Universidade de Aveiro
Ano 2021

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EMOTIONAL PROCESSING AND ACCULTURATION: ASSESSING AFFECTIVE DIMENSIONS OF NATIVE CHINESE SPEAKERS WHEN EXPOSED TO AUDIO STIMULI

PROCESSAMENTO EMOCIONAL E ACULTURAÇÃO: AVALIANDO DIMENSÕES AFETIVAS DE NATIVOS DO CHINÊS QUANDO EXPOSTOS A ESTÍMULOS AUDITIVOS

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Dissertação apresentada à Universidade de Aveiro para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Estudos Chineses, realizada sob a orientação científica do Doutor Álvaro Augusto da Rosa, Professor Associado (com Agregação) do Instituto Universitário de Lisboa, e da Doutora Catarina Pires da Rosa, Investigadora do Departamento de Educação e Psicologia da Universidade de Aveiro

o júri

presidente

Prof. Doutor Carlos José de Oliveira e Silva Rodrigues
professor associado da Universidade de Aveiro

Doutora Ana Cristina Ferreira de Almeida Rodrigues Alves
investigadora do Centro Científico e Cultural de Macau, I.P.

Doutora Catarina Pires da Rosa
investigadora doutorada (nível 1) da Universidade de Aveiro

agradecimentos

First of all, I wish to thank all of those who took some of their time to participate in this study in these hectic times. Truly, this work could not have been accomplished without you.
I also wish to thank my colleagues, Si Chen and Wu Bangda, for their availability and help during the early stages of this work. I would particularly like to express my thanks and appreciation to my colleague Sun Ruirui, who further helped me with translations and relevant advice.
To my colleague Shi Hao, president of the Association of Chinese Students in Portugal, who greatly helped to spread the information about my study, therefore helping me to recruit a significant number of participants.
To the multiple teachers who helped me, my most sincere thanks, specifically: Professor Carlos Rodrigues, for his interest and for giving me suggestions of people who might help me at the early stages of conception of this work; Professor Carlos Silva, who further had some ideas as to how I could develop my (at the time) very generic idea, and who guided me towards my now co-supervisor; Professor Carlos Morais, who spent some time meeting with me and indicated some individuals who might collaborate with me; Professor Luís Jesus, for his help, availability, and advice during the recording of the stimuli used in this study; and Professors Ana Margarida Ramos, Paulo Pereira, António Ferreira, and Wang Suoying, Dr. Emília Oliveira, and Master Jéssica Silva, who kindly allowed me to expose my study to their students during their classes and further motivated me.
To my supervisor, Professor Álvaro Rosa, for his help in spreading the information about this study, contacting relevant individuals, and in providing conditions for some of the data collection. Without a secondary location for data collection, this work would have been a lot poorer.
And, last but definitely not least, a huge thanks to my co-supervisor, Dr. Catarina Rosa, and to her colleague, Dr. Pedro Bem-Haja. Without their constant help, advice, work, and encouragement, this work would not be the same.

palavras-chave

Valência, activação, aculturação, China, Portugal, mandarim, português, palavras faladas, emocionalidade.

resumo

Este trabalho pretendeu explorar como é que a emocionalidade dos chineses é afectada num ambiente intercultural. Mais especificamente, analisou como é que indivíduos chineses expostos à língua e cultura portuguesas entendem emocionalidade no discurso. Foi desenvolvida uma experiência para melhor compreender se existe uma predominância de conteúdo ou prosódia no processamento emocional. A partir de uma base de dados de palavras faladas em português (ANEW- EP Audition database), foram selecionadas 10 palavras negativas (valência baixa e activação elevada), 10 palavras positivas (valência e activação elevadas) e 10 palavras neutras (valência e activação médias) por um grupo de três chineses nativos. Este conjunto de 30 palavras foi gravado por uma voz masculina e uma voz feminina de falantes nativos da língua chinesa proficientes em português, com a prosódia emocional correspondente. Uma amostra de 23 falantes nativos de chinês com diferentes níveis de proficiência de português avaliou a valência afectiva e a activação fisiológica deste conjunto de 30 palavras, mas em diferentes condições: a) em português falado por nativos, em português falado por indivíduos chineses proficientes na língua, mas nos quais o português não é a língua dominante; e em chinês mandarim, falado por nativos. Os resultados mostram um forte efeito do tempo de aprendizagem da língua portuguesa na compreensão da emocionalidade no discurso em português, com os níveis de valência e activação assemelhando-se aos níveis das palavras ditas em chinês. Adicionalmente, os resultados indicam também uma predominância da prosódia sobre o conteúdo na percepção de emocionalidade no discurso, corroborando a literatura na área.

