defined as a set of emotion words, emotion-laden words, and emotion-related words which provide emotional information from speech. Some interviewees (57.1%: 4/7) mentioned that they needed to understand the linguistic content in order to communicate emotions effectively in their L2, otherwise they avoided showing their emotions and emotional reactions, or talking about affective states with English L1 users. One participant said:

أستطيع فهم مشاعر الانجليز من خلال تعابير الوجه ولكن أحتاج إلى فهم الكلمات المستخدمة، مثلاً لو استخدموا عبارات بذيئة وكانت تعابير الوجه توحى بالغضب سأخمن بأن الشخص غاضب. (Bi-2)

{I can read the emotions of other English people based on their facial expressions, but I need to hear the words they use; for example, if they use offensive words with angry faces, I can guess they are angry. (Bi-2)}

Emotional information can be detected from the actual content of linguistic utterances. However, participants (71.4%: 5/7) agreed that in most cases their interpretation of English emotional expressions might not fully match their interlocutors' intended emotional meaning. One reason for this could be that some English words or expressions might not have an exact translation equivalent in Arabic. This lack of understanding the exact meaning of English emotion words might cause interpretation difficulties. For example, one participant noted:

أحياناً إذا كنت بحاجة إلى التحدث عن شيء باللغة الإنجليزية، أنسى الجمل أو الكلمات التي تصف تلك الفكرة. ولا أعرف لماذا يحدث لي هذا الوضع كثيراً. لا أستطيع التعبير عن أو حتى وصف عواطفني ومشاعري باللغة الإنجليزية لأنني لا أعرف معنى العبارات المستخدمة في اللغة الإنجليزية في مثل هذه الحالات. أتذكر أنني سمعت الكلمة الإنجليزية *irk*, واكتشفت فيما بعد أنها قد تشير إلى مشكلة أو الغضب. حاولت ترجمتها إلى اللغة العربية ولكن لم أكن متأكدة من معناها الصحيح. لدينا في اللغة العربية كلمات مختلفة تصف أشياء مختلفة - أقصد المشاعر- ولكن من الصعب الحصول على ترجمة متطابقة بين الكلمات! وأشعر في بعض الأحيان، أن المستمع لكلامي لا يمكن أن يفهم ماذا أقصد بالضبط. لذلك أشعر بأنه يتعاطف معي! (Bi-5)

{If I need to discuss something in English, sometimes I get a block. I don't know why I experience this situation a lot. I cannot express or even describe my emotions and feelings in English because I don't know the meaning of expressions used in English in such situations. I remember I heard the English word *irk*; I discovered later it may refer to anger or trouble. I tried to translate it into Arabic but I was not sure about the exact word. We have different words in Arabic describing different things—I mean emotions—but it is difficult to make that translation match between the words! Sometimes, I think the hearer of my speech cannot understand what I mean. I feel that she/he feels sympathy for me! (Bi-5)}

The qualitative data revealed that non-verbal channels are insufficient for expressing emotional experiences, as they might indicate the *general* emotional category but might not provide detailed information about emotional states. One of the participants recounted an interesting story that happened to her:

حصل لي موقف في هذا الصباح، سمعت بكاء شديد خارج المنزل، وتفاجأت برجل مسن كان يبكي بشدة. وكان حوله الكثير من الناس الذين كانوا يحاولون تهدئته ولكن لم تكن لغته مفهومة لذلك لم يستطع ان يشرح ما سبب بكائه. في الحقيقة كانت هذه اول مره اشاهد فيها شخص غير عربي يعبر عن شعوره بهذا الشكل. اقصد يظهر حزنه الشديد بهذا الشكل. (Bi-3)

{I had a situation this morning. I heard a noise coming out of my home. I was surprised there was an old man crying very badly. There were many people around him to calm him down, but his language was not clear so he could not express his feelings clearly. In fact, it was the first time I have seen a non-Arabic speaker expressing his emotions in this way—I mean showing extreme sadness. (Bi-3)}

Seeing someone was crying, she could assume that he was sad, but the tears in and off themselves could not provide information about what the particular experience or instance of sadness was; for example, a feeling of loneliness, losing a loved one, or a feeling of frustration. Thus, a verbal description of emotions could have provided precise information about the specific instance of the emotion category that the person was experiencing.

Perception of emotions through linguistic items can facilitate the understanding of those emotions, even if those items are not direct emotion words. For example, the use of emotion-laden words, conventional metaphors, or idioms might help identify the emotions being expressed through a series of utterances. The figurative language used to describe emotional experiences can indicate the conceptualisation of emotions that L2 users might construct. One of the participants stated that:

في مرة من المرات كنت في الباص، وسمعت امرأة انجليزية تتحدث مع صديقتها وقالت عبارة "boils within me". بالرغم من انها كانت تبدو هادئة ولم تظهر أي مشاعر في تلك اللحظة إلا أنني استطعت أن أؤمن بأنها تصف غضبها. لم تظهر أي سلوك عاطفي كذلك. (Bi-3)

{One time, I was on the bus. I overheard an English woman talking to her friend. She used the expression, "It boils within me". Although she looked calm and was having neutral emotions at that moment, I could guess she was expressing her anger. She did not show any other physical behaviours as well. (Bi-3)}

Most participants (71.4%: 5/7) mentioned an interesting source of emotional information: the feedback received from the interlocutors when communicating emotions in the L2. Feedback was defined as the return information derived from speech which can indicate that the interlocutor understood the topic and successfully engaged in the conversation. The obtained information can help participants identify the type of emotion involved in the interaction. One participant indicated that:

أنا يهمني التعليقات من الشخص عندما أتحدث بالإنجليزي. اشعر بأنه متفاعل معي ويفهمني خاصة عندما يقدم لي نصيحة كيف اتعامل مع ذلك الموقف العاطفي. أشعر بارتياح أكبر وأن لغتي مفهومة. (Bi-6)

{I do care about the feedback from interlocutors when communicating in English. I feel he is interacting with me, as well as understanding me, especially when giving me advice on how to deal with that emotional situation. I feel more relaxed and my language is understandable! (Bi-6)}

Thus, verbal channels are important indicators of smooth emotional interaction in the L2, and hence emotional interpretations. The participants also commented on the importance of emotion words and lexical items in understanding and interpreting emotions in their L1. They agreed that they could easily read the emotions of speakers from their L1 and that emotions

could be easily interpreted from words and expressions without looking at visual channels in L1 socio-cultural contexts:

...but for L1, in Arabic, I can, even if I don't look at their faces, I can feel their emotions from their own words. (Bi-4)

Verbal channels, therefore, allow to transmit affective messages that the recipient could understand. The importance of emotion words, emotion-related, or emotion-laden words is emphasised in both L1 and L2. It seems that bilinguals' emotional vocabulary affects their emotion perception in L1 and L2. However, the combination of verbal and non-verbal cues was indicated, in the interviews, as an important source of emotion information, particularly in the L2.

### 5.2.2. *Non-verbal channels*

Non-verbal channels were defined as visual channels related to facial expressions, gestures, hand movements, and body language; and vocal channels referring to pitch, speaking rate, tone of voice, intensity, and intonation. Most participants (85.7%: 6/7) indicated that, in addition to the verbal message, they depended on facial expressions to interpret the emotions of other people from their L2 culture. The participants agreed that in order to easily interpret emotions in English, they need to understand the hidden meaning of the facial expressions. Smiles, for instance, could signal negative emotions such as mockery and contempt. Therefore, if they see a smile, they may need to hear the accompanying words, as they may change the intended meaning of that emotional signal completely. Interestingly, the qualitative data showed that participants often relied on cues conveyed by these visual channels. One participant said:

أنا يهمني تعابير الوجه والتعليقات من الشخص عندما أتحدث بالإنجليزي. فمثلا بعض تعابير الوجه لها معنى مختلف كليا. اقصد بأنها قد تعني الإساءة، في حين انها عادة مرتبطة بمشاعر إيجابية. (Bi-6)

{I do care about facial expressions and the feedback from interlocutors when communicating in English. Some emotional signals might mean exactly the opposite. I mean, they can be an insult even if they are typically associated with positive emotional meaning. (Bi-6)}

For this participant, the verbal message, along with the facial expressions of English L1 speakers, would facilitate her interpretations of emotions, suggesting the importance of multiple emotional channels when interpreting emotions in the L2. However, the participant said that although her emotion perception depended on facial expression and feedback in the L2, she did not rely on such a combination of channels to understand the emotions of interlocutors from her L1 (i.e. Arabic) culture. In other words, communicating emotions in the L1 seems to be easier than in the L2. She said:

لكن بالنسبة للسعوديين والعرب بشكل عام، لا اواجه أي مشكلة أبدا إنني أفهم مشاعرهم وبسهولة أتعامل مع مشاعرهم. أستطيع أن افهم مشاعرهم من تعابير وجههم . (Bi-6)

{But for Saudis and Arabs in general, it is not a problem at all to understand their emotions and I can easily react to their emotional states properly. I can read emotions easily on their faces. (Bi-6)}

Another participant explained what type of facial expressions and body language helped her to elicit emotional information in the L2:

...but in L2 I need to look at their lips, this is number one, and their facial expressions too. Yeah, I think it depends mostly on their eyes and their hands. (Bi-4)

The excerpts also demonstrated that participants paid the most attention to facial expressions. The qualitative data showed that facial expressions appear to be especially important for conveying a particular type of emotional information in the L1 and L2. However, their attention to the visual communication of emotions may be based less on the face being a singular cue in the L2, and more on the combination of body language, hand movements, and gestures.

Interestingly, vocal cues were mentioned less often by the participants, as if they relied mostly on facial expressions and other visual channels. One of the seven participants indicated that she could not guess the emotions of people based on voices and vocal cues, especially in phone conversations, because she needs to see faces to facilitate her understanding and reaction to the emotional situation. However, she added that she could easily interpret the emotions

from the voice only if the person belonged to her linguistic and cultural background or if she had a personal relationship with them. These social factors might be essential for successful emotional communication, particularly on the phone.

The qualitative data on this topic demonstrated that emotion communication is a complex system comprised of multiple channels, specific behaviours, and language elements. Participants seem to prefer to perceive emotions through multiple channels in the L2 socio-cultural contexts. However, they require less effort to understand the emotional situations in their own ethnic culture or in their L1. It seems that emotion communication in the L1 can happen via any emotional channel; in the L2, however, multiple channels are preferable.

### **5.3. Emotion perception in different linguistic and cultural contexts**

Emotion perception across different languages and cultures was used to refer to the interpretation of emotions in different situations and involving speakers of different languages and from different countries or cultures. When the discussion reached topics related to this theme, interesting and different opinions were offered. One emerging theme was the emotional reactions of the interlocutors, which will be discussed in the following sub-section.

#### *5.3.1. Emotional reactions*

Emotional reactions were defined as behaviours or physiological reactions that could be interpreted as indicators of an emotion. In certain situations, specific behaviours and reactions of interlocutors were interpreted as the expressions of emotional states or as indicators of emotional intensity.

Some participants (42.8%: 3/7) mentioned that they usually faced difficulties in discussing emotional topics with English interlocutors. One reason for this was the difficulty in anticipating English interlocutors' emotional reactions in conversations. They specifically tried to avoid expressing negative emotions or even commenting on others' affective states because of possible negative social consequences that might emerge in case of misunderstanding. Another reason mentioned by the interviewees was the difficulty in guessing the general mood of the conversation; for example, whether or not their English interlocutors agreed or disagreed with their opinions or whether or not they liked the topic they were

discussing. This opinion might point to illocutionary effects associated with certain emotional expressions. It seems that participants take into consideration their interlocutors' emotional reactions as well as the social consequences of communicating emotions in the L2. Other participants (57.1%: 4/7) agreed that perceiving emotions of people from different linguistic and cultural backgrounds is difficult for them. One participant said:

في بعض الأحيان يصعب فهم مشاعر الآخرين من ثقافات ولغات مختلفة عني هنا في المملكة المتحدة. ولكن أستطيع فهم مشاعر الأجانب مثل الباكستانيين الذين يشتغلون في السعودية. أستطيع فهم مشاعرهم من خلال الوجه ونبرة الصوت حتى لو لم أفهم لغتهم. أعتقد لأنه بسهولة يتضح عليهم المشاعر السلبية والإيجابية من خلال تعابير الوجه. ولكن بالنسبة للبريطانيين أعتقد انه يصعب علي فهم مشاعرهم بالرغم من أنني أتحدث اللغة الإنجليزية ربما لأنهم لا يظهرون مشاعرهم في أغلب الوقت فلو نظرت إلى وجوههم دائماً أعتقد أنهم غاضبون أو انهم متضايقون ولكن بمجرد أن أتحدث إليهم أجد أنهم أشخاص طيبون وهادئون. (Bi-1)

{Sometimes, it is difficult to understand emotions of others who do not speak my language here in the UK, but I can read the emotions of foreigners, such as Pakistanis, who work in Saudi Arabia. Yes, I can read their emotions from their faces and voices even if I do not speak their language. I think their emotions, both positive and negative, easily appear on their faces. For British people, it is difficult for me to read their emotions although I can speak English, maybe because they do not show their emotions in most times. If I look at their faces, I always feel that they are upset or angry, but as soon as I start talking with them, I immediately discover they are very friendly and calm. (Bi-1)}

This participant interestingly compared his EP of emotions expressed by English speakers and emotions expressed by speakers of different languages, such as Pakistanis, who live in his L1 environment. It seems that there might be cultural, ethnic, or religious factors behind the easiness of interpreting the emotions of Pakistani speakers. For instance, most Pakistanis are Muslims, and thus might be familiar with Arabic, the language of the Quran. In addition, having lived in Saudi Arabia, it seems that Pakistanis might have acquired Arabic/Saudi culture, which may impact the way they express emotions. The participant also mentioned that he has had contact with Pakistanis from a young age because many Pakistanis work in Saudi Arabia. In other words, he is used to their expressions and behaviours. From the participant's perspective, even though he could understand the language, English people had a different cultural style of

emotions. Thus, as far as emotion perception is concerned, the impact of culture seems to be stronger than that of language.

Another participant told a story about her Polish neighbour and when she misread her emotional reaction because of their cultural difference:

اتذكر عندما قدمت الطبق السعودي الكبسة الى جارتني البولندية هنا في لندن لم أستطع أن افهم ردت فعلها العاطفية. وكنت وقتها مستغربة لأنها كانت تنظر إلي بدون أن تنطق أي كلمة. وكانت فاتحة عيونها بشكل واسع وكنت مستغربة هل هي مندهشة لأنني لم أخبرها بأي سوف اطبخ لها او أنها كانت سعيدة وبالفعل استغرقت وقت حتى بدأت بعبارات الشكر والثناء ولكني لم أزل لا أعرف ردت فعلها العاطفية حتى الآن. (Bi-3)

{I remember when I introduced [the] Saudi traditional dish *Kabsa* to my Polish neighbour in London. I could not understand her emotional reaction. I was shocked. She was looking at me without saying any single word. She opened her eyes so wide. I was wondering whether she was surprised because I did not tell her before that I would cook for her or whether she was happy. It took a few minutes until she thanked me. I am really still confused about her emotional reaction until now. (Bi-3)}

The above example demonstrates that the difficulty in interpreting or understanding emotional reactions might lead to miscommunication or a hindered ability to communicate the intended message. Because she expected her neighbour to thank her, which is a common Arabic emotional reaction in such a situation, she was unable to interpret the Polish emotional-cultural reaction.

The participants seemed to rely more heavily on specific detailed information in interactions. Thus, the interlocutor's emotional reactions can serve as forms of emotional expressions or experiences. It seems that emotional communication may be based more on behaviours or physiological responses than on language as a single source of emotional information.

### 5.3.2. Cultural differences in emotional expressions by Arabs and English people

The perception of emotional-cultural styles was another component reported by the interviewees. This theme was defined as cultural similarities and differences in emotional expressions, emotional patterns, and emotional behaviours. These differences in emotional expressions were explained by the distinct characteristics of English and Arabic cultures. All of the interviewees agreed that Arab people differ from others across different cultures with regard to their emotional expressions. Some participants agreed that Arabs, in general, and Saudis, in particular, do not prefer to express their emotions directly but instead use implicit expressions. Some participants mentioned that Arab people tend to compliment others and hide their emotions even if they are in a bad mood. Other participants (42.8%: 3/7) noted, based on their experience of living in the UK, that English people are straightforward when expressing their emotions and opinions; they typically use explicit words and they express their anger and sadness once they experience these emotions. Some participants said that although they knew that English people expressed their emotions directly through their behaviours, they still would need to understand the linguistic content and to hear direct emotion words or expressions in order to be able to interpret their English interlocutors' emotions. In Arabic conversations, on the other hand, the interviewees agreed that they could interpret the emotions of Arabs even if they did not use direct emotion words. One of the participants clearly illustrated the differences between Arab and English people regarding their ways of expressing emotions thusly:

I think people here in the UK are very straightforward, you immediately understand whether they like the thing or hate it, or if they do not like to communicate with you. Emotions of people in my country can be implied in something else, wrapped into other expressions. Someone says in Arabic 'إشرايك' ['do you like what I have done?'] and the other may reply 'ما قصرتي، ما قصرتي' ['Yes. You did it very well, very well']. I immediately can recognise that he did not like it but he means I hurt him. I caused exactly the opposite. So, it is easier for me to understand emotions in the Arabic language even if they are hidden, but in English, I think I need explicit words to understand emotions better. (Bi-4)

She then mentioned that if she engaged in conversations with her English friends, she would need to look some words up in the dictionary to make sure that she did not misunderstand their emotional expressions. She also said that she struggled to understand the emotional reactions of English people; for example, if they smiled, she would guess that they were mocking her or

her language. In this way, it seems that participants' interpretation of emotions in the L2 culture might be influenced by possible interferences from their L1 culture.

She went on to explain that, in certain situations, she felt the need to rely on the linguistic cues or vocal cues to understand emotional expressions in English when visual cues were absent. She shared a story about her American friend who came to Saudi Arabia and was a guest in her flat:

She was my guest and stayed for ten days at my home. At the time, she was Muslim but her mother was Christian. One time she was talking about her mother, and I told her that her mother might not like the place where she lived because Saudi Arabia is not like America. Suddenly, she raised her voice and she was shouting and said: 'No, she must come'. I said I did not mean she should not come. What I said was that she might not like the place here. She was very angry. I just commented on that but she did not like my comments. She was angry and I felt that in her voice because I did not see her face because both of us were covering our faces with hijabs. Yeah, I immediately recognised she was angry. (Bi-4)

The fact that wearing a hijab—a symbol of religious identity in the Saudi cultural environment—can add extra complexity to the interpretation of emotions seemed to motivate the women to rely on voice more than on facial expressions. This participant, more specifically, seemed to utilise the distinctive features of English prosody, such as a rise-fall tone to show approval or disapproval, to interpret the emotions. Thus, the utility of such prosodic information in a language might allow to perceive particular emotional patterns related to a specific cultural group.