keywords

Valence, arousal, acculturation, China, Portugal, Mandarin, Portuguese, spoken words, emotionality.

abstract

This work intends to explore how the emotionality of Chinese people is affected in an intercultural environment. More specifically, it analyses how Chinese people who were exposed to Portuguese language and culture understand emotionality in speech. It was developed an experiment to comprehend if there is a predominance of content or prosody in emotional processing. From a database of spoken words in Portuguese (ANEW-EP Audition database), 10 negative (low valence and high arousal), 10 positive (high valence and arousal), and 10 neutral (medium valence and arousal) words were selected by a group of three native Chinese individuals. This set of 30 words was recorded by a male voice and a female voice of native speakers of Chinese proficient in Portuguese, with the corresponding emotional prosody. A sample of 23 native Chinese speakers with different levels of proficiency in Portuguese evaluated the affective valence and physiological arousal of this set of 30 words, but in different conditions: a) in Portuguese spoken by native speakers, in Portuguese spoken by Chinese individuals proficient in the language, but whose Portuguese is not the dominant language; and in Mandarin Chinese spoken by native speakers. The results show an overwhelming effect of time of learning of Portuguese language in the understanding of emotionality in speech in Portuguese, with the valence and arousal levels of the words resembling the ones said in Chinese. Furthermore, the results also indicate a predominance of prosody over content in the perception of emotionality in speech, further corroborating the literature on the subject.

Contents

1. Introduction

The Chinese and Portuguese cultures, societies and languages are very different from one another. Departing from these differences, this work intended to investigate how people capture emotionality in speech – is there a dominance or prioritization of content vs. prosody? Emotional prosody includes elements of speech such as pitch, intensity, and speech rate (duration, speed and pauses), that convey distinct meaning(s) from linguistic or semantic information (Besson et al., 2002). More specifically, we would like to explore if the accuracy of the emotional perception is influenced by the time one is exposed to a different language and culture. The fact that the author is Portuguese, and that this work is being developed in a Portuguese university, to complete the master's degree in Chinese Studies (Mestrado em Estudos Chineses), guided the decision of the languages to compare.

2. Culture – Definition, Origins, and Influences on Perception

2.1 Definition of "Culture"

It can be remarkably hard to define "culture", existing numerous definitions and approaches (Spencer-Oatey & Franklin, 2009), of which some are considered outdated, while others – or particular aspects of some – remain important contributions to the definition (Matsumoto & Juang, 2004, pp. 9-10; Triandis, 1994, p. 16). In some scientific areas (like cognitive psychology), culture is defined as a collection of knowledge that only humans obtained through history; in others (like cultural psychology), culture can be defined as narratives, meaning systems, thought systems, visions of the world (or cultural epistemologies), communication styles, or self-images (Imai et al., 2016). For the purposes of this work, culture will be understood as a specific and dynamic set of thoughts, experiences, attitudes, patterns of behaviour (or standard operating procedures, or ways of doing things so internalised that people do not argue about them), concepts, values, and beliefs (or unstated assumptions about life) that guide behaviour, and how these elements/dimensions evolve by themselves and in contact with other cultures. This set of characteristics emerges in adaptive interactions and comprises symbolic systems that create webs of meaning, with its complexity arising from the communication and intermingling of people with different origins, identities, and allegiances, and from the interplay of the past (both real and imagined), the perceived present, and the future (whether probable or fantasised). This set is relatively stable, despite having the potential to change across time. These features must be shared by a determined group of people, large enough so that these features are transmitted through generations in a social process, since birth (through family, school, or others), and which includes members who consciously identify with the group. This set of attributes is not, however, harboured exactly in the same way by each specific unit within a certain group, existing individual differences in adherence or conformity to them (Jandt, 2004; Johnson, 2000; Matsumoto & Juang, 2004a; Spencer-Oatey & Franklin, 2009; Triandis, 1994).

2.2. Enculturation

The process of acquiring one's own culture during babyhood and youth is denominated "enculturation". It is the process through which one learns and adopts the subjective, underlying aspects and ways of their own culture, internalizing them during development (Matsumoto & Juang, 2004e). Human cognition, a central element also in the acculturation process, has some idiosyncrasies. It is developed phylogenetically, historically, and ontogenetically (Tomasello, 1999a, 2000a).