The perception of cultural differences in emotions also extended to encompass emotional intensity. For example, there seemed to be an agreement amongst participants that Arabs express their emotions at different emotional intensities, suggesting that bilinguals pay more attention to the emotional intensities of the emotions being expressed in their L1. They also thought that English people, as well as other individuals from different cultures, might express their emotions at one emotional intensity of emotions and at a similar emotional intensity. Five of the participants reported that they realised that Arabs and Saudis, in

particular, usually express their negative emotions at high intensity while English people seem to be calm most of the time. For example, two participants said:

في المملكة العربية السعودية تستطيع غالباً أن تميز مشاعر الآخرين، ليس فقط في السعودية ولكن العرب بشكل عام، أعتقد أن العرب بطبيعتهم شعب عاطفي أكثر من الشعب الإنجليزي ولكن هنا في المملكة المتحدة صعب أن تفهم مشاعر اشخاص من ثقافات مختلفة أتذكر عندما أتيت الى لندن في أول سنة لي هنا حيث كنت أعاني كثيراً حتى افهم مشاعر أشخاص مختلفين عني وخاصة من شرق اسيا مثل الصينيين واليابانيين لأنني لاحظت أنهم يبدو هادئين في أغلب الأوقات ولا يبدو أي ردت فعل حتى في المواقف الصعبة. ولكن بالنسبة للعرب أعتقد أنهم دائماً يظهرون ردت فعل عاطفية خاصة إذا كانوا في حالة الغضب أو الحزن بعكس الثقافات الأخرى بحيث انه لو ظهرت مشاعرهم أعتقد بأنها ليست في نفس حدة مشاعر العرب. (Bi-3)

{In Saudi Arabia, most of the time you can recognise the emotions of others, not only Saudis but Arabs in general. I think that Arabs may be more sensitive to emotions than English people. But here in the UK, it is difficult to read the emotions of people from different cultures. I remembered when I came to London in my first year here, I struggled a lot to understand the emotions of people belonging to East Asia, like the Chinese and the Japanese. I realised that they look calm all the time and that they do not show any emotional reactions, even in difficult situations. I think that Arabs show strong emotional reactions if they are angry or sad, but for other cultures, even if they show emotional behaviours, they are not as strong as Arabs' emotions. (Bi-3)}

في المملكة العربية السعودية أعتقد أنني أستطيع معرفة شدة وقوة المشاعر ولكن هنا في المملكة المتحدة أشعر بأن الناس فقط يظهرون درجة واحدة من المشاعر وكذلك لاحظت هنا أن الناس لا يظهرون غضبهم كما في السعودية، يمكن بسبب الأجواء الحارة في السعودية، أقصد يمكن أنها سبب في كون الناس في مزاج سيء أغلب الوقت. (Bi-1)

{I think in Saudi Arabia I can recognise the intensity and the degree of the emotions but here in the UK, I think people show only one degree of emotional intensity. I notice here people do not show their anger as Saudis do, maybe because of the hot weather in Saudi Arabia, which may cause people to be in [a] bad mood! (Bi-1)}

Therefore, upon closer examination of the data, it seems that emotional intensities in English expressions were less recognised whereas those in Arabic were more obvious to Arabic listeners. It also appears that the perception of emotional intensities in English was more difficult than in Arabic because Arabic-English bilinguals had less experience with linguistic, socio-cultural, and pragmatic knowledge that allowed them to perceive those emotional intensities of English L1 users. Therefore, the qualitative data suggests that despite the participants' direct contact with English L1 users, most of them may still have difficulties in interpreting their English interlocutors' emotional behaviours and expressions. Most agreed that Arabic L1 users tend to show their emotions on their faces and in their emotional behaviours, while English L1 users tend to use direct emotional words.

### 5.3.3. *Common versus culture-specific non-verbal emotional expressions*

A recurring theme throughout the qualitative data was the perception of specific cultural- emotional expressions as well as well-known emotional behaviours. Specific emotional-cultural expressions were defined as facial expressions or vocal cues tied to a specific cultural or ethnic group. Common emotional expressions referred to stereotypes of certain emotions. The participants drew attention to facial expressions that signal certain emotional meanings across different cultures. From the participants' perspectives, certain facial expressions, such as smiling and crying, might have universal emotional construction and meaning and can be read more easily than emotional expressions that are specific to certain cultural groups. For example, one of the participants said:

نعم يمكنني أن لاحظ أن هناك تعابير واضحة مثل الضحك متعلق بالسعادة والفرح والصراخ  
يشير إلى الغضب بغض النظر عن اللغة الثقافة، ولكن أعتقد أن الناس يختلفون في بعض  
السلوكيات الخاصة بالمشاعر وخاصة تعابير الوجه وردة الفعل العاطفية وقوة المشاعر ولكن  
بشكل عام أعتقد أن هذه السلوكيات تتضح على العرب أكثر من الشعوب ذو ثقافات مختلفة. (Bi-3)

{I can recognise universal expressions such as laughing signalling happiness and enjoyment or shouting signalling anger despite the culture and language, but I think people differ in certain emotional behaviours, especially particular facial expressions, emotional reactions, and emotional intensities. I think these emotional signals can be clear on Arabs but not on other people from different cultural groups. (Bi-3)}

Notably, the findings reveal that familiarity with language and culture in emotional interaction could impact the perception of emotional cues, intensities, and patterns related to emotional expressions. Bilinguals' exposure to two socio-cultural contexts seems to allow them to perceive various emotional-cultural expressions and allow them to understand how speakers of different languages can express and talk about their emotions using non-verbal and verbal emotional channels.

#### 5.3.4. *Psychological factors: personality*

The impact of personality on emotional expressions was emphasised consistently throughout the interviews. Several participants (71.4%: 5/7) agreed that emotions could be easily read on some people because of their nature and personality. For example, while some people easily show their emotions through their behaviours and on their faces, others tend to hide them and pretend to have neutral emotions, even if they feel negative feelings. It also seems that personality does not only impact the way emotions are expressed but also the way they are interpreted. In other words, while emotions are expressed in different ways using different emotional patterns, they are interpreted differently based on how the perceiver feels and what she/he knows about those emotions. According to one of the participants, other people might interpret emotions based on the way they see life. For example, individuals who are usually pessimistic might interpret others' emotions as negative most of the time, even if those emotions are neutral; they tend to see the dark side not only of life but also of inner feelings. This participant also mentioned that people who look happy all the time might interpret positive emotions as neutral and negative emotions as occasional states that will pass—so, negative emotions are not *negative per se* but rather represent the chance to strengthen one's personality when facing difficulties and obstacles.

One of the participants agreed that individuals differed in the way they showed their emotions, despite the culture they belonged to. For example, while some people prefer to express their happiness by smiling, others express the same emotion by dancing; while some individuals express their anger by shouting, others might insult. She added:

I think there are no differences, I mean, in both cultures; they use their hands and they shout if they are angry. If they are happy ... I don't think the difference

is in the culture itself, but I think the differences are in the people themselves. While I express my happiness with a smile, maybe someone can go and dance. Some people do it! Someone may express his anger by shouting and someone else may break a glass or something. It depends on the personality, on the person, despite the culture. (Bi-4)

This extract demonstrates that participants might perceive emotions as instances that are expressed and perceived differently at cultural levels as well as at individual levels. Personality can be an important variable in determining emotional behaviours, perception, and expressions. Another participant seemed to agree with the above opinion and added:

بالنسبة للسعوديين أعتقد أنهم في أغلب الوقت يظهرون مشاعر الغضب على وجيهم بعكس مشاعر السعادة، ولكن أعتقد بأن ذلك يعتمد على الشخص نفسه فمثلا بعض الأشخاص يحاولون أن يخفون غضبهم ولكن البعض الآخر يظهر عليهم الغضب بسهولة من خلال تصرفاتهم، ولكن بشكل عام أستطيع أن أميز مشاعر العرب وخاصة المشاعر السلبية. أعتقد أن العرب يعبرون عن مشاعر الغضب من خلال بعض الكلمات بعكس الشعب الإنجليزي. (Bi-1)

{Saudi people show their anger on their faces, but they do not show happiness most of the time. I think it depends on the person himself. Some people try to hide their anger but others may easily show their anger in their behaviours. But, generally, I can read the emotions of Arabs, particularly the negative ones. I think Arabs tend to express their anger through words more than English people do. (Bi-1)}

The findings reveal that participants seemed to be aware of the impact of personality and emotional intelligence on emotion construction and perceptions of both the expresser and the recipient. They also might reflect the impact of their levels of TEI on their perception of various emotional instances. It seems that participants who are skilled at perceiving emotions in others may have an advantage in socio-cultural interactions, as they might be more likely to understand things from their interlocutors' perspectives.

#### *5.3.5. Emotion interpretation based on degree of closeness*

Another interesting finding that emerged from the qualitative data analysis is that Arabic-English bilinguals evaluate their ability to interpret emotions based on the

personal/social relationship with the interlocutor and the degree of closeness. Two of the seven participants mentioned that they usually relied on these specific criteria to interpret the emotions of others from different linguistic and cultural backgrounds. One participant, for example, said that she could usually interpret the emotions if she knew that person very well, but she would misread the emotions of people she did not know. For her, it is difficult to judge the emotions of other people speaking different languages based on their faces. However, most participants (57.1%: 4/7) made the point that there are certain common expressions associated with some emotions that they can interpret despite the cultural background of the speaker. They mentioned that they might understand the general affective state of the conversations if they can understand the words accompanied by well-known facial expressions such as laughing to express happiness or shouting to express anger. These common learned emotional expressions can facilitate emotion perception despite the unfamiliarity with linguistic content.

It seems that most opinions regarding how Arabs and English people express their emotions through emotional behaviours were similar. The qualitative data demonstrate that although participants have different views about their abilities to perceive emotions in their L1 and L2, all of them agreed that they could more easily interpret emotions of people belonging to their Arabic culture than those of the English or other individuals from different speech communities. Their opinions seem to acknowledge the significant role of familiarity with the language in interpreting emotions. This indicates an in-group advantage in the EP, where individuals tend to easily interpret the emotions of people belonging to their cultural and linguistic groups. It also seems that most of the participants were able to perceive cross-cultural differences in emotional behaviours in the L1 and L2 and that they face difficulties in anticipating the emotional reactions of others from different cultural groups. The next section will discuss the participants' views regarding their stay in ESCs and whether it impacts their interpretations of emotional behaviours and expressions.

#### **5.4. EP and residence in ESCs**

One goal of this project was to explore the impact of residence in ESCs on the ability to interpret emotions in English. All of the interviewees (with the exception of one) lived in the UK, and two had lived in the US for at least two years before moving to the UK. As will be discussed below, participants had various opinions regarding the impact of exposure to English culture in its environment on their emotion perceptions and skills.

#### *5.4.1. Opportunities for more emotion communication*

Participants' experiences of living in ESCs were found to be linked to the amount of exposure to English language/culture in authentic contexts. In particular, the participants stated that they had more opportunities to communicate their emotions in English with L1 and LX speakers of English. Their involvement in L2 emotional-cultural practices seems to allow them to acquire more emotion words and expressions, and hence develop their pragmatic skills, particularly in emotion communication.

Most of the participants (85.7%: 6/7) stated that their experience of living in the UK had changed their personality and they became more open-minded and considerate people. In particular, the participants commented on their ability to deal with communicative situations—for example, whether to engage or withdraw and how to react to insults and offensive words. Most of them (75.4%: 5/7) also admitted that they had learned some negative English words, and they also knew when and how to use them (although they stated that they tried to avoid using them as much as possible because they are seen as foreigners in the UK).

#### *5.4.2. More awareness of cultural differences in emotional expressions*

Another theme that emerged was the participants' awareness of cultural and linguistic diversity in emotional behaviours and expressions. All of the participants mentioned that they could recognise specific cultural and emotional expressions of speakers of other languages. One participant, for example, said:

Maybe one of the things I learned here is some expressions. I learned some expressions and a few things that—I think they are cultural expressions, cultural gestures. (Bi-4).

The effect of living in ESCs on emotion perception was emphasised consistently by participants throughout the interviews. Some participants talked about the embarrassing situations they encountered in their first months in the UK when they were unable to communicate with English L1 interlocutors because of the cultural differences. One participant said:

من خلال احتكاكي مع الشعب الإنجليزي أعتقد بأنني أصبحت أفهم مشاعرهم أكثر ولكن أتذكر في أول سنة لي هنا في لندن كنت اتجنب الاحتكاك معهم بسبب عائق اللغة وعدم معرفتي بطريقتهم في التعبير عن رأيهم ومشاعرهم. لم أستطع وقتها ان أفهمهم ولا أفهم مشاعرهم. ولم أستطع أن أفهم مشاعرهم الحقيقية ولكن بعد فترة من الزمن اكتشفت أنهم شعب ودود وجاد عندما يعبرون عن مشاعرهم. أعتقد انه بإمكانني الآن أن اكون واثق في أن أميز ما إذا كان الشخص غاضب او متضايق أو حزين. (Bi-1)

{Through my contact with English people, I think now I can understand their emotions. In my first year here in London, I was avoiding contact with them because of language barriers and lack of knowledge about their ways of expressing their opinions and emotions. I could not understand them and their emotions from their faces. I even could not understand their real emotions, but after some time, I discovered that they are friendly and straightforward when expressing their emotions. I think now I can and feel confident to guess if they are angry, upset, or sad. (Bi-1)}

Perception of emotions, thus, plays a role in social interactions. The qualitative data showed that bilinguals may face interpersonal situations that lead to uncertainty, conflict, or misunderstanding because of cultural and linguistic differences in emotional communication and expressions. Accordingly, the ability to interpret and communicate emotions effectively may result in better intercultural communication and subsequently better social relationships with people from different cultural and linguistic backgrounds. The ability to recognise cultural differences in emotional expressions might be achieved through natural exposure to these cultural practices in authentic contexts.

#### 5.4.3. Ability to interpret emotions

The predominant view was that the ability to interpret the emotions of others is a critical skill that participants had acquired as a result of their stay in ESCs. One participant commented:

طبعاً أكيد اختلف بشكل كبير فهمي وإدراكي للمشاعر. الان أعتقد انه بإمكانني أن أفهم مشاعر الآخرين لأنني أصبحت أركز على التفاصيل الدقيقة أكثر عندما أتخاطب مع الآخرين.

الآن أعتقد انه أصبح لدي خبرة واسعة عن كيف يفكر وكيف يشعر الأشخاص الآخرون أكثر من قبل لأنني أصبحت ألاحظ وأركز في السلوكيات العاطفية. (Bi-6)

{Of course, my recognition and perception of emotions widely differ. Now I think I can read the emotions of others. I usually pay more attention to details when communicating with others. I think now I have much more experience in how people think and feel than before. Now I realise and pay more attention to people's emotional behaviours. (Bi-6)}

Five of the participants mentioned that their time in the UK has allowed them to recognise and interpret emotions and the intensity of the emotions in different communicative contexts. Some participants agreed that they became more conscious of the differences in facial expressions between Arabic speakers and speakers of other languages. For example, one of the participants said:

نعم أعتقد الآن انه بإمكانني أن أفهم وأميز مشاعر وأحاسيس الآخرين بسهولة. الآن أصبحت أركز على تعابير الوجه عندما أتخاطب مع الآخرين سواء كانوا عرب أو لا. أنا بطبيعتي إنسانة بصرية لذلك أركز في تعابير الوجه والحواجب. (Bi-5)

{I think now I can easily understand and recognise the emotions and feelings of others. Now, I often focus on facial expressions whenever I communicate with people, whether they are Arab or not. I am a visual person so I pay more attention to facial expressions and brows. (Bi-5)}

When discussing the impact of the length of stay in ESCs on emotion perception, one participant talked about her experience of living in the UK, how it affected her ability to interpret emotions, and how she realised how the emotional behaviours of Arabs are different from those of other cultures. She said:

نعم أعتقد أن بقائي هنا له دور مهم. ومن الأشياء المهمة التي تعلمتها هنا أن الناس من ثقافات مختلفة لهم سلوكيات عاطفية تختلف عننا كعرب والآن أصبحت أعرف أن الناس هنا يختلفون عن العرب في طريقة تعبيرهم عن المشاعر. (Bi-3)

{I think the length of residence here has an important role. The most important thing I have learned is that people from different cultures have different

emotional behaviours which are different from ours as Arabs. I now know that people here differ from Arabs in their ways of emotional expressions. (Bi-3)}

These results taken together imply that participants who had experienced living in ESCs may be more sensitive to the emotions of others, leading them to respect cultural diversity. Therefore, the ability to interpret emotions of others may lead one to have better communicative and emotional skills, which may in turn positively affect intercultural adjustment and acculturation in the target culture.

After discussing the impact of the stay in ESCs on emotion perception, the final part of the discussion focused on the participants' opinions regarding the perception of the positive (i.e. *happiness* and *surprise*) and negative (i.e. *anger*, *fear*, *sadness*, and *disgust*) emotions in their L1 and L2.

## **5.5. Negative versus positive emotions in Arabic and English**

The fourth main theme, EP of negative versus positive emotions, concerns the extent to which the EP of each type of emotion category is easier/more difficult to interpret in both L1 and L2. Negative emotions referred to a set of unpleasant or unhappy emotions, such as anger, fear, sadness, or disgust. Positive emotions referred to those emotions that are usually associated with pleasantness, such as pleasant surprise and happiness. When the discussion reached topics related to the differences between the perception of these types of emotions and whether they are different in Arabic and English, there were different opinions.

### *5.5.1. EP of negative emotions*

Most participants (75.4%: 5/7) agreed that the perception of negative emotions is more difficult than positive ones in both languages, while others thought negative emotions were easier to read, particularly in Arabic. Those participants who agreed that negative emotions could be easily read justified their opinion by saying that negative emotions are usually associated with particular and well-known facial expressions and bodily behaviours, especially offensive behaviours, which might attract one's attention. One participant noted:

I think in Arabic, both positive and negative emotions can be easily recognised, but negative emotions can be easier read by me than positive ones in both cultures because I always like to receive positive feelings. So, it is normal to see Nada is smiling, so it does not attract my attention, but if I come and see Nada is a little bit upset, here it really attracts my attention. I can immediately recognise it! If a woman is frowning, she will attract my attention. Maybe because I am a stranger here and whenever I look at people I ask myself, why are they looking at me like that, am I the reason? But in my culture, I may not care at all unless the person is close to me and I know him very well. (Bi-4)

Another participant agreed with the above opinion and noted that negative emotions could be expressed by specific facial behaviours, vocal cues, and emotion words:

في العربي، المشاعر السلبية يمكن معرفتها لأنها تتضح على الوجه ومن الصوت، مثلا إذا كان الشخص غاضب فممكن أن يصرخ أو يسب الشخص الآخر. (Bi-1)

{In Arabic, negative emotions are easily read because they can be seen on the face and heard from the voice, for example, if someone is angry, he may shout or insult someone else. (Bi-1)}

Other participants had opposing opinions and mentioned that it is difficult to interpret negative emotions because they are sensitive emotions that usually demand careful reactions. Thus, it usually takes them some time to interpret negative emotional situations. The participants' view of themselves as foreigners in the UK was one of the reasons behind this difficulty in engaging in expressing their negative feelings and react to insults and aggressive behaviours in the L2. One participant's account was quite illustrative of this point:

المشاعر السلبية في العربي صعب معرفتها لأنك تعرفين أن ردت فعلك في هذا الموقف سوف تكون حساسة فمثلا إذا كان الشخص حزين فإن ردت فعلك وطريقة تصرفك في هذا الموقف ممكن تأثر على مشاعره، ولكن إذا كان الشخص سعيد أو مندهش فإن ردت فعلك غير مهمة بغض النظر عن المشاعر الفعلية. ولكن في المواقف التي يكون فيها مشاعر سلبية صعب أن تحتويها. فمثلا إذا كان الشخص غاضب وحاولت أن أهدي الموقف فممكن أن يضرنني لذلك صعب أن تفهمي المشاعر السلبية وصعب أن تعرفين ردة الفعل المناسبة. حتى في اللغة الإنجليزية المشاعر السلبية صعب تمييزها بالنسبة لي صعب أن أعرف إذا كان الشخص حزين أو خائف بناءً على ملامح الوجه، ولكن إذا كان الشخص يبكي طبعا سأعرف انه حزين لأنها

ستكون واضحة، كذلك إذا كان الشخص يبتسم أو يضحك مباشرة سوف أعرف أنه سعيد. لذلك المشاعر الإيجابية سهل معرفتها. (Bi-3)

{In Arabic, negative emotions are difficult to interpret because you know your reaction to the situation is very sensitive. If someone is sad, your reaction and how to deal with the situation may impact his feelings at that time, but if someone is happy or surprised, your reaction will not be important despite the person's real emotions. But situations involving negative emotions are difficult to handle. If someone is angry and I try to calm him down, he may hurt me. So, it is difficult to read negative emotions and anticipate appropriate reactions. Even in English, negative emotions are difficult to recognise. It is difficult for me to know if the person is sad or afraid just from his facial expressions. But if there is someone crying, of course, I can know he is sad because it will be clear. Also, if someone is smiling or laughing, I will immediately know he is happy. So, positive emotions are easy to recognise. (Bi-3)}

Two of the participants agreed that negative emotions are difficult to interpret and to react to. They explained why they found negative emotions hard to recognise in the L2 in the following excerpts:

صعب تميز المشاعر السلبية أحيانا باللغة العربية وباللغة الإنجليزية ولكن أصعب في اللغة الإنجليزية، أحيانا يمكن أن تشاهدي شخص صامت طول الوقت فيكون صعب معرفة ما إذا كان متضايق أو حزين. لذلك لا أستطيع معرفة المشاعر بالضبط. (Bi-5)

{Negative emotions are hard to read, sometimes both in Arabic and English, but they are more difficult to interpret in English. Sometimes, if you see someone is silent or looks calm all the time, it will be difficult to know if he is upset or sad. I cannot understand her/his emotions exactly. (Bi-5)}

أحتاج الى وقت حتى افهم المشاعر السلبية من خلال تعابير الوجه. لذلك أكون حذره من ردة الفعل العاطفية إذا كان هناك شعور سلبي في الموقف. لذلك المشاعر السلبية صعب فهمها لأنني أحتار ما إذا كان يجب علي أن اتكلم إلى الشخص أو ماذا افعل وقتها. (Bi-6)

{It takes me more time to recognise negative emotions through facial expressions, so I am very cautious about emotional reactions if there is a negative emotion in the situation. Negative emotions are difficult to know

because I usually get confused whether to talk to the person or not and what to do in that situation. (Bi-6)}

It seems that opinions on the emotion perception of negative emotions were prevalent. The sensitivity of negative emotions was one of the main concerns the participants considered. This might be linked to their limited exposure to negative emotion words and expressions in English, which might hinder their ability to deal with situations involving this type of emotions. In addition, the participants may feel that, being international students in the UK, expressing their negative emotions, especially anger, may lead to interpersonal communication problems in the L2 environment. Thus, the ability to interpret negative emotions and react to such emotions in the L2 might enable L2 users to be less susceptible to the effects of stress and fear of being international students—or, as they put it, being *foreigners*—in a new country. In other words, experiencing and perceiving negative emotions in the L2 might have positive socio-cultural effects on acculturation.