Phylogenetically, genetic and natural selection events caused a cognitive adaptation that enabled human individuals to understand other members of the species as intentional beings and mental agents (Herrmann et al., 2007; Kenrick et al., 2010; Povinelli et al., 2000; Rai, 2016; Tomasello, 1999c; Tomasello & Herrmann, 2010; Tomasello & Rakoczy, 2003). The subsequent

cultural evolution depends on innovation and imitation occurring in a dialectic process through time, in such a way that one step enables the next, accumulating modifications in an irreversible way. This process is thus called "ratchet effect" (Riegler, 2001; Tennie et al., 2009; Tomasello, 1999b, 2000b). It is a powerful way of collaborative inventiveness, having the potential for increasingly complexity (McElreath et al., 2018; Riegler, 2001; Tennie et al., 2009; Tomasello, 1999b, 2000b). Historically, human beings gradually built cultural artefacts and behavioural traditions that accumulated modifications over time. Throughout generations, this new form of social cognition transformed the artefacts and primate cognitive abilities into uniquely human cultural learning and perceptive cognitive representation abilities (Tomasello, 1999a, 1999c, 2000b). Ontogenetically, children grow up involved in these artefacts and traditions, benefiting from the accumulated knowledge of their social group and thus acquiring perception-based cognitive representations in the shape of linguistic symbols, and internalising certain types of discursive interactions into metacognition, representational extrapolation, and dialogic reasoning abilities (Cole, 2008; Tomasello, 1999a, 2000b). The social component of enculturation is vital. So that they can use the cultural artefacts and symbols effectively, and participate in the social practices correctly, children must observe adult users, putting themselves in their position and copying them. In this way, children gradually learn how people use artefacts and how to make the correct practices in their culture, and what they are for (Cole, 2008; Herrmann et al., 2007; Tomasello, 1999e).

3. Acculturation – Definition, Participants, and Components

Cultures may evolve and change through extended contact with other cultures. Contact between different groups with different behaviours, traditions, meaning systems and practices has been happening since ever, being essential to cultural evolution through horizontal cultural transmission (Cole, 2008). These contacts can be varied in degree and in their components, and when they involve prolonged interaction between members of two or more cultures, they are denominated "acculturation" (Guarnaccia & Hausmann-Stabile, 2016; Schwartz et al., 2010).

Acculturation can then be defined as the first-hand meeting of different cultures in a sustained way, and includes the changes that consequently derive from that meeting (Sam & Berry, 2006; Ward & Lin, 2010). However, these changes are not uniquely tangible or evident (clothing, food or speech) – it can be considered that true acculturation is only attainable when one experiences the emotions characteristic of a certain culture, for cultures are ultimately characterized with regard to the emotional lives of their members (Averill, 2011, cited by Sundararajan, 2015, p.18).

Acculturation is more prominently studied in groups of individuals who live in countries or regions other than the ones in which they were born (such as refugees, migrants, and asylum seekers), who are assumed to move to their new location permanently. However, acculturation can happen in almost all intercultural contacts (Guarnaccia & Hausmann-Stabile, 2016; Schwartz et al., 2010). One way in which intercultural contact and exchange may happen is with the case of sojourners (people who relocate to a different country on a time-limited basis and for a specific purpose, intending to return to their country/region of origin afterwards, such as international students, seasonal workers, or executives sent abroad for professional reasons). In this case, despite the possibility of the individuals moving alone, without family or friends, there is the chance of a culture shock, which may originate acculturation (Schwartz et al., 2010).

Analysing the individuals encountering each other, the situations in which this happens, the locations where they meet and where they are from (considering such interactions are susceptible of generating acculturation – tourists are hardly acculturated, as they experience the local cultures too shallowly and too briefly) is important in evaluating the results of acculturation, as the history of each of the countries of origin, the relations between them, the

way they perceive each other and the members of other groups, and the individuals' life circumstances will influence the acculturation process, such as the willingness or the capacity to understand, learn, and use the different cultural values and practices (Guarnaccia & Hausmann-Stabile, 2016).