#### 5.5.2. *EP of positive emotions*

Although participants disagreed about the difficulty of perceiving negative emotions, all of them agreed that positive emotions are easy to interpret in Arabic and English. Some participants agreed that positive emotions are normal emotional states, so they did not pay more attention to verbal and non-verbal cues accompanying positive emotions. One of the participants added:

For positive emotions, I think the world should be positive. So, everything looks normal, but if I see someone with a negative emotion, I think this is abnormal. If you are angry this is truly attracting my attention in both Arabic and English contexts. If I consider the voice, negative emotions easily attract my attention (Bi-4)

Two of the participants also mentioned that negative emotions can be easily expressed through body language and facial expressions, suggesting that some people tend to show their negative emotions more than positive ones, which they view to be ‘normal’ states. One participant said:

أعتقد أنني أستطيع فهم المشاعر السلبية أكثر من الإيجابية لأنها تتضح من خلال تعبيرات الوجه وكذلك صعب أن الشخص يخفيها، فمثلا إذا كان الشخص حزين سيظهر على وجهه وسوف يكون غير قادر على ممارسة حياته اليومية كما هو معتاد، ولكن إذا كان الشخص سعيد ممكن أن لا ألاحظ ذلك لأنه سوف يبدو بحالة طبيعية. (Bi-7)

{I think I can understand negative emotions more than positive ones because they can be seen on facial expressions and it is difficult for a person to hide them. If someone is sad, that will appear on his face, and he will be unable to practice his daily routines as usual. But if someone is happy, you may not be able to know. He will look normal! (Bi-7)}

One of the participants discussed the differences between men and women when expressing negative and positive emotions in Arabic and English cultures. It seems that gender and individual differences might impact the way an individual expresses her/his emotions. He said:

كذلك نستطيع ملاحظة المشاعر الإيجابية ولكن ليست كالمشاعر السلبية لأنني أعتقد ان مشاعر السعادة تعتبر حاله طبيعية. فمن الممكن أن يظهر النساء السعادة أكثر من الرجال من خلال الابتسامة او الفرح وكذلك أحيانا ممكن من خلال دموع الفرح إذا كانوا سعداء جدا. وحتى مشاعر الخوف تظهر على النساء أكثر من الرجال خاصة في المجتمعات العربية لأنه غالبا الرجال يخفون مشاعر الخوف. لكن هنا في المملكة المتحدة أعتقد أن الشعب الإنجليزي يظهر مشاعره السلبية.. يمكن لأنهم يبدو هادئين في أغلب الأحيان لذلك إذا شعروا بمشاعر سلبية فسوف يظهرونها مباشرة. (Bi-1)

{Also, I can read positive emotions, but not as easily as negative ones, because I think feelings of happiness are something normal. Maybe women show happiness more than men through smiling and enjoyment, or sometimes they cry if they are very happy. Even the emotions of fear, they can be easily seen on women, but not on men, especially in Arabic cultures where men tend to hide their fears. Here in the UK, English people can show their negative emotions maybe because they look calm most of the time, so if they feel negative emotions, they show them immediately. (Bi-1)}

Participants who reported easy perception of positive emotions also felt that these emotions are simple emotions that have no impact. Positive emotions are considered to be 'normal' states that do not require much effort to perceive and to interpret. The qualitative data, thus, showed that negative emotions might be difficult to interpret because they are sensitive emotions which

need more attention and careful consideration. However, for others, negative emotions could be easily read since they are usually linked to well-known facial expressions.

## **5.6. Conclusion**

It may be concluded that the interviews provided new insights into the emotion perception of bilingual speakers in both of their languages/cultures. They also provided support and explanations for some of the quantitative results reported in Chapter 4, as well as revealed some unexpected insights, such as the interpretation of emotions of Muslim women who cover their faces as a symbol of religious identity. In such a situation, the absence of visual channels can add extra complexity to emotion interpretation, as it must be achieved only through verbal or vocal cues. As this particular insight has not been addressed to date, hopefully the current project will offer a contribution to the field of emotion studies. Very useful insights regarding emotion perceptions in cross-linguistic and cultural communication were also offered by the participants' recounting of stories and experiences that occurred during their stay in ESCs, all contributing towards a better understanding of the complex nature of the EP of bi/multilingual speakers. All these findings will be essential in refining the theoretical framework presented in Chapter 2 and shaping the future projects that will emerge from this one.

The following chapter will attempt to bring together and integrate the discussion and conclusions of the quantitative and qualitative results. The findings will be interpreted and discussed in light of existing studies addressing similar concepts

## **Chapter 6**

### **DISCUSSION**

#### **6.1. Introduction**

This chapter integrates the quantitative results reported in Chapter 4 with the qualitative findings presented in Chapter 5, offering a holistic interpretation of the data. The quantitative and the qualitative findings have been linked into meta-inferences, in line with the principle of the sequential mixed methods approach (Creswell & Plano Clark, 2011).

The chapter is divided into two parts. The first part consists of seven themes that emerged from the quantitative and qualitative findings, mostly depending on the relationship between the main independent variables (i.e. bilingualism and psychological, linguistic, socio-biographical, cultural, and bicultural identity) and the dependent variable (i.e. emotion perception and perception of emotional intensity). The themes are: bilingualism and the emotion perception of positive and negative emotions, bilingual emotional advantage, psychological factors and emotion perception, linguistic factors and emotion perception in different modalities, socio-biographical variables and emotion perception, cultural factors and emotion perception, and the impact of bicultural identity and residence in an L2 environment on emotion perception. The unexpected results will also be discussed extensively in these sections. The second part addresses the limitations of the present study.

#### **6.2. Emerging themes from the quantitative and qualitative findings**

The main themes that emerged from the quantitative and qualitative findings will be discussed with reference to related literature reviewed in Chapter 2, comparing and contrasting the findings of this study with the previous theoretical and practical studies that addressed similar concepts and issues.

##### *6.2.1. Bilingualism and the emotion perception of positive and negative emotions*

One of the main aims of this study was to examine the impact of bilingualism on the EP in the L1 and L2 by bilingual speakers. Bilinguals' ability to identify the emotions in the Arabic and English videos at high rates was expected. The quantitative findings demonstrated

that the bilingual participants' EP scores in the L1 did not significantly differ from those in the L2. Thus, Arabic-English bilinguals identify the emotions in both languages at similar high agreement rates, confirming the hypothesis.

What is interesting is that bilinguals could more easily identify the negative emotions of *anger*, *sadness*, *fear*, and *disgust* in their L1 than in their L2, confirming previous research that the L1 is typically more powerful in emotional domains, especially negative ones (Dewaele, 2006; 2007b; 2010a, 2018b). One possible reason could be that their L1 has a broad range of emotion words, concepts, and expressions (Altarriba, 2003) and that it is more powerful in relation to the socio-pragmatic competence of emotion communication (Dewaele, 2007b). These findings suggest that bilinguals might have experienced more emotional situations in their L1, especially negative ones. Indeed, negative emotional experiences happen most frequently in a user's emotional language, which is typically their L1 (Dewaele, 2004, 2016c, 2017b). These findings also confirm Dewaele's (2018d) assumption that negative emotion words in L2/LX usually receive little attention in formal learning settings. Indeed, LX users are often less practiced in using negative emotion words and expressions in L2 contexts. Another explanation could be that bilinguals' familiarity with two languages might enhance their socio-pragmatic competence in the L1 so that they become more competent at interpreting emotional information associated with negative emotional expressions in the L1. It also seems that the cultural distance between the L1 and L2 may impact the interpretation of the negative emotions in the L2 (Dewaele, 2010a). However, the findings showed no significant difference between the EP of *anger* in the Arabic and in the English videos for the bilingual participants, suggesting that the negative emotion of *anger* is more likely to be marked by similar vocal emotional behaviours such as loudness (Scherer, Banse, & Wallbott, 2001) in both cultures, allowing bilinguals to struggle less when interpreting this emotion in both languages.

The qualitative findings provided explanation, from the participants' perspectives, for the emotion perception of positive and negative emotions. Interestingly, the participants' responses demonstrated their ability to identify the negative emotions in their L1 better than in their L2. These qualitative findings highlighted a number of reasons why interpreting negative emotions is more difficult than positive ones in the L2. One reason is the emotional reaction of the interlocutors; unlike negative emotions, positive emotions are easier to interpret in both languages because whatever the reaction is, it might not affect the situation. The reaction to negative affective situations, in contrast, may change the situation or might lead to negative

social consequences or miscommunication. This factor confirmed Rintell's (1984) view that negative emotions need more pragmatic consideration. This means that L2/LX users are aware of the pragmatic functions of emotional cues and expressions and the social consequences resulting from inappropriate expressions of negative emotions in the L2. This qualitative finding is consistent with the quantitative findings, in which bilinguals scored lower in their EP of negative emotions than positive emotions in the L2. This qualitative data also reflects Dewaele's (2018d) idea that multilinguals may find it difficult to anticipate how interlocutors will react to particular negative emotions and offensive words. Therefore, bilingual speakers seem to avoid expressing or interpreting negative emotions in the L2/LX socio-cultural contexts because if they misuse them, it might cause "serious embarrassment to the LX users and their interlocutors" (Dewaele, 2016c, p. 1). Indeed, negative emotion words and emotion-laden words require advanced socio-pragmatic competence, which can be developed through authentic exposure to the LX (Dewaele, 2016c).

Another reason that emerged from the qualitative study is that it is easier to identify negative emotions in Arabic than in English because in Arabic, emotional behaviours and expressions associated with negative emotions are more likely to appear on faces. They are also associated with particular expressions and words the participants are familiar with, which easily attracts individuals' attention. In English, on the other hand, the participants agreed that negative emotions are difficult to interpret because they are considered to be sensitive emotions and require careful consideration. It seems that L2/LX users also experience difficulties in communicating negative emotions in their L2/LX (Dewaele, 2018d). It can be speculated that the bilinguals' limited exposure to negative emotions in English hinders their ability to perceive the emotional behaviours accompanying such emotions.

Another interesting quantitative finding was that bilinguals could more easily interpret the positive emotions of *surprise* and *happiness* in the L2 than in the L1, confirming Dewaele's hypothesis (2010a). One reason for this could be that the emotion of *happiness* is associated with well-known non-verbal emotional behaviours such as laughing and smiling, making this emotion easily identifiable for L2 users. Moreover, the emotion of *surprise* seems to have "less grammatical complexity", which makes it easy to identify for both L1 and LX users (Rintell, 1984, p. 262). The qualitative data have shown that positive emotions are easy to interpret in both languages, as they might be considered to be "normal states" which might not attract

attention. Indeed, negative emotion words and offensive words attract people's attention (Dewaele, 2016c) more than positive emotions.

The quantitative and qualitative findings, thus, suggest that bilingual speakers might have different patterns of emotion perception depending on the type of emotion involved, the possible social consequences, and the possible reactions of the interlocutors.

### 6.2.2. *A bilingual emotional advantage*

The quantitative hypothesis regarding the differences in emotion perception between bilinguals and monolinguals in the L1 and the L2 was confirmed, since bilinguals were better than monolinguals at interpreting emotions. An advantage was found in both languages, though it was only significant in the L2. In other words, Arabic-English bilinguals were better at identifying the emotions in the English videos than the monolinguals (even English monolinguals). Although the bilinguals outperformed monolinguals in the emotion perception in English, this small but significant bilingual advantage was absent in the emotion perception in Arabic. Therefore, it is impossible to claim that there is a bilingual advantage in emotion perception in the L1. However, the results demonstrate a significant (but small) bilingual advantage, at least in EP, in the L2. This hypothesis was formulated on the basis of previous literature on the positive effects of bilingualism (Barac et al., 2014; Bialystok, 2011; Bialystok, Craik, Klein, & Viswanathan, 2004; Bialystok, Craik, & Luk, 2008; Carlson & Meltzoff, 2008; Green, 1998; Kaushanskaya & Marian, 2009) as well as theoretical assumptions (Barrett, 2017a). Thus, the findings of this research question support the idea that bilingualism might positively affect not only the cognitive (Bialystok, Craik, & Luk, 2008), psychological (Dewaele & Wei, 2012, 2013; Dewaele, Petrides, & Furnham, 2008; Dewaele & Stavans, 2014), and linguistic behaviours of L2/LX users (Cook, 2002; Dewaele, 2014, 2016b; Pavlenko, 2005) but also the emotional and communicative skills of bilinguals. More importantly, the quantitative findings suggest that the emotional life of bilingual speakers does not have to be separated into two closed-off linguistic areas; rather, the acquisition of both languages can result in one richer emotion system. In other words, it is the combination of the two languages in bilinguals that might contribute to the emotional advantage. Therefore, the language dominance in the emotional side might not be limited to the L1 or LX *per se*, but the acquisition of these two languages can offer bilinguals a rich repertoire of emotion concepts, and hence emotion perceptions.

There are several possible explanations for this emotional advantage. First, it seems that bilinguals' familiarity with two languages allows them to be more competent at perceiving cross-cultural differences in emotional expressions. This speculation was confirmed by the participants' views in the qualitative study, as their exposure to various emotional-cultural expressions seems to allow them to understand how speakers of different languages can express and show their emotions in specific situations. The qualitative data also revealed that the bilinguals differentiated between well-known learned emotional behaviours and cultural-specific emotions. It seems that their familiarity with well-known emotional signals, such as smiling or laughing to signal happiness or shouting to signal anger, boosts their emotion identification ability in cases where they cannot understand the linguistic input. It also may reflect on their ability to categorise different facial configurations and bodily behaviours of different emotion concepts. It might be that the bilingual participants have more advanced socio-pragmatic skills, which allow them to differentiate between well-known emotional expressions and cultural-specific emotion behaviours. Therefore, the experience of more languages and cultures appears to give bilinguals opportunities to communicate with individuals from different cultural backgrounds, making bilinguals more sensitive to communicational and emotional skills. Indeed, previous research showed that bilinguals and multilinguals could be more attuned to the communicative needs of their interlocutors (Dewaele & Wei, 2013; Wei, 2000).

A second explanation lies in the bilinguals' emotional multi-competence (Dewaele, 2016b); having a variety of ways to express their emotions could also extend to their emotion perception. It seems that emotional bilingual/multilingual advantages found in the ERA of prosody (Dromey, Silveira, & Sandor, 2005) and the ERA of multiple channels (Lorette & Dewaele, 2018b) were not random. It might be that acquisition of additional languages develops "additional sensitivity" to emotional information (Dromey, Silveira, & Sandor, 2005, p. 356) as well as additional sensitivity to emotional communication in L2 contexts. These findings are in line with previous literature (Lindquist, MacCormack, & Shablack, 2015) that suggests language acquisition supports the acquisition of conceptual knowledge used to make sense of emotional sensations and behaviours. A third explanation could be that if bilingualism has positive cognitive (e.g. Bialystok, 2006) and socio-emotional effects (Barac et al., 2014; Genesee, 2008; Han, 2010), bilingual adults might be superior in recognising the emotional

behaviours of others. Based on this speculation, one might suppose that cognitive and socio-emotional advantages found in child bilinguals appear to be sustained into adulthood.

There is, however, a possibility that these results of the emotional-bilingual advantage might be confounded by the bilinguals' willingness and motivation to master their L2 (Dromey, Silveira, & Sandor, 2005) as well as their education levels, since most of them had higher education degrees, suggesting a willingness to demonstrate “the prestige of a university degree” (Dewaele, 2007a, p. 162).

Although these findings differ from some published studies (Dromey, Silveira, & Sandor, 2005; Lorette & Dewaele, 2015), they are consistent with studies which found significant differences in ERA scores between L1 and LX users (Lorette & Dewaele, 2018a; Graham, Hamblin, & Feldstein, 2001; Rintell, 1984). However, the direction of these statistical differences was slightly different. While the latter found that L1 users significantly outperformed LX users, the findings of this study indicated that Arabic-English bilinguals (L2 users) outperformed monolinguals (L1 users) in their EP scores in both languages. One possible explanation for these different findings might lie in the differences in language learning history and context, since the majority of Arabic-English bilinguals were *authentic users* of English (contrary to L2 learners in Rintell's study and LX multilinguals in Lorette and Dewaele's study), about 52.6% of them were in ESCs at the time of study, most of them (59.2%) learned English through both naturalistic and formal instruction contexts, and about 56.5% of them had been in ESCs for more than two years. It might be that the bilingual participants in this study may have experienced more emotional experiences during their stay in the L2 environment, which might have boosted their emotional and communicative skills in the L2. This would align with the finding that bilinguals can develop their L2 socio-pragmatic competence and metapragmatic skills through authentic exposure to the language in the L2 environment (Pavlenko, 2008).

Another possible reason for the different findings can be attributed to the different research designs adopted. While in Rintell's (1984) study the emotion recognition ability was measured through audio stimuli in English, the EP in this study was measured through audiovisual stimuli in two languages. In Graham et al.'s (2001) study the participants were asked to identify the emotions through a unimodal emotion channel—*audio recordings of emotional experiences*—and the findings revealed that English L1 users could decode the emotions better

than the Japanese and Spanish LX users of English. In this study, in contrast, participants were asked to rate the existence of the emotional categories depicted by multimodal emotion channels, which seems to be a useful technique for providing rich emotional information.

In Lorette and Dewaele's (2015) study, the participants were L1 and LX authentic users of English from different linguistic and cultural backgrounds whose ERA scores did not significantly differ from those of English L1 users. The participants in this study were only from two linguistic backgrounds: English or Arabic. These languages are quite different in origin and, furthermore, there is a great distance between the two cultures. Thus, it can be speculated that bilinguals might have developed more metalinguistic and socio-pragmatic competence of the cultural and linguistic differences in emotional expressions in both languages, resulting in a bilingual emotional advantage, at least in the L2. In Dromey et al.'s (2005) study, moreover, the researchers used recordings of words containing vocal cues of the emotions of *anger* and *neutral*, which might reduce the variations in the ERA amongst participants. In this study, EP was examined through two versions of stimuli—one in Arabic and another in English—consisting of 12 audio-visual video clips depicting six emotional categories in both languages to increase the variations in EP for the participants.

It is somewhat surprising that no significant difference was found in the perception of the emotional intensity of most emotions in English between bilinguals and English monolinguals, suggesting that L2 acquisition may allow L2 users to perceive the intensity of emotional expressions and behaviours just as well as monolinguals of the L2. The bilinguals, however, significantly differed from Arabic monolinguals in their EP of the emotional intensities of the emotions in the Arabic videos. Arabic-English bilinguals perceived the emotional intensity of Arabic emotions, especially the negative ones, at higher rates than Arabic monolinguals. These findings may point to perceptual shifts in the perception of the emotional intensity of emotional expressions and behaviours in the L1, confirming the semantic and conceptual shift (i.e. *destabilisation*) in the perception of offensive words found in Dewaele's (2017b) study. In other words, bilinguals' perception of the intensity of emotions in the L1 likely changes to approximate the perception of L2 emotions. These results also suggest that multi-competence and being more socialised and proficient in the L2 affects not only the linguistic components of the L1 (Cook, 2002; Dewaele, 2016b; Pavlenko, 2005) but also the perception of certain emotions in the L1. These findings, moreover, indicate that these changes in the perception of emotional intensity happen to be similar to those of the speakers

of the target language as a result of trying to fit in emotionally with the target culture (Mesquita, Boiger, & De Leersnyder, 2016) or as a result of intensive exposure to L2 use in the L2 environment (Dewaele, 2017b; Pavlenko, 2014). In this case, L2 users might be able to communicate effectively with interlocutors from the target culture and language. A speculative explanation of this finding is rooted in the bilinguals' emotional experiences with different linguistic and cultural contexts, leading them to recognise the differences in the emotional intensities of the emotional behaviours in their L1 and L2. Bilinguals, thus, seem to have stronger awareness of the emotionality of the negative emotions in the L1. Therefore, exposure to an L2 seems to alter L2 users' perception and interpretation of the emotions not only in their L2 (Ożańska-Ponikwia, 2014) but also in their L1.

### *6.2.3. Psychological factors and emotion perception*

The interconnection between psychological traits, especially emotional intelligence, and emotion perceptions and experiences has been emphasised in several psychological studies (Barrett, 2017a; Lindquist, Gendron, & Satpute, 2016; Petrides & Furnham, 2003). As was mentioned in Chapter 2, TEI is a trait that may be developed by learning more emotion words, not only in one's own language but also in other languages, and by learning how and when to use them (Barrett, 2017a). The quantitative findings demonstrated that bilingual speakers had higher TEI levels than monolingual speakers, suggesting a bilingual advantage in this personality trait. The findings strongly suggest that the bilingual emotional advantage found in this study might be attributed not to the bilinguals' experience of L2 acquisition alone, but also to their familiarity with more emotion words and expressions in both languages, which adds an additional bilingual psychological advantage. The findings seem to agree with Barrett's (2017a) theoretical assumption that individuals with high emotional granularity can easily choose the emotion word that fits each emotional experience they perceive, and therefore have high levels of emotional intelligence. In other words, people with a rich repertoire of emotion words and concepts seem to be emotionally expert in interpreting the emotional behaviours of others. Consequently, they may be aware of many options when it comes to predicting the affective states of their interlocutors (Barrett, 2017a). This study did not measure the richness of the repertoire of bilinguals' emotional vocabulary in their languages, but since bilinguals outperformed monolinguals in TEI levels and EP scores, it can be assumed that familiarity with two languages, including the emotion words and expressions in these languages, might positively affect personality traits (e.g. TEI) and emotional skills (e.g. EP). However, it is not

possible to claim that bilingualism in itself boosts TEI; instead it can be safely assumed that higher TEI contributes to higher EP skills in bilinguals.

These findings match those observed in earlier studies, in which students with high TEI did better in school (Petrides, Frederickson, & Furnham, 2004) and students with rich emotional vocabularies had high TEI (Barrett, 2017a). Based on previous evidence and the findings of this study, it can be speculated that there might exist a strong association between learning emotion words, TEI, and emotional skill. It can, moreover, be suggested that the ability to interpret emotions helps to regulate emotions and improve well-being by reducing the unfamiliarity with the meaning of emotional behaviours and sensations (Lindquist, Gendron, & Satpute, 2016). In other words, individuals who use more emotion words to label emotion behaviours displayed on faces, bodies, or voices are more likely to have higher levels of social and emotional skills and to be more emotionally intelligent people who can regulate their own emotions (Lindquist, MacCormack, & Shablack, 2015). The qualitative findings shed some light on the bilinguals' views about the role of personality traits in emotional expressions and perceptions. The findings suggest that bilinguals, having been exposed to various cultural and linguistic contexts, might have developed awareness of individual differences in emotional expressions. All in all, the quantitative and qualitative data demonstrated that bilinguals might possess an extensive reservoir of emotion categories and predictions, suggesting higher levels of emotional intelligence and well-being (Barrett, 2017a).

Overall, the findings of this study demonstrated a small but significant bilingual advantage in two domains: the *emotional* (e.g. EP) and the *psychological* (TEI) skills of bilinguals, adding to previous literature on the positive effects of bilingualism on psychological traits (Dewaele & Wei, 2012, 2013; Dewaele, Petrides, & Furnham, 2008; Dewaele & Stavans, 2014). It must, however, be emphasised that even though the findings of this study indicate a strong relationship between bilingualism, EP, and TEI, that relationship is correlational in nature, meaning the direction of effect remains unclear. It is possible that bilinguals are more motivated than monolinguals to interpret emotions and to look like emotionally intelligent individuals, or it may be that participants with high levels of TEI could more easily interpret emotions regardless of the number of languages they know.

The quantitative hypothesis that expected a positive relationship between TEI and EP scores was partly confirmed, since this positive effect of TEI was found only in the bilinguals'

and English monolinguals' EP scores. The findings revealed that Arabic-English bilinguals and English monolinguals with high TEI levels were better at interpreting emotions than those with low TEI levels. One unexpected finding was that TEI levels were not significantly related to the EP scores of Arabic monolinguals. The findings, moreover, verified the assumption that bilinguals with high levels of TEI have a distinct advantage over those with low TEI levels when it comes to categorising and interpreting emotions, which explained an additional 4.6% to 5% of the variance in the EP scores in Arabic and English. The findings suggest that participants with high TEI levels could be at a distinct advantage when it comes to interpreting emotions, which accords well with previous studies showing that TEI scores were associated with emotional expression (Ożańska-Ponikwia, 2014), cognitive abilities (Ciarrochi, Chan, & Bajgar, 2001; Petrides & Furnham, 2003), academic performance (Petrides, Frederickson, & Furnham, 2004), communicative anxiety and foreign language anxiety (Dewaele, Petrides, & Furnham, 2008), and emotion recognition ability (Ciarrochi, Chan, & Bajgar, 2001; Dewaele, Lorette, & Petrides, 2019). Again, it is important to mention here that it is not possible to assume any causal relationship between TEI and EP; instead, it can be assumed that there might be a positive linear relationship between the two variables, particularly in the case of bi/multilinguals.

The findings of the correlation between the factor of *well-being* and the EP scores, in the case of Arabic-English bilinguals, were surprising; this factor was significantly and positively related to the EP scores of most negative emotions in the L1 and the emotions of *surprise* and *disgust* in the L2, which could explain the results of the first research question, in which bilinguals perceived the negative emotions in their L1 and the positive emotions in L2 at high agreement rates. It also had a strong positive association with the perceived emotional intensities of the emotions of *anger*, *fear*, and *disgust* in the L1, and was positively related to the perceived emotional intensities of the emotion of *happiness* in the L2. Therefore, it can be speculated that participants with high levels of well-being and with an optimistic view on life (Petrides & Furnham, 2003) are better able to identify the emotional behaviours associated with positive emotions—e.g. *pleasant surprise*—in their L2, and it that also might boost their ability to distinguish the variations of negative emotional experiences in their L1.

The findings of the correlations between TEI and EP scores for English monolinguals showed a strong association between TEI and its facets and EP scores in the English videos; participants with high TEI levels were better than those with low TEI levels at interpreting the

emotions. TEI explained a further 4.6% of the variance, meaning that it is one amongst many linguistic, psychological, or environmental variables that might affect the EP scores of the participants. The factor of *sociability* had a strong positive correlation with the perceived emotional intensities of all emotions in Arabic and all emotions (with the exception of the emotions of *fear* and *happiness*) in English. The results suggest that English L1 users with high social skill levels were able to perceive the emotional intensities of emotions presented in the Arabic language despite their unfamiliarity with the linguistic input. Hence, it can be speculated that high social skill levels allow an individual to recognise the intensity of emotional expressions through non-verbal channels, even if they cannot understand the linguistic content.

There were significant differences in the EP in English between the low and average TEI groups amongst English monolinguals, with those scoring low in TEI being worse at identifying the emotions in the English videos. There were, moreover, significant differences between the low and high TEI groups; those with high TEI levels also had high scores in the EP task in English. It can be noted that the variations in the EP scores amongst the three TEI levels of English monolinguals were only found in their EP in English (i.e. their L1). This suggests that unfamiliarity with the linguistic input hinders English monolinguals' ability to interpret most of the emotions in Arabic, despite their higher levels of TEI. These findings acknowledge the important role of language in emotion perception. It should be noted that a similar association between TEI and the ability to recognise emotions of English L1 users was found in Dewaele, Lorette, and Petrides' (2019) study, in which American and British English L1 users with high TEI levels performed better than those with low TEI levels in the ERA task and could easily recognise the emotions depicted by the English stimuli.

Although TEI levels were significantly correlated with the EP of the bilingual and English monolingual groups, this correlation was absent for the Arabic monolingual group. From this, we can surmise that TEI is not always linked to EP and emotional skills. Since bilinguals' and English monolinguals' TEI levels were linked to their EP scores, it can be supposed that higher levels of TEI may allow individuals to better identify emotions being communicated in a language they can understand, although this is not a fixed state. The findings showed that only the factor of *well-being* had a strong positive correlation with the EP of the negative emotion of *disgust* in the Arabic video, and the factor of *sociability* had a strong positive association with the EP of the negative emotion of *sadness* in the English video in the

case of Arabic monolinguals. One limitation of this study was the lack of an Arabic language proficiency test for Arabic monolinguals, so it was not possible to explore whether there is a significant interaction between language proficiency and TEI levels on the ability to identify emotions in the case of Arabic monolingual speakers.

Although this outcome was not entirely anticipated, it can indeed be confirmed that TEI is significantly linked to the perception of emotions by Arabic-English bilinguals and English monolinguals. Therefore, the confirmation of this hypothesis, at least for Arabic-English bilinguals and English monolinguals, allows to speculate that TEI and language proficiency might have an impact on the EP in English, which will be discussed in the following section.

#### *6.2.4. Linguistic factors and emotion perception in different modalities*

One of the most significant linguistic factors related to the ability to interpret and express emotions in the L2/LX is language proficiency (Lorette & Dewaele, 2015, 2018a, 2018b; Pavlenko, 2008; Rintell, 1984). The quantitative findings indicated that bilinguals and English monolinguals with high language proficiency levels were better at interpreting the emotions in the English videos than those with low proficiency levels. The results confirmed the findings of previous studies, which claimed that language proficiency was linked to the ERA of L1 and LX users (Lorette & Dewaele, 2015, 2018a, 2018b; Rintell, 1984) and that higher levels of language proficiency enhance the ability to interpret emotions in the absence of visual channels (Lorette & Dewaele, 2018b). These findings point to the importance of familiarity with the linguistic input in order to easily interpret the affective states of other people.

What can be inferred from the findings is that Arabic-English bilingual participants could guess the emotions in non-emotional word content. This inference supports the idea that familiarity with emotion-related words and emotion-laden words (Pavlenko, 2008) might allow to create discrete emotional experiences and perceptions which help to feel those emotions or perceive them in others (Lindquist, Gendron, & Satpute, 2016). Language proficiency, however, had a small effect size, which explained an additional 2.1% of the variance in the EP scores of the bilinguals. It is somewhat surprising that no significant difference was noted when comparing bilingual participants based on their language proficiency levels (i.e. low, average, and high). In other words, the variations in the EP scores amongst the three linguistic

proficiency groups of bilinguals were not as expected, since bilinguals with average language proficiency levels scored higher in the EP task than those with high proficiency levels. This finding is in line with Bak's (2016) observation that high proficiency participants, being exposed to the L2 for a long period of time, might rely on other sources of information rather than the linguistic channels, which may lead to a greater possibility of committing an error when interpreting emotions in the L2. Another possible explanation could be that bilinguals with intermediate proficiency levels might need to make more of an extra conscious effort to understand the linguistic content (de Bot, 2017) than those with very low and high levels of proficiency, who might depend more heavily on other sources of information. It should, however, be noted that the differences between these linguistic proficiency groups were not statistically significant.

Although language proficiency scores were significantly associated with the EP in English for bilinguals, this association was stronger in the case of English L1 users, which explained an additional 7.4% of the variance in the EP scores. Language proficiency scores were significantly and positively correlated with the EP of most individual emotions as well as with the perceived emotional intensities of the emotions of *anger*, *disgust*, and *happiness* in English for English monolinguals. It should be noted that English L1 users achieved higher scores in the language proficiency test (LEXTALE) than the bilinguals. Therefore, it can be speculated that language proficiency seems to influence the EP of English L1 users more than English L2 users. It seems that English monolinguals rely more on their linguistic competence in interpreting emotions in English. These results slightly differ from previously published studies, in which language proficiency had the most substantial effect on the emotion recognition ability of L2 English learners (Rintell, 1984) and English LX users (Lorette & Dewaele, 2015). In Lorette and Dewaele's study, language proficiency was significantly and positively linked to the ERA of LX users, but only marginally so with English L1 users. One possible explanation for this unexpected result might be that since bilingual participants had lower proficiency levels than English monolinguals and considering the absence of direct emotion words in the conversations, English monolinguals with high lexical language proficiency levels were probably able to decode and extract the emotional information from the linguistic input. Bilinguals, even those with high lexical proficiency levels, seem to depend less on their linguistic competence and might instead rely on other sources of contextual information or on their emotional skills to interpret the meaning of non-verbal emotional behaviours. However, the findings of this study were consistent with Dewaele, Lorette, and

Petrides' (2019) study, which found that English language proficiency had a significant effect on the ERA of British and American English L1 users.

Surprisingly, there was a marginally significant interaction on the EP in English between language proficiency and TEI for English monolinguals, with those with low TEI levels scoring low in the language proficiency test and in the EP task. Therefore, the effect of TEI varied across the three language proficiency groups, with the strongest effect observed at the low language proficiency level in the case of English monolinguals. This interaction between language proficiency levels and TEI on the EP scores suggests that English monolinguals with low lexical proficiency levels tend to rely more on their psychological TEI to identify the emotions through non-verbal cues in order to compensate for their low levels of comprehension of the linguistic input. This interaction was also found in Dewaele, Lorette, and Petrides' (2019) study, wherein English L1 users with lower language proficiency scores relied more heavily on their TEI to recognise emotions in their L1. The findings, moreover, are in line with Dewaele's (2018c) findings that English L1 users with higher proficiency levels scored significantly higher on TEI. L1 users with higher proficiency levels can, therefore, be assumed to be more emotionally intelligent. The LEXTALE, however, is a lexical decision task which measures participants' general language proficiency, but does not measure the emotional vocabulary size that can be related to a person's emotional granularity. This is beyond the scope of this study, but deserves future investigation.

While there was no significant interaction between TEI scores and language proficiency levels on the EP of Arabic-English bilinguals, it is worth noting that the high proficiency English monolingual group still had lower TEI scores than the low proficiency bilingual group. In other words, the English monolinguals with the highest language proficiency levels had lower TEI scores compared to bilinguals, even those bilinguals with very low proficiency levels. Therefore, it can be concluded that language proficiency levels seem to have a significant impact on the EP of English monolinguals in English; for Arabic-English bilinguals, it is the TEI that seems to have a significant effect on EP scores. However, the relationship between these factors is based on correlational analyses that do not allow for any directional inferences to be made.

It was, unfortunately, not possible to explore in the quantitative study which emotional channel (i.e. verbal or non-verbal) participants relied on more to extract emotional information

in the stimuli. Thus, a qualitative question addressed this issue. The qualitative findings suggested that the importance of both verbal and non-verbal emotional channels in interpreting emotions was shown to have a significant effect on the EP in the L2 for the bilinguals. The qualitative data revealed that participants often depend on the linguistic content (i.e. emotion words and expressions) to understand the hidden meaning of the non-verbal emotional cues when communicating emotions in L2 socio-cultural contexts. What was interesting is that bilinguals might rely on certain vocal cues and linguistic cues when interpreting emotions in English, such as emotional vocal cues that have distinctive features like tone, intonation, stress, volume, pitch, and speed. This speculation was confirmed by one participant's experience of interpreting emotions in English based on the voice of her interlocutor, as in that situation it was not possible to see the visual channels because the face of her interlocutor was covered. Therefore, the findings suggest that in certain cultural and social contexts, L2 users might have to utilise the distinctive features of L2 prosody to interpret emotions. However, Pavlenko (2005) argued that vocal cues might be misunderstood in different social and cultural contexts because some vocal cues may alter the meaning of the message. Hence, relying on vocal and linguistic cues without having visual cues might add extra complexity for L2 users when interpreting emotions in the L2.

These qualitative data point to the idea that emotions are better interpreted when they are expressed by a combination of verbal and non-verbal channels (Paulmann & Pell, 2011), particularly in L2 contexts. This is consistent with the quantitative findings of Lorette and Dewaele's (2018a) study, in which English LX users could more easily interpret emotions in the audio-visual version of the stimuli than the audio-only recordings, suggesting that L2/LX users need visual information to complement audio and verbal cues when communicating emotions in the L2/LX. This points to the fact that visual information helps the perceivers of emotions to overcome their deficit in understanding the verbal or vocal cues in the L2/LX. In the L1, typically the preferred language for communicating emotions (Dewaele, 2010a), individuals experience fewer difficulties in understanding the verbal content and in perceiving the emotional intonation and prosody (Cho & Dewaele, 2018). Indeed, even at extremely long distances, people can express their affective states with emotion words or emotion-laden words (by phone or email, for example) and their friends or family in a different part in the world can enter their "affective niches" (Barrett, 2017a, p. 197) and predict their emotions.

In the L2/LX, individuals need clear cues (visual cues or direct emotion words and expressions) so that they can feel less anxious when communicating with their interlocutors. This was reflected in the participants' opinions that they need both verbal and non-verbal cues to interpret emotions in the L2, but it seems easier for them to interpret emotions in the L1, and they mainly do so from the linguistic input without the need for visual cues. Therefore, the qualitative findings confirm previous findings that familiarity with language helps to construct emotional knowledge by shaping the way speakers of that language make sense of their affective states (Lindquist et al., 2016). Familiarity with a language also prompts individuals to make sense of their feelings using the linguistic categories available in their language or to reconstruct the meaning of those feelings using a different linguistic category in a different language they speak (Lindquist et al., 2016). It might also help them to regulate their emotions in both languages. Thus, it can be hypothesised that familiarity with emotion words and expression in the L2 might allow L2 users to learn the emotional patterns (such as facial expressions and body movements) that accompany these emotion words and expressions.

The qualitative data demonstrated that the majority of participants drew attention to the visual and verbal cues; furthermore, no one mentioned that she/he could interpret emotions from the voice of their interlocutors in the L2 (e.g. on the phone). As was indicated in Chapter 2, facial expressions can be considered "the most skilled non-verbal communicator" (Ekman, Friesen, & Ellsworth, 2013, p. 23), which might explain bilinguals' preferences for visual cues over vocal ones in L2 contexts. However, some of the participants agreed that emotions can be detected from voice if the speaker belongs to their L1 cultural group. It can be concluded that bilinguals might have a variety of channels on which they can rely on to interpret emotions in the L1, but in the L2, they need linguistic input accompanied by visual cues.

Nevertheless, it can be assumed that the little impact of TEI on the Arabic monolinguals' EP in their L1 might stem from their familiarity with the linguistic input in the Arabic videos; in other words, Arabic monolinguals, as well as English monolinguals, might rely more heavily on their language proficiency in their L1 than on their TEI to interpret emotions, since familiarity with a language helps individuals to construct emotional knowledge in that language (Barrett, 2017a; Lindquist, Satpute, & Gendron, 2015). Indeed, language shapes how people perceive emotions in others (Lindquist et al., 2006). Unfortunately, there was no Arabic proficiency test used in this study for Arabic monolinguals. Yet, this speculation can be supported by the results of RQ1 and RQ6, as both groups of monolinguals could easily

identify the emotions that were expressed in their L1. Bilinguals, who were familiar with both languages, seemed to depend on their TEI more than on their language proficiency to interpret the emotions in both languages. Bilinguals' TEI levels might, more specifically, help them to interpret emotions in the L2 (i.e. in a situation where they might need another factor to compensate for their unfamiliarity with the linguistic input) and to interpret negative emotions in the L1 (i.e. the emotions that may require more pragmatic consideration (Rintell, 1984)).