4. Emotion

4.1 Definition of "Emotion"

The scientific community will hardly reach a consensus for the definition of emotion. Most areas of study have their own definition of what constitutes an emotion. Moreover, different authors often have their own version for this concept, depending on the work they're developing (not to mention all the situations where a working definition is not even presented) (Dewaele, 2010; Izard, 2010; Mulligan & Scherer, 2012; Turner & Stets, 2005). Nonetheless, some elements of what constitutes an emotion have been recognized by different authors (Dewaele, 2010; Harré, 2009; Turner & Stets, 2005). First, emotions are socially constructed: cultural ideologies, beliefs and norms acting on social structures define what emotions are to be experienced, and how, when, and even where these emotions should be expressed – in this way, emotions influence and are influenced by the interactions in social structures ruled by cultural beliefs, values, and patterns of behaviour (Harré, 2009; Turner & Stets, 2005). Secondly, emotions always involve a biological component. There is a growing consensus that emotions arise from complex interactions of different areas of the brain and that differences in levels of neurotransmitters and hormones have influence over emotional processes (to mention some examples). This indicates that biology interacts with social and cultural forces, generating some effects on emotional responses (Dewaele, 2010; Izard, 2010; Turner & Stets, 2005). Thirdly, it's accepted by many authors that some level of cognition is involved in the creation and expression of emotions. Though there is not an agreement regarding whether biological responses are at the beginning or at the end of emotional responses, it's assumed that perception and thinking are involved in emotional processing, being needed some kind of judgement of the external world – events, objects, other beings – and/or of one's internal world – a memory, or an intention, for instance (even if it's only at a very basic, subconscious level) to form emotions (Cabanac, 2002; Harré, 2009; Turner & Stets, 2005). In short, emotions come to be due to the activation of some bodily systems and functions, which in their turn are usually derived from cognitive appraisals of oneself and/or the external world (constructed not only from objects, alive or otherwise, but also by social structures, norms and interactions) (Turner & Stets, 2005). This means emotions are, necessarily, a response to something or someone, and, as a response, they are temporary in essence (Cabanac, 2002; Izard, 2010; Mulligan & Scherer, 2012). As an output, emotions can include socio-communicative signals, such as physical or linguistic reactions (Dewaele, 2010; Izard, 2010), or even just personal bodily effects and sensations (Critchley & Garfinkel, 2017). They provide information to others and to the person experiencing them and may induce approach or avoidant behaviour (Izard, 2010). After being activated, these emotions are regulated by cognitive processes and the surrounding culture. In this way, emotions are constrained by situations, social structures, and culture, being at the same time at the base of the existence of these social constructs (Turner & Stets, 2005).

4.2 Dimensions of Emotion – Valence and Arousal

It is generally accepted that there are objects (such as concepts, memories, people, events, animals, things – that is, something external towards which a mental state is directed) which people find attractive, desirable, or valuable, and objects that induce an opposite reaction (Cabanac, 2002; Mulligan & Scherer, 2012; Russell, 2003). This attraction or avoidance is considered to be of hedonic value and is nowadays commonly referred to as valence

(Cabanac, 2002; Fontaine & Scherer, 2013; Mulligan & Scherer, 2012). Arousal is considered to be an energy factor, that is, the intensity of the excitement caused by a certain stimulus, being usually measured in a calm-agitated and/or a sleep-awake axis (Fontaine & Scherer, 2013; Russell, 2003). These two concepts, valence and arousal, are considered dimensions through which core affects are experienced. Core affects are described as neurophysiological states that are accessible through a very primary form of consciousness. They are simple and object-free, though they may become directed at objects through attribution (Russell, 2003). Valence and arousal are, therefore, commonly referred to as affective dimensions (Bradley & Lang, 1994; Fontaine & Scherer, 2013; Kanske & Kotz, 2012; Mulligan & Scherer, 2012; Russell, 2003; Soares et al., 2012).

5. Differences in Emotionality

5.1 Origins of the Diversity in Emotionality Across Cultures

There are differences in how individuals from different cultures package, name, express, perceive and feel emotion(s). Some aspects of emotions, as well as the ways of expressing them, are universal – however, there are pancultural and culture-specific elements as well (Matsumoto & Juang, 2004d). A person's socio-emotional development is affected by the social and cultural context in which that person is raised, through facilitating or suppression processes that train people to act differently in regard to their emotions. Cultural norms and values also provide guidance for social interpretation and evaluation of socio-emotional events, shaping people's behaviour into patterns (X. Chen, 2010; Murata et al., 2013). This is verified in all kinds of emotional experiences and in how one understands them (Markus & Kitayama, 1991; Matsumoto & Juang, 2004d).

Cultural differences account for differences in emotional behaviour more than temperament (being "temperament" here defined as the individual differences in emotional reactivity and emotional regulation, which appear in the first seven to nine months, and that stay fairly stable during the individual's life), and, to some extent, in differences in reported emotional experiences and in the way people narrate their emotionality (Tsai et al., 2006). The fact that different cultures differ in their emotionality is related to different attentional processes, some of which biological, some environmental, that allow individuals to socialise with their peers, being consequently guided by what others consider important to observe and to narrate, hence developing neurobiologically and socioemotionally to regulate, categorise, express, and understand emotion differently (Decety & Svetlova, 2012; Matsumoto & Juang, 2004d; Nisbett & Masuda, 2003; Senzaki et al., 2014).

5.2 Communicating Emotions - The Importance of Language in Culture and Emotionality

5.2.1 Language, Culture, and Thought

Culture and language are intimately connected (Matsumoto & Juang, 2004b). Language is one example of a cognitive domain developed by sociogenesis, and one of the main ways of human interaction, which aroused from the need to communicate and transmit meaning through knowledge, ideas, and concepts (Cole, 2008; Tomasello, 1999b, 1999f; Wierzbicka, 1993). The acquisition and use of a natural language contributes to the nature of human cognition (with some considering it transforms it) (Tomasello, 1999f). Epistemologies and discourses unique to different cultures are linguistic phenomena of a superior level that people internalise through repeated interactions with other members of a cultural/linguistic community. Therefore, language is a collection of narratives that reflect value systems and culture-specific epistemologies, being intimately connected to culture and thought (Imai et al., 2016; Matsumoto & Juang, 2004b).

All languages share general features. However, each language has its own inventory of linguistic symbols and linguistic constructions that allow its users to share experiences in a

symbolic, tacit and intuitive way (McConachy & Spencer-Oatey, 2021; Tomasello, 1999b). Languages' particularities, besides the multiple incidents and historical events of each population, come from what different people consider important to talk about, and in the way they think it is useful to speak (Tomasello, 1999b). In this way, individuals acquire their language(s) at the same time they acquire their specific cultures (Tomasello, 1999g).

Children are guided to certain aspects of their existential experience, to which they might not be aware were not for language, such as analysing and dividing the world into events and participants, see complex events from different perspectives, and create abstract constructions. Hence, language allows individuals to conceptualise, categorise and schematise events, things, and relationships in a complex way (Medin et al., 2015; Tomasello, 1999g), not changing people's fundamental cognitive abilities, but providing great flexibility and complexity to human cognition (Tomasello, 1999g, 1999d).

Consequently, epistemologies specific to certain cultures are also involved, for instance, in shaping knowledge representation and acquisition, further moulding memory organization, biological relationships, ecological thinking, and high-level semantic processing (Imai et al., 2016; Medin et al., 2015). Therefore, language and culture influence each other mutually, creating attention, perceptions, and ways and patterns of thought specific to each culture (Imai et al., 2016; Memmi, 2017; Nisbett & Masuda, 2003).

5.2.2 Language and Emotionality

Not all cultures have a word corresponding to the English word "emotion" in its vernacular form (or the Portuguese one, "*emoção*", for all purposes). Even when they do, it doesn't necessarily have the same meaning, as people construct their emotional world differently. Some languages locate emotions within the body, while others locate them externally, considering them statements of relationships between people and their environment, social relations, or situations. Even when languages locate emotions inside people's bodies, they often differ in the exact location and emotion (Matsumoto & Juang, 2004d).

Regarding the dimensions of emotion that are analysed in this work (valence and arousal), there are indications that language acts on these basic affective experiences, transforming them into discrete and specific types of emotion (Lindquist, 2017). Furthermore, language can heighten or down-regulate emotions by separating the specific emotional experience from the affective and sensory components of the experience, or helping to identify and make sense of the experience, by conceptualizing it (Lindquist, 2017; Satpute et al., 2016).

Several other aspects of lexicon are also relevant: interjections, ideophones (a class of words that depict sensory imagery), and metaphors are some examples. Furthermore, emotion words can occur in different word classes across languages (adjectives, nouns, verbs, adverbs…), and vary within the same class in form. In an obvious way, morphology and syntax also affect the expression and perception of emotionality. In regard to prosody, people sometimes raise their voices, speak at a higher pitch, or lengthen vowels to express certain emotions, or to indicate certain emotional intensities. Other voice qualities, such as harshness, tenseness, or the use of whispers, may also indicate particular emotional states. In some cases, different prosody may indicate different social roles. Phonology and phonetics also have a slight influence on emotionality, with some indications that, in some languages, some vowels and consonants are associated with emotions that differ in valence and arousal (Majid, 2012).