Considering the relationship between the linguistic profile history (the age of onset of acquisition (AOA), the context of English acquisition, the frequency of English use, and stay in English environments) of the bilinguals and their EP of the emotions in the English videos, the results of the quantitative findings were not as expected. Only the variable of the frequency of English use was significantly related to the bilinguals' EP of the emotions in the English videos, which explained an additional 2% of the variance in the EP scores. The findings showed that frequent L2 users were better at interpreting emotions than less frequent users. The other hypotheses concerning the link between AOA, the context of L2 use, stay in ESCs, and the EP scores were rejected. One possible explanation for the unexpected result is that the ability to interpret emotions might stem from the amount and frequency of exposure to emotional experiences in L2 contexts rather than when or how the L2 was acquired. In other words, it seems that those frequent L2 users of English might have experienced more emotional situations in English that enabled them to better construct more emotional experiences and perceptions in the L2. There is a possibility that LX users who use LX frequently are likely to become better communicators in LX (Dewaele, 2018c). This finding is consistent with a previous study on the emotional expression of bilinguals, in which Ożańska-Ponikwia (2012) found that exposure to an L2 and its use on an everyday basis boosts language proficiency and the emotional expressions in that language. The significant effect of the frequency of use of L2/LX, moreover, confirms previous studies that found a similar statistical relationship between this variable and perceived language proficiency and communicative competence (Dewaele, 2007a), the perception of the emotional force of swear words (Dewaele, 2016c), and the perception of the offensiveness of negative words (Dewaele, 2018d).

While previous studies have provided evidence for the positive effects of AOA and an authentic context of L2 acquisition on different aspects of L2 use, such as perceived language proficiency (Dewaele, 2007a), oral proficiency (Bongaerts, Van Summeren, Planken, & Schils, 1997), emotional expression in the L2 (Ożańska-Ponikwia, 2012), the perception of the

emotional force of negative emotion words in the LX (Dewaele, 2004; 2018d), and the preference for expressing anger in LX (Dewaele, 2006), the findings of this study did not show any statistical link between when and how English was learned and the bilinguals' EP. It seems that bilinguals' ability to interpret emotions in the L2 was affected more strongly by their psychological traits and their frequent use of English than when and how they learned it. However, a closer analysis of the data indicated that the majority of the bilingual participants (62.4%) started learning English after the age of three (i.e. early learners) and that this group reported using English more frequently ( $M = 3.23$ ,  $SD = 1.26$ ) than other groups. Since frequent users of English were better able to interpret emotions in English than less frequent users, it seems that AOA has an indirect effect on the EP of the bilinguals. In other words, AOA is a significant indicator of frequency of use of LX (Dewaele, 2007) and might also be an indicator of frequent use of LX for emotion communication (Dewaele, 2010a).

#### 6.2.5. Socio-biographical variables and emotion perception

It was expected, based on previous literature, that age (Brosigole & Weisman, 1995; McCluskey & Albas, 1981; Mill, Allik, Realo & Valk, 2009), gender (Hall, 1984; Kirouac & Dore, 1985; Timmers, Fischer, & Manstead, 2003; Rotter & Rotter, 1988), and education level (Dromey, Silveira, & Sandor, 2005) would have a significant relationship with EP. The hypothesis regarding the age-EP relationship was partly confirmed, since young participants, in the Arabic and English monolingual groups, were better at interpreting emotions in the Arabic videos than older participants. Older English monolingual participants, however, were better at interpreting the emotions, especially positive ones, in the English videos, than younger participants. It seems that younger English monolinguals could better recognise emotions in Arabic, but older English monolinguals could better recognise emotions in English. It might be that younger individuals are likely to be more exposed to other languages and cultures through the use of media or (translated) films and hence more frequently observe cross-cultural and linguistic differences in expressing affective states, compared to older individuals. By contrast, older individuals, particularly in the English monolingual group, seem to have more socio-pragmatic competence in emotion communication in their L1. It seems that they have more experience in interpreting the emotions of others and have more experience in authentic emotional interactions than younger individuals. The superior ability of older English monolinguals to identify positive emotions rather than negative emotions in English confirms Mill et al.'s (2009) theory that older individuals are *insensitive* to negative emotional

expressions since they likely have learned to ignore these kinds of expressions through life experience. These findings, however, challenge the previous assumption that the ability to recognise emotions declines with age (e.g. Brosigole & Weisman, 1995; McCluskey & Albas, 1981). This assumption, however, might be true in cross-cultural and linguistic emotion recognition ability. In the L1 and L1 culture, the ability to interpret emotions might increase with age as a result of prolonged exposure to life experiences, including emotional experiences. In the case of the bilingual informants, however, age was not statistically related to their EP scores in both languages. It can be speculated that knowledge of two languages might affect the emotion interpretations of both young and old individuals. It seems that the positive effects of bilingualism on emotional skills in the L2 extend to adults as well as young children.

The hypothesis concerning the relationship between gender and EP was confirmed, since females were better than males at interpreting the emotions in the videos. Gender was significantly related to the ability to interpret the emotions for both English monolinguals and Arabic-English bilinguals. However, this small but significant female advantage was found only in the EP in the participants' L1. In other words, females in the English monolingual group could more easily identify the emotions in the English videos than males. A similar finding was observed in the bilingual group, where females outperformed males in the perception of the emotions in the Arabic videos. The findings on the effect of gender on emotion perception were consistent with previous studies (Briton & Hall, 1995; De Leersnyder, Mesquita, & Kim, 2011; Dromey, Silveira, & Sandor, 2005; Timmers, Fischer, & Manstead, 2003), in which a female advantage in ERA was found. It can therefore be speculated that females are often more emotionally sensitive to affective states (Timmers, Fischer, & Manstead, 2003), have more empathy and a superior ability to recognise emotions (e.g. Baron-Cohen & Wheelwright, 2004), and pay more attention to the emotional patterns displayed on faces or by voices than men (Hall, 1978, 1984; McClure, 2000). Another explanation could be that women are more skilled than men in expressing emotions via verbal and non-verbal emotional cues (Briton & Hall, 1995), which might also allow them to be more skilled in interpreting those emotional cues in others, especially in those from their L1 culture. This female advantage, however, was absent in cross-linguistic and cultural emotion perception, especially in the case of monolinguals.

The hypothesis concerning the relationship between education level and the ability to identify emotions in the videos was confirmed. The findings indicated that highly educated

informants were better at identifying the emotions than less educated informants. The strong association between education levels and emotion perception in English was more present amongst the bilingual participants than the monolinguals. It can be speculated that bilinguals' superior ability to interpret emotions in the English videos might have been confounded by their education levels, since the majority of the bilinguals had master's degrees or PhDs (50.3%). It might be that highly educated individuals, particularly bilinguals, possess high levels of communicative and emotional skills (Dewaele, 2007a) especially in their L2. Having higher degrees of education might also strengthen their ability to focus on specific verbal or non-verbal emotional behaviours in the L2. Moreover, most of the bilinguals in this study might have obtained their higher education degrees in their L2, since most of them were in the UK as international students. Consequently, because of their extensive exposure to the L2 (compared to less educated bilinguals) they are more likely to be familiar with variations in emotional behaviours. The findings are thus complicated, as the relationship between the linguistic, psychological, socio-biographical variables and emotion perception is not a causal one.

#### 6.2.6. Cultural factors and emotion perception

In cultural psychology, the impact of culture has been widely emphasised on certain aspects of emotions, such as display rules (Elfenbein & Ambady, 2002; Matsumoto, 1989), emotional intensity (de Gelder & Veld, 2016; Zhu, Ho, & Bonanno, 2013), emotional behaviours (Barrett & Russell, 1999; Mesquita & Walker, 2003), and emotional expressions (Scherer, Matsumoto, Wallbott, & Kudoh, 1988). As indicated in Chapter 2, several psychological studies have explored individual differences in emotional expressions and emotion recognition ability across different cultures (e.g. Boiger & Mesquita, 2012; Kitayama, Markus, & Kurokawa, 2000; Mesquita & Walker, 2003), but little attention has been paid to the linguistic elements. Therefore, the impact of culture on emotion perception was examined for monolingual speakers to verify the in-group advantage hypothesis.

The findings of this study highlight the significant influence of cultural familiarity on the perception of emotions in the case of monolinguals. It was found, from the quantitative data, that each group of monolinguals could easily interpret most (but not all) of the emotions expressed by the actors belonging to their linguistic/cultural group, with the largest effect size found in the EP in Arabic. For the emotions portrayed in the Arabic videos, Arabic monolinguals could identify all emotions (i.e. *anger, fear, sadness, disgust, surprise*, and

*happiness*) at higher agreement rates than English monolinguals. There was also an in-group advantage in the perceived emotional intensity of the emotions. Arabic monolinguals could perceive the emotional intensity of the emotions in the Arabic videos at higher rates than English monolinguals, although the differences were only significant for the perceived emotional intensities of the emotions of *disgust* and *surprise*. For the emotions depicted by the English stimuli, English monolinguals could easily interpret most of the emotions at higher agreement rates than Arabic monolinguals. The EP scores of English monolinguals, more specifically, were significantly higher than the scores of Arabic monolinguals for the emotions of *fear* and *sadness* in English. Although they were better at interpreting the emotions of *anger* and *surprise* than Arabic monolinguals, the differences were not statistically significant. Furthermore, English monolinguals could perceive the emotional intensity of the emotions of *anger* and *fear* in the English videos at higher rates than Arabic monolinguals. One unanticipated finding was that Arabic monolinguals could more easily interpret the English emotions of *disgust* and *happiness* than English monolinguals, and the differences between them were significant ( $p < .05$ ), suggesting an out-group advantage for Arabic monolinguals. Accordingly, the hypothesis was partly confirmed for the emotions in the English videos.

The findings thus highlight the existence of an in-group advantage in the EP of emotions expressed by members from the perceivers' own linguistic/cultural group (Sauter, 2010; Scherer, Banse, & Wallbott, 2001; Thompson & Balkwill, 2006; Zhu, 2013). While the impact of the linguistic/cultural familiarity varied for the perceived emotional intensity of some emotions (e.g. *disgust* and *surprise* in Arabic and *disgust* and *happiness* in English), there was a small but significant benefit observed in the interpretation of the emotions when the participants were familiar with the language used in the stimuli. It seems that the cultural distance between the Arabic and English languages and cultures might have increased the difficulty in interpreting the emotions in the case of monolingual individuals. This speculation was confirmed by the qualitative data, wherein Arabic L1 users highlighted the differences between Arabs and English people with regard to emotional behaviours. They specifically agreed that Arabs tend to hide their emotions and seem to avoid using direct emotion words or expressions; instead, they imply their emotions in other expressions which can only be understood by members of the same cultural group. Their opinions confirmed the findings of previous studies, in which people belonging to the same culture were more likely to identify each other's emotions because of the cultural emotional displays (Matsumoto, 2009) that guide their emotional behaviours. Therefore, it can be speculated that Arabic-English bilinguals

could easily identify the emotions of Arabs despite their use of indirect emotional expressions. The participants' views of these cultural differences in emotional expressions expand previous findings that people's emotions are shaped by interactions that are constructed by cultural norms (Boiger & Mesquita, 2012).

The participants' views regarding cross-cultural differences between Arabs and English people extended to the emotional intensity of emotional expressions and behaviours, as most of them agreed that Arabs, unlike English people, tend to express the same emotions with different emotional intensities, depending on the context. This means that bilinguals might be more sensitive to the emotional intensities of emotional expressions shown on individuals from their L1 culture. It seems that the participants were less able to distinguish the different degrees of emotional intensities of emotions presented in English. These qualitative data confirmed previous findings that members of the same cultural group are more likely to distinguish the intensities of emotions being expressed by other members of their group (de Gelder & Veld, 2016).

The findings therefore highlight the linguistic and cultural differences in emotional expressions between Arabic and English languages/cultures. An unexpected qualitative finding was that the extent of the difficulty in interpreting emotions might depend on the ethnic or cultural identity of the expresser of the emotions. It seems that emotions expressed by English people are more difficult to interpret for Arabic-English bilinguals than emotions expressed by speakers of other languages, such as Pakistanis. This could be attributed to the type of cultural model involved (Elfenbein & Ambady, 2003; Markus & Kitayama, 1991; Matsumoto, 1989). For example, Pakistanis and Arabs may share certain cultural, religious, and social characteristics, while English people belong to the Western cultural style, which might affect their style of emotional expression. These differences in emotional expression might stem from the conceptualisation of emotions (Markus & Kitayama, 1991). For example, emotions are located within the individual (e.g. to show self-independence and autonomy) in most individualist cultures, whereas they might be located in the relationship between people in the same community, as in most Arabic and Islamic cultures.

The findings therefore suggest that the emotional-cultural style for each cultural group allows members of each group to understand emotional cues and the intensity of certain emotions (Elfenbein & Ambady, 2002; Matsumoto, 1989). The in-group advantage for emotion

identification might also reflect the role of the learned emotional-cultural behaviours and expressions, involving both verbal and non-verbal behaviours (Elfenbein & Ambady, 2002). Furthermore, it can be suggested that the in-group advantage in EP emerges from the fact that every language has its own emotion system (i.e. emotion concepts, emotion words, emotion-related words, and emotion-laden words) (Pavlenko, 2008), and people in each speech community tend to construct the emotions their language has and categorise them according to learned emotional behaviours. Individuals across different languages and cultures can recognise those emotions in the behaviours of other members of their own speech community. The results of this study also seem to be in line with Wierzbicka's (1999) observations that people tend to interpret their own—as well as others' emotions—based on the lexical grid available in their L1.

Another explanation could be that individuals in each speech community seem to transmit emotion concepts and emotion words and expressions to others in their speech community (Barrett, 2017a). Therefore, they share the emotional behaviours associated with the emotional concepts available in their language. In other words, it can be inferred that if the speaker and the perceiver share the same language, emotion words and expressions allow them to easily interpret each other's affective states and shape each other's predictions about emotional experiences (Barrett, 2017a). Thus, they seem to agree that certain emotional behaviours (e.g. facial expressions and body movements) have specific emotional meaning in certain situations. The difficulty in interpreting the emotions expressed by members from a different culture, then, might stem from the fact that emotions are not fixed on faces and that people vary in their emotion construction and the way they express emotions, depending on the culture they belong to.

Although it has been mentioned in the literature that the emotions of *anger* and *sadness* might be easily identified even with the absence of language knowledge—because anger is influenced by “evolutionary factors” associated with survival reaction to danger (Thompson & Balkwill, 2006) and sadness is influenced by self-evaluation and sensitivity (Yoo, Matsumoto, & LeRoux, 2006)—the findings of this study do not support this theory, since the emotions of *anger* and *sadness* were difficult to interpret in the absence of the linguistic familiarity with the content. Therefore, it can be concluded that familiarity with the language and culture seemed to boost the ability to interpret the emotion categories in the videos. Likewise, the

unfamiliarity with the linguistic content in the stimuli seemed to hinder the ability to interpret the emotions.

Because monolinguals lacked the linguistic familiarity with the content in the videos when decoding the emotions expressed in the other language, they likely relied more heavily on non-verbal cues to interpret emotions. The results also suggest that Arabic monolinguals might have relied on facial configurations to interpret the emotions of *disgust* and *happiness* in English, suggesting an out-group advantage in EP. These two emotions might have common and well-known visual displays (e.g. smiling and laughing associated with *happiness*) in both cultures (Sauter, 2010), which might explain the Arabic monolinguals' ability to interpret these emotions in English at high agreement rates. A similar case was found for the EP of the emotion of *surprise* in the Arabic video, which was easily interpreted by English monolinguals, suggesting an out-group advantage. This can be attributed to the possibility that this emotion might be associated with common emotional non-verbal (visual) cues that both cultures might share (e.g. wide eyes and smiling). There is also a possibility that there are certain stereotypes of emotional behaviours individuals likely learn early in their lives from schools or storybooks. Moreover, these emotions might be conceptualised in similar ways across these different cultures (Barrett, 2017a). For example, Arabic monolinguals might have learned the emotional behaviours associated with these English emotions from watching English films. Nevertheless, it can generally be concluded that each group of monolingual participants with knowledge of the linguistic input in the stimuli had a distinct advantage in interpreting emotions and perceiving the emotional intensity over the other group. However, the qualitative data were limited to Arabic-English bilinguals, so it was not possible to investigate why monolingual speakers encountered difficulties in interpreting emotions in an unknown language.

#### 6.2.7. *The impact of bicultural identity and residence in L2 environment on EP*

One of the aims of the present study was to investigate the influence of the perception of the relationship between bicultural identities, as well as residence in ESCs, on the ability to interpret emotions. This was done in the quantitative and qualitative studies for bilinguals who were in ESCs. This aim was formulated based on previous research in cultural psychology, particularly in emotional acculturation, where several psychological studies indicated that immigrants' emotional patterns change as a result of exposure to a new culture (Boiger & Mesquita, 2012; De Leersnyder, Mesquita, & Kim, 2011). The quantitative data indicated that

the *compatibility* orientation was the BIOS variable that was positively and significantly correlated with the EP scores in English, while the *conflict* variable was negatively and significantly correlated with the EP scores in English for Arabic-English bilinguals. The other BIOS variables—*hybridity*, *alternation*, and *monoculture*—had no significant association with any of the EP scores in both languages. It should be noted that only Arabic-English bilinguals who were in the UK and who had been to ESCs ( $n = 108$ ) completed the BIOS scale in the questionnaire. The purpose of this scale was to explore the participants' views regarding their ethnic and mainstream cultural identities and to examine the association between the BIOS variables and the EP in both languages. The *compatibility* orientation was the one most endorsed by Arabic-English bilinguals. The findings suggest that Arabic-English bilinguals might view their two cultural identities as in accord with each other. The least endorsed orientation, on the other hand, was *conflict*, suggesting that most bilinguals did not encounter difficulties in maintaining both cultural identities.

As was indicated in the literature, in order to be able to regulate emotions it is essential to be able to identify the emotions of others, which leads to effective adjustment to the target culture (Yoo, Matsumoto, & LeRoux, 2006). The findings suggest that there seems to be a link between the type and degree of acculturation into the target culture and the ability to identify emotions in the target culture. However, it is highly likely that it depends on the type of emotion itself; for example, the alternation variable, wherein individuals can switch to anyone of their cultures depending on the situation, was significantly and positively correlated with the perceived intensity of the emotions of *disgust* in the Arabic video and *happiness* in the English video. Therefore, those bilinguals who adopt the alternation orientation seem to be aware of how to alternate their emotional behaviours based on social and cultural requirements, particularly when interpreting those emotions. The *compatibility* variable, on the other hand, was significantly linked to the perceived intensity of the emotions of *fear* and *sadness* in the Arabic videos and of *anger*, *fear*, *sadness*, and *surprise* in the English videos. It can be concluded, based on the quantitative analysis, that bilinguals who felt that their cultural identities were compatible, or even blended, could perceive the emotional intensities of the negative emotions at higher rates in the L1 and L2. It can also be speculated that the emotion perception of the negative emotion *anger* seems to be linked to the degree of acculturation into the target culture, as this emotion has a communicative function (e.g. showing offense and frustration when being insulted). Thus, when L2 users acculturate into an L2 culture, they might face situations in which they misunderstand the linguistic content because of the cultural

differences in communicating emotions—*especially the negative ones* (Yoo, Matsumoto, & LeRoux, 2006). It can then be inferred that if the emotion of *anger* is easily interpreted in the L2, it may translate to better adjustment and acculturation into the L2 culture, because an L2 user can alter her/his anger and offensive behaviours to fit the cultural context, which therefore leads to affective communication (Yoo, Matsumoto, & LeRoux, 2006).

It can also be noted that there seems to be a strong positive link between compatibility orientation and the perceived emotional intensities of the negative emotions of *fear* and *sadness* in both languages. These associations suggest that bilinguals who perceived their two cultural identities as in accord with each other could easily interpret the emotional behaviours associated with these two negative emotions in both languages, which might allow them to anticipate the emotional reaction of interlocutors and thus to have smooth interactions in both languages. Another explanation could be that bilinguals who have compatible bicultural identities might have developed more metalinguistic and metapragmatic awareness of the cultural differences in emotional behaviours associated with these two negative emotions in both languages, thus allowing them to adjust to both languages and cultures depending on the context. Moreover, there seems to be a significant connection between compatibility, hybridity, and the EP and the perceived intensity of the negative emotion of *sadness* in the English videos. The hybridity variable was also found to have a significant positive correlation with the perceived intensities of the negative emotions of *fear* and *disgust* in the Arabic videos. The findings suggest that bilinguals' perception of their ethnic identity as in opposition to the mainstream identity was strongly and negatively related to the EP and the perceived intensity of the negative emotion of *anger* and with the perceived intensity of the emotion of *sadness* in the English videos and *happiness* in the Arabic videos.

The quantitative hypothesis that the experience of having lived in an English-speaking environment and the length of stay would be related to the bilinguals' interpretation of the emotions in the English videos was rejected. The bilinguals who reported living in an ESC and those who had never been to any ESCs did not statistically differ in their EP scores. Moreover, those who had been in ESCs for a long time had similar levels of emotion perception as those who were early in their stay. It seems that the positive effects of knowing two languages on the bilinguals' EP in English manifest similarly in different types of bilinguals (i.e. early versus late learners, and authentic users versus learners). Although it was expected that bilinguals who were immersed in an L2 environment would have more opportunities for authentic emotional

interactions in the L2, the findings suggest that being in an L2 environment does not guarantee an extensive exposure to emotional experiences in L2 socio-cultural contexts. However, frequent use of the language may indeed lead to better socio-pragmatic competence in emotion communication—an assumption that has been verified by the findings of this study.

The topic of residence in ESCs and direct social contact with English L1 users was shown, in the qualitative data, to have a significant effect on the bilinguals' ability to interpret emotions. Consistently throughout the interviews, interviewees agreed that they became more sensitive to emotional situations, which confirmed previous findings that the emotional experiences of immigrants or biculturals/bilinguals might be affected by acculturation into the target culture (De Leersnyder, Mesquita, & Kim, 2011). Therefore, effective acculturation into the target culture might lead bilinguals to appraise emotional situations in different ways, depending on the cultural contexts. In other words, their emotions are more likely to change as a result of their effective acculturation into the target culture (Mesquita, Boiger, & De Leersnyder, 2016). It seems that their immersion in the L2 environment allows them to observe various emotional behaviours and expressions of others from different cultures; they might have more opportunities to construct more emotion concepts. This confirms findings from previous literature that immersion in an L2 environment might develop L2 users' linguistic proficiency as well as socio-pragmatic skills (Dewaele, 2007a, 2016c). Indeed, authentic communication in an L2 might allow L2 users to learn appropriate skills to express their affective states as well as to react to others' emotions. Through authentic exposure to the L2, L2 users likely acquire more emotion words and expressions, and hence integrate them in their emotional systems.

The quantitative data demonstrated that bicultural identity seems to be more significantly related to the perceived intensity of the emotions than the EP scores of bilinguals. Returning to the results of RQ1, notably, no significant differences were found in the perceived emotional intensity of emotions in English between Arabic-English bilinguals and English monolinguals. Since most of the bilingual participants adopted the *compatibility* orientation, it can be assumed that there may be an association between the *compatibility* variable and the perceived emotional intensity in the L2 for bilinguals. In other words, bilinguals' perception of emotional intensities in English approximates those of English monolinguals, but their perception of emotional intensities of Arabic emotions diverges from those of Arabic monolinguals.

The qualitative findings are consistent with the quantitative analysis, in which bilinguals could perceive the emotional intensity of emotions in the L2 at similar agreement rates as English monolinguals. The findings of both data sets suggest that these changes in the EP of emotional intensity might stem from changes in the perception of the emotional patterns (i.e. emotional behaviours)—the ones that bilinguals are more likely to change to fit L2 cultural norms in order to achieve effective communication in the L2 cultural contexts. The findings revealed that bilinguals who have been exposed to the L2 culture might have more opportunities to communicate their emotions in the L2, and therefore to interpret the emotions of others. They also might become more aware of the cultural differences in emotional expressions between their L1 and L2.

These changes in the perception of the emotional intensity might result from the cultural adjustment or the willingness of bilinguals to emotionally fit in to the target culture (De Leersnyder, Mesquita, & Kim, 2011). This might help them communicate effectively in the L2. This result confirms the findings in previous literature, in which acculturation and effective socialisation may help people to update their emotions and help them to act as people of the target culture (Mesquita, Boiger, & De Leersnyder, 2016). Another speculation is that bilinguals might have experienced different emotional situations in each cultural context. In other words, they might have constructed emotional predictions that fit each cultural setting. However, this study did not aim to explore the changes in the EP of bilinguals but rather to examine the relationship between the type of acculturation orientation and the EP scores in both languages.

Although acculturation is related to the interaction between cultural orientation and behaviours—including *emotional behaviours*—some factors seem to affect the acculturation orientation more, such as the length of stay and personality traits (Berry, 1997). The quantitative findings of this study showed that hybridity was significantly and positively correlated with the years spent in the ESCs for Arabic-English bilinguals, with those who had spent more years in ESCs tending to perceive their two cultures as a mix. The bilinguals who were in their first months in the ESCs, in contrast, seemed to have conflicting views towards maintaining both cultural identities and hence considered them to be separate. Therefore, the number of years spent in the target culture seems to be linked to the perceived cultural distance between the L1 and L2 cultures (Benet-Martínez & Haritatos, 2005). Although there was no

significant correlation between the length of stay in ESCs and the EP scores of bilinguals, there might be an indirect relationship between these variables. In other words, the length of stay in ESCs was found to be significantly related to the perceived attitude of the cultural identity; the more years spent in ESCs, the more the bilinguals perceived their two cultures as in accord with each other, and hence, the more adept they were at interpreting the emotions in the English videos.

The quantitative findings also suggested a strong link between TEI levels and BIOS variables, with bilinguals who had low levels of TEI and of the facets of *self-control*, *well-being*, and *emotionality* having negative views about the relationship between their two cultural identities; they considered them to be two separate and opposite identities. Interestingly, the pattern of correlations with the TEI scale suggests that the more bilinguals perceived the relationships between the two cultural identities as compatible, the higher their TEI levels—particularly in the facets of *self-control* and *well-being*. This pattern was also observed with the language proficiency levels: bilinguals with high levels of language proficiency seemed to be less tolerant of violating L1 cultural norms (Hoffman, 1991), and therefore could easily interpret emotions and perceive the emotional intensity in English. The findings are consistent with previous literature, in which L2 speakers' personality traits boosted their linguistic proficiency and the degree of adjustment into the host culture (Dewaele, 2016a). However, the qualitative data demonstrated that although the participants speak English, most of them admitted that they still have difficulties in interpreting emotions and in communicating their emotions in the L2 environment.

To sum up, emotion perception is an essential skill of emotion communication which might be influenced by L2 acquisition/use, as supported by the quantitative and qualitative studies. The findings demonstrated significant (albeit with small effect sizes) effects of the independent variables (knowledge of two languages and psychological, socio-biographical, linguistic, and cultural variables) on the dependent variable (i.e. emotion perception and the perceived emotional intensities of the emotions). The quantitative findings, however, paint complicated rather than clear-cut pictures regarding the links between these variables, especially for the bilinguals. What can be inferred is that there is a significant linear relationship between these variables. It can also be concluded that the qualitative data provided support for some of the quantitative results and also revealed some additional emerging themes that are related to the scope of emotion perception, such as emotion perception in cross-linguistic and

cross-cultural communication, emotional channels, and the impact of residence in ESCs on emotion perception.

However, the results of this study do not entirely explain all aspects of EP and other factors that may be linked to the EP of the bilinguals. Hence, the limitations of this study will be presented in the following section.

### **6.3. Limitations of the present study**

There are a number of methodological limitations related to the instruments used, the recruitment of participants, and the findings. First of all, the average time required to complete the online questionnaire for bilingual participants was 25-35 minutes, which exceeds the recommended length (Dörnyei, 2007). This might affect the bilinguals' responses, particularly on the BIOS scale, which was administered at the end of the questionnaire.

One particular limitation concerns the stimuli used to examine the emotion perception of the participants—the emotional experiences acted out in the videos were limited to those of the actors and the actress because emotional instances are not universal and individuals vary in their construction of the emotions in their minds (Barrett, 2017a). Therefore, it will be difficult to generalise the results to other populations and other instances of the same emotion categories (i.e. *anger, fear, sadness, disgust, surprise, and happiness*). Moreover, the emotional experiences acted out by the actors and the actress were past emotional events, though the actors tried many times to make sure they depicted the emotional experiences as if they were re-experiencing them at the moment of recording. In addition, it was difficult to have an actress act in the Arabic videos because of the cultural and religious constraints for Saudi Muslim women. Thus, it was not possible to explore whether the gender of the speaker in Arabic affects the responses of the EP task; nevertheless, the gender of the speaker in the English videos was not significantly linked to participants' EP scores. Another limitation of this study is that the stimuli used to decode emotions were audio-visual video clips, so it was not possible, in the quantitative study, to estimate which channels the participants relied on more, particularly for when monolinguals encoded emotions in an unknown language.

The online questionnaire used to measure the emotion perception of the participants and the relevant factors did not include an Arabic linguistic proficiency test nor a scale to

measure the degree of exposure to the English/British culture for Arabic monolinguals. Hence, the linguistic proficiency was only measured for English L1 users and bilinguals/English L2 users. A particular limitation of not including an Arabic language proficiency test is that it was not possible to estimate the interaction between TEI levels and linguistic proficiency scores of Arabic monolinguals and to examine whether they, like the English monolinguals, would rely more heavily on their linguistic proficiency in their L1 than on their TEI to interpret the emotions. Furthermore, though it is applicable to measure “other domains of L2 processing” (Lemhöfer & Broersma, 2012, p. 326), the English linguistic proficiency test (LEXTALE) is a lexical decision task that is relevant to general vocabulary knowledge. The LEXTALE also does not allow the measurement of the richness of participants’ emotional vocabulary. The online questionnaire, moreover, was subject to general limitations, such as clicking in the wrong place or choosing a neutral option when the questions were ambiguous. It is therefore important to bear in mind the possible bias in the responses.

Other limitations are related to the methods of recruitment and the sample. The bilinguals and Arabic monolinguals were self-selected while English monolinguals were compensated for their participation. These two different methods of recruitment might have resulted in group differences, which were not measured in this study and might affect the results. The bilingual group might have been more motivated to do the EP task, particularly in their L2, and to appear as more emotionally intelligent. Furthermore, a task that required guessing emotions in two languages using videos might have attracted bilinguals with high levels of TEI. Moreover, only participants who have access to the online questionnaire could participate in this study. Consequently, there is a possibility of self-selection bias (Dörnyei, 2007). The resulting sample, thus, cannot be similar to the target population as it loses its representative character, which would prevent any meaningful generalisability (Dörnyei, 2007). Another limitation is the unequal number of participants in each group, particularly the monolingual groups. Although quota sampling would allow examining the variations in the EP scores for the participants, non-parametric statistics does allow the comparisons of unequal sample sizes, but there is still a risk of sampling error (Loewen & Plonsky, 2016).

There are, moreover, a number of limitations related to the findings. First, the quantitative study was only limited to Saudi Arabic-English bilinguals and monolinguals from only two linguistic/cultural backgrounds: Arabic and English. Thus, caution is necessary, as the findings of this study might not apply to other Arabic-English bilinguals from different

Arabic nationalities. The results might also have been confounded by education levels of the bilingual participants since most of them had higher degrees. The qualitative study was limited to a small number of Arabic L1 speakers so English monolinguals were not included, which limited the interpretations of the findings, especially those related to the variations in emotion perception by English L1 users. Most of the quantitative results in this study were based on correlational analyses in which the direction of effect was unclear; as such, no causal relationship between the variables can be assumed. Although the findings of the relationships between the variables were significant, most of them had small effect sizes. Hence, the results of this study, particularly the comparisons between monolingual and bilingual groups with regard to their emotion perception and TEI, need to be interpreted with caution.

## Chapter 7

### CONCLUSION

#### 7.1. Introduction

Using a mixed methods approach, this study set out to investigate the relationship between bilingualism; psychological, socio-biographical, linguistic and cultural variables; bicultural identity; and emotion perception in Arabic and English for Arabic/English monolinguals and Arabic-English bilinguals. Chapters 4, 5, and 6 presented quantitative and qualitative findings and discussion. The findings of this study shed some light on the complex nature of the EP skills of both monolingual and bilingual individuals. The quantitative findings, more specifically, provide some statistical evidence for the advantages and disadvantages of bilingualism in EP and TEI; the role of TEI in emotion perception and perception of the emotional intensities of both monolinguals and bilinguals; the link between the linguistic profile and socio-biographical variables and EP; in-group/out-group advantages in the EP of the monolinguals; and the effect of bicultural identity orientations on the EP of bilinguals in English-speaking environments. The qualitative findings provide some explanation for the quantitative findings regarding the EP of negative and positive emotions and the impact of residence in ESCs on EP. They also provide some insights into aspects related to EP that were not possible to obtain through the quantitative phase, such as emotional channels used in EP and perceived linguistic and cultural differences in emotional expressions.

This concluding chapter consists of three sections: Section 7.2 summarises the key findings of this research study, section 7.3 presents a contribution to knowledge in the field, and section 7.4 provides recommendations for future research.

#### 7.2. Summary of the main findings

To achieve its objectives, this study has addressed seven quantitative research questions and four qualitative research questions.

***RQ1:** Is there a difference between the EP scores in Arabic and English videos of Arabic-English bilinguals and Arabic/English monolinguals?*

This research question aimed to investigate the impact of bilingualism on the EP of Arabic-English bilinguals in comparison with Arabic/English monolinguals. The interpretations of the quantitative data revealed that the bilinguals have a significant (but small) advantage over Arabic and English monolinguals in the EP of emotions in the English audio-visual videos. This study has shown that identification and perception of the emotions in both languages are predicated on the bilinguals' metalinguistic and metapragmatic awareness of the cultural and linguistic differences in emotional expressions and behaviours in both their L1 and L2. This confirms the assumption of the theory of constructed emotions that individuals can construct new emotional knowledge if they learn a new language and acquire new emotion concepts, and that emotion perception is not universal. Emotion perception, therefore, is constructed through knowledge of a language. The findings of this RQ strongly suggest that familiarity with two languages might have a positive effect on emotion perception skills, at least in the L2. Therefore, the acquisition of more than one language appears to positively affect the emotional side of bilinguals' lives, just it does for linguistic, cognitive, and psychological processes (Cook, 2016; Dewaele, 2014, 2016b). It can thus be concluded that emotional mastery might not be restricted to one language over another, but rather that the combination/acquisition of more than one language might contribute to the richness of bilinguals'/multilinguals' emotional lives.

***RQ2: a) Is there a difference in TEI levels between Arabic-English bilinguals and Arabic/English monolinguals?***

The first part of the second research question compared the TEI scores of bilinguals and monolinguals. The findings have shown that the bilingual advantage found in this study extends beyond emotion perception to include an additional bilingual-*psychological* advantage, extending previous research on the positive effects of bilingualism and multilingualism (albeit with a small effect size) on personality traits and emotional and communicative skills. These outcomes strongly suggest that familiarity with more emotion words and concepts might construct more emotional predictions and experiences, which is a sign of emotional health and well-being, confirming the theoretical assumption of Barrett (2017a).

**RQ2: b)** *Is there a link between TEI levels and the emotion perception and the perceived emotional intensities of the emotions in Arabic and English videos of Arabic-English bilinguals and Arabic/English monolinguals?*

The second part of the second research question examined the statistical relationship between emotion perception scores, the perceived emotional intensity of the emotions in the Arabic and English videos, and the TEI of the bilinguals and monolinguals. The findings have suggested that higher levels of TEI might boost the bilinguals' and English monolinguals' ability to interpret the emotions of others, adding to the previous evidence regarding the role of emotional intelligence in emotion interpretation and emotion perception skills (Barrett, 2017a; Lindquist, Gendron & Satpute, 2016; Petrides & Furnham, 2003).

**RQ3:** *In the case of English monolinguals and Arabic-English bilinguals, is there a link between English language proficiency and the EP as well as the perceived emotional intensities of the emotions in English videos?*

The aim of this research question was to examine the effect of English language proficiency on the EP of the emotions in the English videos of English monolinguals and Arabic-English bilinguals. The findings revealed that the relationship between language proficiency levels and the ability to interpret the emotions in the English videos was positive and significant for the bilingual group, but was stronger for the English monolinguals. The findings of this research question strengthen the evidence that higher levels of language proficiency may boost the acquisition of emotion words and emotion-laden words, as well as communication skills, and may develop metapragmatic and socio-pragmatic competence of emotion communication in L2/LX socio-cultural contexts.

**RQ4:** *Is there a link between the socio-biographical variables (age, gender, and education levels) and the emotion perception in Arabic and English of Arabic-English bilinguals and Arabic/English monolinguals?*

The fourth research question focused on the individual variations in the EP scores in light of the socio-biographical variables. The findings suggest that females, younger individuals, and highly educated individuals are at a distinctive advantage at interpreting emotions over males, older individuals, and less educated individuals, respectively. The

findings suggest a female advantage in EP, highlighting females' superior ability to detect emotional information in L1 socio-cultural contexts. Young and highly educated individuals are more likely to be open to engaging with different cultures, helping them to be skilful in interpreting the verbal or non-verbal emotional behaviours of others from different linguistic and cultural backgrounds.

**RQ5:** *Is there a link between the linguistic profile variables (the age of onset of acquisition—AOA, the contexts of acquisition, the frequency of English use, and length of stay in an English-speaking environment) and the emotion perception in English of Arabic-English bilinguals?*

The analysis of the findings has shown that the linguistic profile variables had little impact on the bilinguals' interpretation of the emotions in the English videos. Of these linguistic variables, only frequent use of English seems to boost the bilinguals' metalinguistic and socio-pragmatic competence in emotion communication in the L2, extending previous research findings that frequency of L2 use may allow L2 users to have more authentic interactions with L2 interlocutors.

**RQ6:** *Is there an in/out-group advantage in emotion perception of the two groups of Arabic and English monolinguals?*

Comparisons between the two groups of monolinguals regarding their interpretation of emotions in their L1 and an unknown language suggest that each group of monolinguals had a distinct advantage over the other group in interpreting emotions in their L1. The findings agree with the fact that individuals that share a language and culture are more likely to co-construct emotional experiences and predictions about emotional expressions, allowing them to have smooth emotional communication (Barrett, 2017a). More specifically, the outcomes of this study strengthen the evidence that the in-group advantage in emotion perception reflects the significant role of language and culture in emotion construction. Therefore, the ability to recognise emotion is not universal across different cultures and languages, but is rather a consequence of emotion construction built on the basis of exposure to emotion words, emotion concepts, and specific emotional-cultural behaviours.

**RQ7:** *Is bicultural identity orientation linked to the Arabic-English bilinguals' ability to perceive emotions in their L1 and L2?*

This research question aimed to examine the relationship between bicultural identity orientations (*monoculture, compatibility, conflict, hybridity, and alternation*) and the EP of the bilinguals who resided in ESCs. The findings revealed that the ability to interpret emotions in the L2 might be linked to the type of bicultural identity orientation. Bilinguals who consider their two cultural identities to be in harmony or even blended might be more adept at identifying emotional meaning in L2 socio-cultural interactions. In contrast, bilinguals who perceive their L1 and L2 cultural identities as separate and conflicting might find it difficult to interpret emotions in the L2. It can be concluded that the ability to perceive and communicate emotions effectively in the L2 might be related to a better intercultural communication outcome and subsequently a better perception of bicultural identities and successful acculturation in the L2 environment. Therefore, the findings of this RQ add a new insight into the effects of bicultural identity on bilinguals' emotion perception skills.

**RQ8:** *What channels or emotional cues (verbal content, facial configurations, voice, body language, and hand gestures) do interviewees pay attention to when communicating with interlocutors from different linguistic and cultural backgrounds?*

This research question focused on the emotional channels used in emotion communication in the L1 and L2 from the bilinguals' perspectives. The findings of this qualitative research question revealed that the bilinguals prefer to have visual as well as verbal and vocal cues in order to interpret emotions in the L2, extending previous research findings on the importance of integrating more than one emotional channel when interpreting emotions (Elfenbein & Ambady, 2002; Lorette & Dewaele, 2015; Paulmann & Pell, 2011). The results also revealed that EP in the L1 requires few emotional channels, and emotional meaning can be easily elicited. Therefore, it seems that emotion communication in the L1 might be easier than in the L2/LX.

**RQ9:** *How do Arabic-English bilinguals interpret emotional situations with interlocutors from different linguistic and cultural backgrounds, particularly in Arabic and English?*

This research question explored the bilinguals' interpretation of the emotions of others from different linguistic/cultural backgrounds. The interpretations of the findings revealed that most bilinguals might have developed a superior ability to distinguish various emotional expressions across different cultures and languages. They seem to have developed more metalinguistic and metapragmatic awareness of the cultural and linguistic differences in the way emotions are expressed in their L1 and L2. The findings also suggest that emotional communication may be based more on behaviours or physiological responses, such as interlocutors' emotional interactions, than on language as a single source of emotional information. Therefore, it can be concluded that L2/LX users might be skilled at interpreting the emotions of others, and thus might have an advantage in socio-cultural interactions, as they may be more likely to understand emotional expressions from their interlocutors' perspectives.

***RQ10:*** *What is the impact of the interviewees' residence in ESCs on their identification of emotions of others?*

The aim of this research question was to address the bilinguals' opinions about the effect of their residence in ESCs on their emotion perception skills and to shed some light on the quantitative findings concerning the effects of cultural factors on EP. The findings emphasised the role of immersion in the target environment in the ability to understand the way L1 users express and display their emotions. One interesting finding was that L2/LX users might develop their ability to recognise and identify various cultural and linguistic emotional expressions through natural exposure to these cultural practices in authentic contexts. The findings, therefore, strengthen previous evidence from the field of cultural psychology that suggests exposure to L2/LX cultures might improve the ability to interpret the emotions of others and to acquire new emotional patterns and categories, which may lead individuals to have better communicative and emotional skills (Mesquita, Boiger & De Leersnyder, 2016).

***RQ11:*** *What type of emotions—positive or negative—do interviewees find easier or more difficult to identify in the L1 and L2? Why?*

This research question explored the bilinguals' interpretation of negative versus positive emotions in the L1 and L2. The qualitative findings add further interpretations to the quantitative findings and suggest that L2/LX users might have more difficulties in interpreting negative emotions than positive ones in the L2/LX. This might be attributed to the sensitivity

of negative emotions, since, unlike positive emotions, they may require more careful consideration and may lead to serious social consequences. The findings, thus, seem to extend previous research findings that L2 users might have fewer opportunities to practice L2 negative emotion words, especially in formal learning settings (Dewaele, 2018d), which might hinder their perception and understanding of those negative emotional expressions in L2 socio-cultural interactions.

### **7.3. Contribution to knowledge in the field**

The findings of this study contribute to the field of bilingualism and emotions in a number of ways. In particular, this study expanded the field of cultural psychology and personality psychology by integrating language elements within the field of bilingualism to investigate perceptions of emotions by bilingual and monolingual speakers, which is an original area of research. Therefore, it has contributed to the understanding of the positive effects of bilingualism on emotional and communicative skills as well as psychological and personality traits. As noted in Chapter 1, this study is the first of its type, as it investigates Arabic-English bilinguals' emotion perception in their languages and compares their emotion perception to that of their monolingual peers. Hence, answering these research questions, while relying on the collected and analysed data, should fill a gap in the literature about the way bilingual individuals interpret emotions in their L1 and L2. This is an important contribution, especially considering that there has been little investigation into the emotional skills of bi/multilinguals.

This research also addresses current gaps in our understanding of the way bi/multilinguals perceive the intensity of emotional expressions and behaviours in all of their languages. Furthermore, this present study has not only examined bilinguals' interpretation of emotions in their L1 and L2 but has also highlighted the potential relationship between their EP and their personality traits, language proficiency levels, linguistic profile, and socio-biographical variables. Examining the relationships between these variables has provided a fuller insight into the effect of linguistic and psychological variables, as well as individual differences in the way bilinguals interpret and perceive emotions not only in their L2 but also in their L1. This study also gave the bilinguals a voice to express their opinions regarding the way they understand emotional content (both positive and negative) across different socio-cultural contexts. It also shed light on the type of emotional channels that may be important

for successful emotional communication from the bilinguals' perspectives. In addition, this research is the first attempt to link the way bilinguals perceive the relationship between their bicultural identities and their ability to identify emotions in their languages, filling a gap in the literature on the effects of acculturation into the target culture on the immigrants' emotional lives.

As mentioned earlier in Chapter 1 and in the literature review, emotions vary across languages and cultures. This study makes a contribution to this literature by investigating the role of familiarity with language and culture in the interpretation of emotions by monolingual individuals. In addition to building on cultural psychology studies on emotion recognition ability, this study examines the emotion perception of monolinguals and bilinguals from an applied linguistic perspective, highlighting the role of the language elements and socio-biographical and cultural variables. This study provides detailed statistical analyses of the EP of emotions in two different languages for monolinguals. Since there is a distance between the Arabic and English languages and cultures, this study is the first of its type to investigate the emotion perception in these two languages together, exploring how individuals from these different linguistic and cultural backgrounds interpret emotions in both languages.

The findings of this study are significant because they have important implications for developing and preparing training programmes and courses for L2 learners and sojourners, which might help them more easily adapt to the target culture. Thus, one of the issues that emerges from these findings is that international students and sojourners might need adequate preparation or courses in social, cultural, communicative, and emotional skills before moving abroad. They also need to learn the linguistic and cultural differences in emotional expressions between their L1 and L2. L2 learners, especially those in formal language learning environments, may not only need to learn basic language skills but also may need to be exposed to high-quality input that involves various emotional words and expressions in authentic contexts. They might need special courses or curricula in emotional and communicative skills in the L2. These courses could include certain emotion words, emotion-laden words, expressions, non-verbal emotional behaviours, and emotion categories of the L2. Language learners could then learn and practice these expressions, especially when and how to use them in socio-cultural interactions. They might be trained to interpret various emotions and focus on specific emotional cues and channels. Subsequently, these skills can help them develop their socio-pragmatic competence in emotional and communicative skills in the L2. By developing

social and emotional skills, L2 users/learners can achieve successful interaction and foster their socialisation into the target language and culture.

#### **7.4. Future studies**

Future studies enquiring about emotion perception and bilingualism should use a mixed methods approach to provide evidence of the beneficial effects of bilingualism and multilingualism on the ability to identify emotions across different linguistic and cultural contexts. Furthermore, future research should ideally involve more qualitative studies in order to investigate the difficulties that bilinguals and multilinguals face in interpreting emotions in their various languages and cultures. More qualitative studies are also needed to investigate the emotional channels used to interpret emotions across different languages and cultures from multilinguals' perspectives.

The present study verified the assumption that bilinguals' awareness of emotional expressions in both languages might positively develop their emotion perception. Future studies could utilise open-ended questions to describe the emotional expressions in the stimuli, instead of presenting a forced choice of emotion labels, and compare multilinguals' emotional vocabulary in their multiple languages. By using open-ended questions, it might be possible to investigate the impact of familiarity with more emotion words and emotion-laden words on emotion perception. Therefore, participants in future studies might be asked to describe the emotional experiences in the stimuli using their own emotional vocabulary, which can then be compared to the emotional vocabulary of monolinguals. In other words, using open-ended questions or actual language production tasks to describe emotion experiences in the stimuli could also provide insights into the emotional instances multilinguals construct in their multiple languages, as well as the richness of their emotional vocabulary.

The present study tested the assumption that bilinguals might surpass monolinguals in emotion perception skills. Other longitudinal studies could focus on the development of those skills over time of L2 learning. Future studies, moreover, should explore the influence of multilinguals' emotion identification on the degree of their adjustment into their LX cultures. They could also investigate the effect of the length of stay in LX environments on multilinguals' ability to construct emotional instances in their multiple languages. The findings

of this study also demonstrated that bilinguals' emotion perception scores regarding negative emotions in the L1 were high; however, only four negative emotions (*anger, fear, sadness, and disgust*) were assessed in this study. Therefore, future studies could investigate how bi- and multilinguals perceive other negative emotions (e.g. *guilt, frustration, despair, hate, and shame*) in their various languages.

Further research could adopt a longitudinal design where the interaction between TEI and linguistic proficiency could be tested thoroughly on the emotion perception of L2 users upon arrival in ESCs and again at the end of their stay. Further work is also needed to investigate the interaction of language proficiency and TEI on the emotion perception of monolinguals from different linguistic/cultural backgrounds, as this study only provided evidence for this interaction for English L1 users. Finally, there is abundant room for further investigation of the effects of other personality traits such as extraversion, openness, and neuroticism on emotion perception across different languages and cultures, as this study examined the effect of only one personality trait (TEI) on the emotion perception of bilingual and monolingual individuals.

## List of Abbreviations

AOA: Age of Onset of Acquisition  
BA: Bilingual Advantage  
BII: Bicultural Identity Integration  
BIOS: Bicultural Identity Orientation Scale  
CA: Communicative Anxiety  
EI: Emotional Intelligence  
EP: Emotion Perception  
EPQ: Emotional Patterns Questionnaire  
EPT: Emotional Perception Task  
ERA: Emotion Recognition Ability  
ESCs: English-Speaking Countries  
FLA: Foreign Language Anxiety  
L1 (s): First Language(s)  
L2 (s): Second Language(s)  
LEXTALE: Lexical Test for Advanced Learners of English  
LX(s): Foreign Languages(s)  
M: Mean score  
Mdn: Median score  
SD: Standard Deviation  
SLA: Second Language Acquisition  
TEI: Trait Emotional Intelligence  
TEIQue: Trait Emotional intelligence Questionnaire-Short Form  
UG: Universal Grammar  
UK: United Kingdom  
USA: United States of America

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## Appendix A: The transcription of the stimuli used in this study

### English videos:

#### 1. *Fear*: <https://youtu.be/tAhklACJ0oM>

A: So, Hilary, are you still trying to be a teacher?

B: Yeah, I am. Yes. Well, you know I had not got very well, and I did the whole year, but I didn't get credits. I did not get enough credits to carry on the next year. Well, thankfully, they can let me do it, but I've to pass this term.

A: You mean to....

B; I do. I have to, and if I don't then that's it. And I won't be a teacher. I'll not get a job, obviously in the career that I want happen for me, and my family will really be upset because, well.... I have to borrow some much money. As you know...

A: Are they from your dad?

B: Yeah, it's about 20 thousand pounds all together, and if I don't pass it, then, well, it's going for nothing, isn't it?

#### 2. *Happiness*: <https://youtu.be/aKRXHB-C9UI>

B: Did you hear about the job Gwilum?

A: Yes, I did, and I got it.

B: Ooh. Brilliant.

A: I got thirty-thousand pounds start in salary.

B: No!

A: Yeah, and it's just great...I get a pension. It's really, really good.

B: When did you start?

A: I started in 2 weeks, 2 Mondays start.

#### 3. *Disgust*: <https://youtu.be/PfRS6lgXQGo>

B: So, did you go around James?

A: Yeah. God!... His house. It ..yeah.. I mean yes, his food, his plates were in the washing-up for about two weeks.

B: Oh, God!

A: It was overhead. His dog and the hairs were all over the sofa and rug. I didn't know where to sit. I wanted to get out of there as soon as I could. I really did.

B: Mmmm.

4. **Sadness:** <https://youtu.be/QuggadJrOCs>

B: Did you get here aright Gwilum?

A: Oh, Yeah. I was in the bus stop, and it was near the tube station, and there was in a disabled boy.

B: Mmm

A: With that two crutches.

B: Ohhh.

A: Yeah. He's really struggling...to get out of the stairs.

B: Oh. no.

A: No one was helping him. I didn't know. You know I wanted to be in the bus quite quickly, but I would've helped him if he's still, you know trying to get out of the stairs because he's really struggling....

B: Ummm

A: It's not easy to watch him.

B: I think someone would help.

5. **Anger:** <https://youtu.be/YZRwQFobtzc>

B: So, what did happen last night?

A: It didn't happen. Lisa didn't turn up.

B: She didn't turn up!!

A: She didn't turn up. She never texted me. She didn't tell me. That's three hours of cooking plus shopping plus 50 equipment of food. She didn't turn up. What kind of a person does that?

B: What did she text?

A: She didn't even text. She still hasn't texted till now. What kind of a person does that?!!

B: It's really really....

A: So, I wasted time, money, shopping. I can't believe it. Aright.... I can't believe it.

6. **Surprise:** <https://youtu.be/rMkKZmxXgz4>

B: Well. I went to James' party last night.

A: Yeah.

B: Yub, and you'd never guess who was there?

A: Who's there?

B: Enn.

A: Enn Johns. No way. I've not seen him... Enn Johns was there!!

B: He was.

A: I've not seen him for 10 years. Is he still with Sally?

B: Well. They split up actually.

A: Oh, really. I can't believe they split up.

B: Yeah. He's alone.

A: Oh my God. I can't believe that.

### **Arabic Videos (English translation of the transcripts):**

#### **1. *Anger:* <https://youtu.be/sYqjlRAdVco>**

B: How was the exam today?

A: Oh. Please, brother don't remind me. It was very bad. I will fail. I am 100% sure. I will definitely study it again in the next year. There is no hope. You know, the teacher gave us only two questions out of 100, each one is out of 50 marks.

B: Did you study hard?

A: I did, but I can't believe it is a final exam with only two questions.

B: Yeah. it's unbelievable to have only 2 questions.

A: Yeah, but this is his method in exams. What can I do now?

#### **2. *Disgust:* <https://youtu.be/AsS6yVUcleg>**

B: How was the lunch today?

A: Oh, God honors graces.

B: What happened?

A: Oh, all the food contained pork meat, and I did not like the smell.

B: I seek refuge with Allah from this.

A: And the smell. It was awful. I seek refuge with Allah from the cursed Satan. And you know, the problem was that they eat all the time, and once upon time, I entered a room and I wanted to get out of there because of the bad smell.

3. **Surprise:** [https://youtu.be/6zEgKjk\\_aW4](https://youtu.be/6zEgKjk_aW4)

B: Can you believe that I have been accepted in the university.

A: Mashallah, congratulations. Is it for a master's?

B: Yeah. Thank Allah.

A: In which university?

B: In Reading.

A: Mashallah, is it in media?

B: Yeah in media.

A: Mashallah. And is it full time or part time?

B: Full time.

A: Uh. so that means only one year.

B: Yeah.

4. **Happiness:** <https://youtu.be/8xg8hmJRd38>

B: By Allah. A dream has come true for me. You know I was waiting to study media.

A: Mashallah.

B: This is, you know, a hobby before it is a desire to study it.

A: Now, it has become your specialization.

B: Yes. It is both a hobby and a desire to study. They complement each other. A praise be to Allah.

A: How do you feel?

B: I feel comfortable.

A: Do you feel like as if you connected to your lover, hhh

B: Yeah. hhh

1. **Sadness:** <https://youtu.be/BWG1Zlrxgwx>

B: How are you AbdullRahman?

A: Praise be to Allah, everything will be fine.

B: Why? What did happen?

A: Today, I had a very difficult situation. I went to the hospital with my son because he was not feeling well. There I faced a difficult situation. When I was in the hospital, I saw a man crying so badly. And

when I asked him, he told me that his father died. And he also told me that his father was angry with him before he died. At that time, I did not know what to say to him.

5. **Fear:** <https://youtu.be/Vi6YnWeAyEs>

B: Why have you not bought a car yet?

A: Please don't ask me to buy a car I can imagine doing anything except driving a car

B: Why?!

A: I have a problem with driving since the accident that had happened for my best friend. You know I did not know what happened to me. So, I cannot imagine that. I cannot drive the car anymore. If I do, I think I would have an accident.

## Appendix B: The online questionnaire

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Name of researcher: Nada Alqarni

This study is being done as part of my PhD degree in the Department of Applied Linguistics and Communication, Birkbeck, University of London. The study has received ethical approval. This study focuses on judging emotions in Arabic and English.

You are free to withdraw at any time. Your data will be kept anonymous and will be stored by the researcher for the purpose of the research. You will not be identifiable in the write up or any publication which might ensue.

The study is supervised by Prof. Jean-Marc Dewaele who may be contacted at the above address and telephone number.

I really appreciate your participation in my survey,

Thank you!

If you agree to participate in the survey, please click the box below: \*

Agree

### Background Information:

Please answer all of the following questions by choosing the correct answers as they best describe you. All information will be kept confidential and anonymous:

#### Gender \*

- Male
- Female
- Prefer not to say

#### Age: \*

#### Education Level: \*

#### Nationality \*

#### Your ethnic group/background do you belong to or most identify with: \*

#### Your native language (your first language from birth): \*

- Arabic
- English
- Other - Write In (Required)

**Your second language that you learned/acquired after your first language: \***

Arabic  
 English  
 Other - Write In (Required)

---

**Age at which you have started learning/acquiring your second language (L2): \***

---

**Context of your second language acquisition/learning: \***

Naturally (authentic use outside the classroom)  
 Formal (inside the classroom)  
 Naturally and formal

---

**How often do you use Arabic language at home: \***

Not at all       2       3       4       All the time

---

**How often do you use English language at home: \***

Not at all       2       3       4       All the time

---

**How often do you use other languages at home: \***

Not at all       2       3       4       All the time

---

**Do you speak other languages(other than your first and second language(s)), if yes, please specify: \***

No  
 Other - Write In (Required)

---

**How many years have you been in English-speaking countries: \***

---

**Country of residence now: \***

**Your English proficiency:**

This test consists of about 60 trials, in each of which you will see a string of letters. Your task is to decide whether this is an existing English word or not. If you think it is an existing English word, you click on "yes", and if you think it is not an existing English word, you click on "no". If you are sure that the word exists, even though you don't know its exact meaning, you may still respond "yes". But if you are not sure if it is an existing word, you should respond "no". In this experiment, we use British English rather than American English spelling. For example: "realise" instead of "realize"; "colour" instead of "color", and so on. Please don't let this confuse you. This experiment is not about detecting such subtle spelling differences anyway. You have as much time as you like for each decision. This part of the experiment will take about 5 minutes.

	Item	Yes	No		Item	Yes	No
0	Platery			30	Skave		

0	Denial			31	Plaintively		
0	Generic			32	Kilp		
1	Mensible			33	Interfate		
2	Scornful			34	Hasty		
3	stoutly			35	Lengthy		
4	Ablaze			36	Fray		
5	Kermshaw			37	Crumper		
6	Moonlit			38	Upkeep		
7	lofty			39	Majestic		
8	hurricane			40	Magrity		
9	flaw			41	Nourishment		
10	alberation			42	Abergly		
11	unkempt			43	Proom		
12	breeding			44	Turmoil		
13	festivity			45	Carbohydrate		
14	screech			46	Scholar		
15	savoury			47	Turtle		
16	plaudate			48	Fellick		
17	shin			49	Destription		
18	fluid			50	Cylinder		
19	spaunch			51	Censorship		
20	allied			52	Celestial		
21	slain			53	rascal		
22	Recipient			54	Purrage		
23	Exprate			55	Pulsh		
24	Eloquence			56	Muddy		
25	Cleanliness			57	Quirly		
26	Dispatch			58	Pudour		
27	rebondicate			59	Listless		
28	Ingenious			60	Wrought		
29	bewitch						

## Emotion Perception Task:

In a few seconds, you will be watching a series of short conversations between two speakers and making some judgments based upon what you see and hear. Each video that you watch will be a person speaking to his/her friend (in either Arabic or English) expressing one of seven emotions.

(If you do not understand the language in the video, please try to guess the emotion based on non-verbal cues such as facial expressions, body gestures and voice):

In a few seconds you will be watching a series of short conversations between two speakers and making some judgments based upon what you see and hear. Each video that you watch will be a person speaking to his/her friend (in either Arabic or English) expressing one of seven emotions:

Please click the number in each scale that reflects the existence of the emotional state ( from (1)Absolutely Not...to (7) Absolutely Yes) expressed by the speaker on **the left side**:



Sadness	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7 <input type="radio"/>
Anger	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7 <input type="radio"/>
Happiness	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7 <input type="radio"/>
Disgust	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7 <input type="radio"/>
Surprise	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7 <input type="radio"/>
Fear	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7 <input type="radio"/>
Neutral Emotion	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>	6 <input type="radio"/>	7 <input type="radio"/>

Please, click the number that reflects the perceived intensity (strength) of the emotion?

1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	5 <input type="radio"/>
----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

## Your Personality:

Please answer each statement below by clicking the number that best reflects your degree of agreement or disagreement with that statement. Do not think too long about the exact meaning of the statements. Work quickly and try to answer as accurately as possible. There are no right or wrong answers.

Strongly Disagree	2	3	4	5	6	Strongly Agree
<input type="radio"/>						

Expressing my emotions with words is not a problem for me.

I often find it difficult to see things from another person's viewpoint.

I usually find it difficult to regulate my emotions.

I generally don't find life enjoyable.

I can deal effectively with people.

I tend to change my friends frequently.

Many times, I can't figure out what emotion I'm feeling.

I feel that I have a number of good qualities.

I often find it difficult to stand up for my rights.

I'm usually able to influence the way other people feel.

On the whole, I have a gloomy perspective on most things.

Those close to me often complain that I don't treat them right.

I often find it difficult to adjust my life according to the circumstances.

On the whole, I'm able to deal with stress.

I often find it difficult to show my affection to those close to me.

I'm normally able to "get into someone's shoes" and experience their emotions.

I normally find it difficult to keep myself motivated.

I'm usually able to find ways to control my emotions when I want to.

On the whole, I'm pleased with my life.

I would describe myself as a good negotiator.

I tend to get involved in things I later wish I could get out of.

I often pause and think about my feelings.

I believe I'm full of personal strengths.

I tend to "back down" even if I know I'm right.

I don't seem to have any power at all over other people's feelings.

I generally believe that things will work out fine in my life.

I find it difficult to bond well even with those close to me.

Generally, I'm able to adapt to new environments.

Others admire me for being relaxed.

**About your cultural identity:**

This scale will collect information about your cultural identity (i.e. the culture(s) you feel you belong to; the culture(s) you share your beliefs and values with. Please read the statements and click on the number that represents your answer. Try to answer as accurately as possible. There are no right or wrong statements.

Strongly Disagree	2	3	4	5	6	Strongly Agree
0	0	0	0	0	0	0

There is a conflict within myself between the two cultures I belong to (Arabic and British).

I feel one cannot feel both Arabic and British at the same time.

Sometimes I am confused about my cultural identity.

My cultural identity varies depending on whom I am with.

My ethnic identity (Arabic) is compatible with the mainstream culture (British).

I feel my identity is a hybrid of two cultures (Arabic and British).

I feel it is hard to belong to two cultural groups.

I adjust my cultural identity depending on whether I am with people from my country or from different countries (e.g. the United Kingdom).

Although they are different, the two cultural identities go well together.

I have difficulty reconciling the difference between my Arabic culture and the British culture.

I feel my identity is a mix of the two cultures (Arabic and British).

I adapt my cultural identity according to the circumstances.

I feel one has to make decision of choosing a particular culture over the other (either Arabic or British).

Most of my friends see me as belonging to both the Arabic culture and British culture.

I feel one should be loyal to only one cultural group.

My Arabic and British cultural identities are in harmony.

If I were to describe the relationship between two cultures within myself, I'd depict them as integrated.

I often find myself switching between cultures in different situations.

My Arabic identity pairs nicely with my British cultural identity.

I feel that I must decide which of the two cultures is more central to my identity.

I would like to thank you again for your participation. If you enjoyed the survey, you are welcome for a follow-up interview.

Email. nalqar01@mail.bbk.ac.uk

## Appendix C: Interview Protocol

### *Consent form*



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### **PARTICIPANT DECLARATION**

- I have been informed about the nature of this interview and willingly consent to take part in it.
- I understand that data from this interview will remain anonymous and I will not be identifiable in the write-up of the data nor in any publication that may ensue.
- I understand that I may request to terminate the interview at any time.
- I understand that the interview will be recorded and that the recording will be destroyed as soon as it has been transcribed.
- I am over 16 years of age.

### **Interview Guiding Questions:**

- Have you ever experienced misunderstanding the emotional states of others? Why?
- What are the channels (e.g. facial expressions, hand movements, body posture) or cues of emotional expressions you pay your attention to when communicating with English speakers to guess their emotional states? Why?
- What are the emotional behaviors or signs that help you guess emotional states of other people? Can you give examples.
- Do you think you need to focus on verbal (i.e. linguistic contents) or non-verbal cues (facial expressions, voices and hand gestures) to estimate the emotions of your interlocutors? Can you

give examples.

- Is it more difficult to read/understand the emotions of people from different linguistic and cultural backgrounds? If so why?
- Which do you find most difficult to perceive or interpret: positive (such as happiness and surprise) or negative emotions (such as anger, sadness, fear, or disgust)? Why?
- Describe a situation where you had difficulties in understanding emotions of others? How did you handle it?
- Tell me about a time when you misread the emotions of others? How did you react?
- Do you find it easier to interpret or understand the emotions of people belonging to your Saudi culture? Or people belonging to other cultural backgrounds, for example English people? Why?
  - can you remember a situation?
  - What do you think the differences between the two situations?
- Can you tell me about the differences you have realized between the ways Arabs and other cultures use to express their emotions?
- How long have you been in the UK? Have you been to other ESCs (such as the United States, Canada, or Australia) before?
- Do you think that your residence/stay in the UK or in the USA has influenced your ability to perceive and identify emotions of others? Why and how?
- Can you think of factors that may determine how people express their emotions?
- Do you think people differ in the way they express their emotions? How?

## Appendix E: Figures and Tables

### EP (mean scores) and the perceived emotional intensity of emotions:

**Report (EP mean scores based on education levels)**

Education Levels		EP in Arabic	EP in English
High school	Mean	4.2089	5.0845
	N	138	138
	Std. Deviation	1.33456	1.23106
Undergraduate	Mean	4.5529	5.0927
	N	277	277
	Std. Deviation	1.41756	1.28154
Master	Mean	4.9928	5.2826
	N	115	115
	Std. Deviation	1.32203	1.41407
PhD	Mean	5.1950	5.5035
	N	47	47
	Std. Deviation	1.34205	1.15600
Other	Mean	3.9688	5.1198
	N	32	32
	Std. Deviation	1.00129	1.01356
Total	Mean	4.5769	5.1598
	N	609	609
	Std. Deviation	1.39331	1.27705

**Report/ EP in English**

Monolinguals & Bilinguals		Anger	Fear	Sadness	Disgust	Surprise	Happiness
Arabic monolinguals	Mean	4.75	2.55	3.90	5.75	4.97	6.03
	N	71	71	71	71	71	71
	Std. Deviation	2.260	2.103	2.288	2.054	2.084	1.715
English Monolinguals	Mean	5.03	3.89	4.58	5.36	5.28	5.95
	N	333	333	333	333	333	333
	Std. Deviation	1.802	1.823	1.828	1.809	1.675	1.247
Bilinguals	Mean	5.82	4.23	4.88	6.13	5.91	6.41
	N	205	205	205	205	205	205
	Std. Deviation	1.825	2.278	2.175	1.649	1.717	1.141
Total	Mean	5.26	3.85	4.60	5.67	5.46	6.12
	N	609	609	609	609	609	609
	Std. Deviation	1.909	2.077	2.024	1.819	1.770	1.292

**Report EP in Arabic**

Monolinguals & Bilinguals		Anger	Fear	Sadness	Disgust	Surprise	Happiness
Arabic monolinguals	Mean	5.27	5.20	5.04	5.92	3.99	5.77
	N	71	71	71	71	71	71
	Std. Deviation	2.280	2.315	2.283	1.940	2.357	1.861
English Monolinguals	Mean	4.09	2.24	3.66	3.98	4.32	4.47
	N	333	333	333	333	333	333
	Std. Deviation	1.647	1.568	1.784	1.679	1.661	1.629
Bilinguals	Mean	5.95	5.42	5.51	6.42	4.71	5.80
	N	205	205	205	205	205	205
	Std. Deviation	1.538	2.086	1.947	1.268	1.971	1.576
Total	Mean	4.85	3.66	4.44	5.03	4.41	5.07
	N	609	609	609	609	609	609
	Std. Deviation	1.900	2.418	2.091	1.965	1.872	1.765

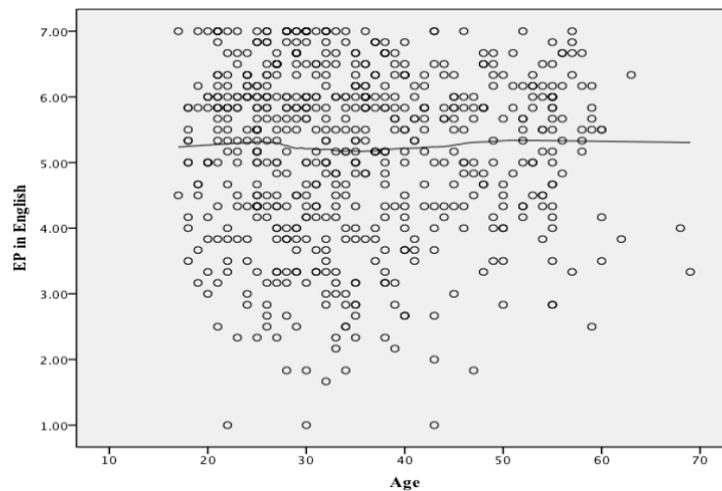
**Report Intensity of emotions in Arabic**

Monolinguals & Bilinguals		Anger	Fear	Sadness	Disgust	Surprise	Happiness
Arabic monolinguals	Mean	3.45	3.35	3.32	3.38	3.82	3.21
	N	71	71	71	71	71	71
	Std. Deviation	1.307	1.364	1.296	1.428	1.302	1.393
English Monolinguals	Mean	3.37	3.31	3.16	3.04	3.64	3.06
	N	333	333	333	333	333	333
	Std. Deviation	.931	.980	.954	.901	.906	1.000
Bilinguals	Mean	3.93	3.85	3.74	3.96	3.90	3.25
	N	205	205	205	205	205	205
	Std. Deviation	1.062	1.160	1.115	1.177	.992	1.296
Total	Mean	3.57	3.50	3.37	3.39	3.75	3.14
	N	609	609	609	609	609	609
	Std. Deviation	1.056	1.120	1.085	1.149	.994	1.158

**Report/ Intensity of English emotions**

Monolinguals8Bilinguals		Intensity of Anger (E)	Intensity of Fear (E)	Intensity of Sadness (E)	Intensity of Disgust (E)	Intensity of Surprise (E)	Intensity of Happiness (E)
Arabic monolinguals	Mean	3.28	2.96	2.97	3.68	3.28	4.00
	N	71	71	71	71	71	71
	Std. Deviation	1.221	1.325	1.230	1.412	1.267	1.265
English Monolinguals	Mean	4.09	3.53	3.23	3.66	3.65	3.93
	N	333	333	333	333	333	333
	Std. Deviation	1.046	.876	.936	.967	.925	.904
Bilinguals	Mean	4.05	3.52	3.15	3.92	3.71	4.08
	N	205	205	205	205	205	205
	Std. Deviation	1.067	1.110	1.143	1.126	1.076	.952
Total	Mean	3.98	3.46	3.17	3.75	3.63	3.99
	N	609	609	609	609	609	609
	Std. Deviation	1.103	1.033	1.047	1.086	1.028	.969

**Correlation between age and EP in English:**

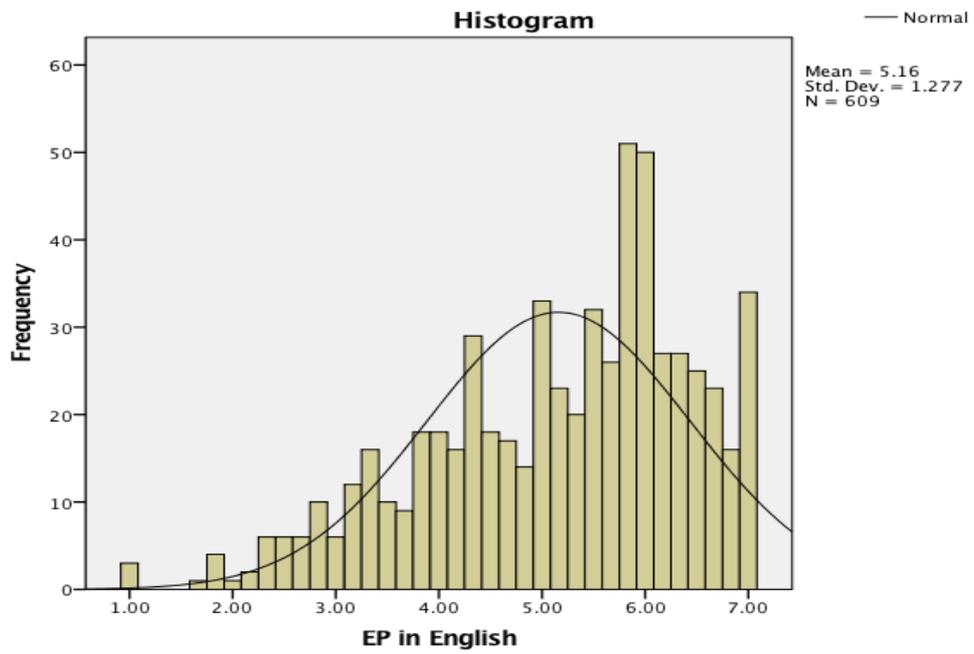
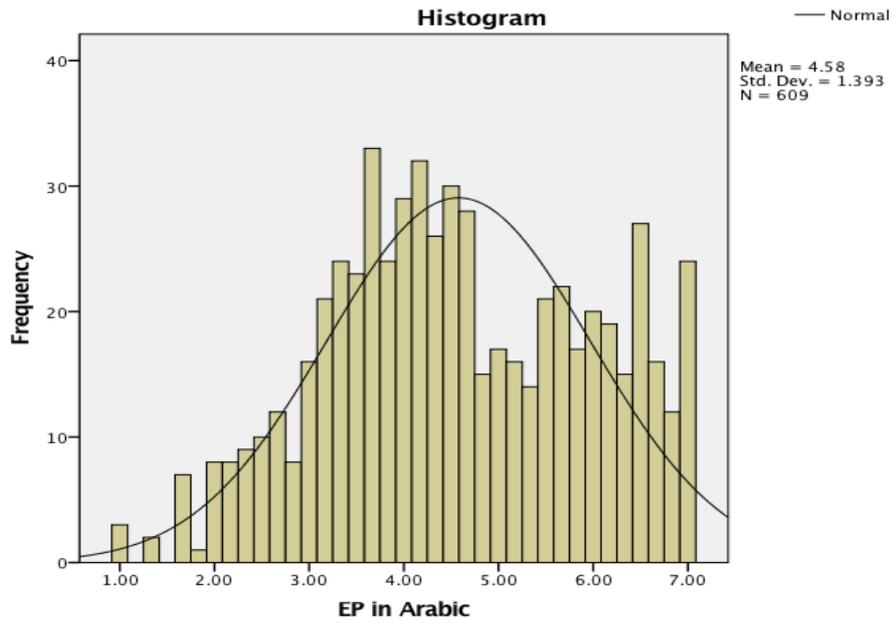


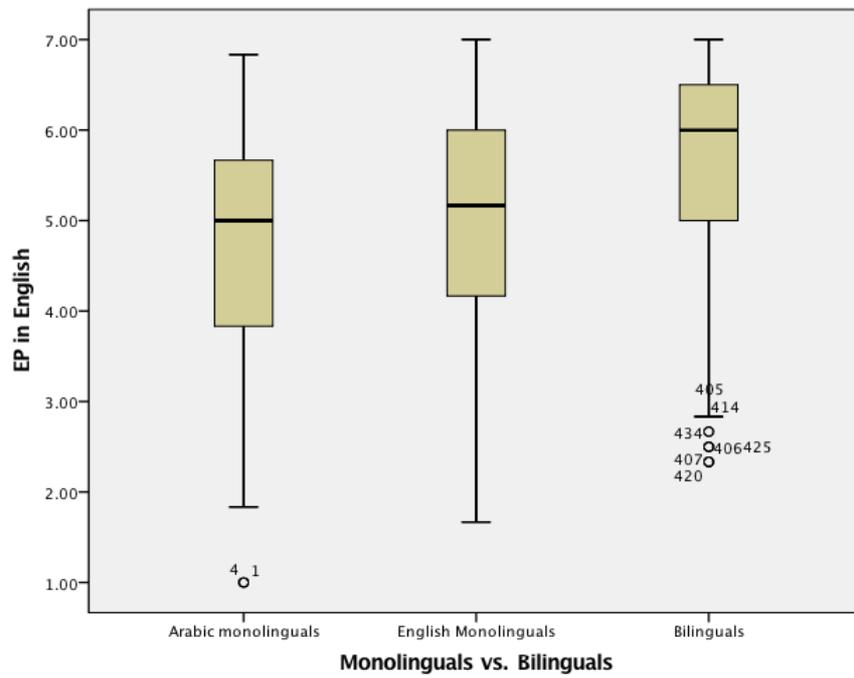
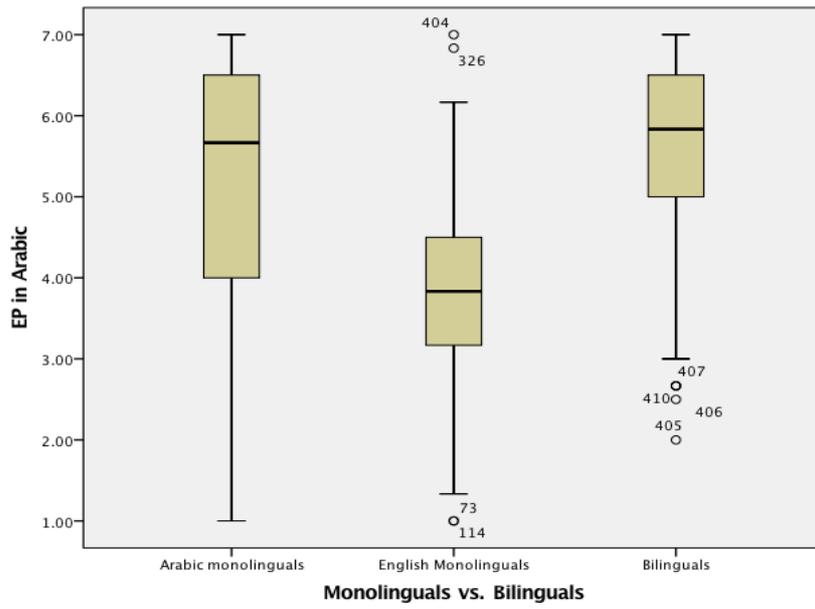
**Tests of normality:**

**Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EP in Arabic	.065	609	.000	.976	609	.000
EP in English	.116	609	.000	.950	609	.000

a. Lilliefors Significance Correction





**Tests of Reliability: (Cronbach's Alpha Values)**

**Item-Total Statistics/ EP in Arabic**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Anger	22.61	49.495	.627	.401	.727
Fear	23.81	45.301	.576	.366	.740
Sadness	23.02	47.986	.605	.393	.731
Disgust	22.43	49.762	.587	.363	.736
Surprise	23.05	57.841	.300	.105	.800
Happiness	22.39	53.472	.515	.272	.755

**Reliability Statistics/EP in Arabic**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.783	.783	6

**Item-Total Statistics/EP in English**

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Anger	25.08	35.262	.719	.564	.743
Fear	26.21	43.191	.308	.108	.838
Sadness	25.53	37.883	.563	.362	.781
Disgust	24.74	36.036	.671	.485	.755
Surprise	24.82	37.917	.639	.482	.764
Happiness	24.15	42.839	.582	.393	.783

**Reliability Statistics/ EP in English**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.809	.815	6