6. Chinese Culture and Society

Communal identities are socially constructed, negotiated, and subjected to the interplay of different groups and values with identities of their own, such as gender, class, region,

ethnicity, or nation, as well as to the variations within each of these groups. Chinese identity and current society is influenced by different factors, including China's geography and history, diverse practices and traditions, and Chinese people's sense of the self and community, which, on their hand, have influenced each other over the ages (Dryburgh, 2016; Louie, 2008). This section will present some factors that constitute Chinese society that are important for Chinese people's emotionality.

6.1 Ecological Influences

China's current geography boundaries are a relatively recent construct. Chinese expansion to include Manchuria, Tibet, and Xinjiang in the northwest, as well as Taiwan in the southeast, was finalised only in the 1700's. Much of the area that made up China's early history was located in the Yellow River basin, in the area that includes the current Henan, Shaanxi, and Shandong provinces – the capitals of some of the first Chinese dynasties – Shang, Zhou, and Qin – were found to be located in this area, and Confucius and Mencius, the known philosophers, were also natives of the region (Dryburgh, 2016). Later, the nation's "centre" shifted southwards, in direction of the Yangtze River, and for a considerable amount of time the Chinese empire referred to the area between these two rivers (Dryburgh, 2016; Louie, 2008).

Consequently, early China consisted of vast extensions of farmable land and low mountains, centred on major navigable river systems, which were the main transport and commercial routes in China before the 20th century (Dryburgh, 2016; Nisbett, 2003). This favoured agriculture on a large scale and facilitated the centralised control of society. This is because predominantly agricultural societies emphasise the creation of social roles and social harmony, mostly because people need to cooperate with each other. This is even more relevant for rice farming (a common practice in southern China), which requires people to cultivate the land in concert with each other. Moreover, in irrigated agriculture, a staple of most of East Asian societies since ancient times, it is necessary an effective hierarchy – irrigated systems require centralised control, and, partially because of this, ancient China, as many other agricultural societies, was ruled by autocrats (Nisbett, 2003; Nisbett & Masuda, 2003). Therefore, the common Chinese lived in a world of social constraints, where social relationships were the primary source of restrictions, as well as the main source of opportunities. Consequently, Chinese people perceive themselves as belonging to an interdependent larger whole, in which social relations, as well as objects and events, are understood as part of a larger interconnected context. In this sense, agricultural people can be understood as being more field-dependent than others, as this activity entails close coordination of one's work with that of others (Nisbett, 2003).

6.2 Influences from Buddhism, Confucianism, and Daoism

Three doctrines in particular (Buddhism, Confucianism and Daoism) greatly influenced Chinese thinking and values in specific ways (Goodell, 2017; Ji et al., 2010; Memmi, 2017; K. Peng et al., 2006; Smith, 1980). These traditions have changed and been intertwined throughout time and space, and their relevance has not been the same during China's long history, nor along its territory, hence some differences in the use, descriptions, and relevance of these traditions for Chinese people's daily life (Dryburgh, 2016; Louie, 2008; S. Tan, 2008).

Some Chinese core values and concepts identified by academic literature are Jítǐ (集体; 集體) (collectivism and the interdependent self), Miànzi (**面子**) and Liǎn (**臉**) (face, face-saving, face-giving), Xiào (**孝**) (filial piety), Guānxì (**关系**) (social networking, mutual obligations, interrelationships), orientation to Confucian education and values (Rúxué Jiàoyùguān (儒学教育观; 儒學教育觀)), Chéngjiù (成就) (achievement), Dàodé (道德) (morality), Rénqíng (人情) (emphatic reciprocity, favour, human sentiment), Rén (仁) (benevolence, human-heartedness),

Lǐ (礼; 禮) (rites, decorum), Kèqì (客气; 客氣) (politeness), Zhōngyōng (中庸) (moderation), Héqì (和气; 和氣) (being gentle, kindness), Héxié (和谐; 和諧) (harmony) or Hé (和) (equilibrium, also harmony), Yuán (缘; 緣) (fatalism, predestined relations, destiny), family-clan-familism-parenting (Jiāzúzhǔyì (家族主义; 家族主義)), Xiū (羞) (shame, embarrassment), Rěn (忍) (endurance, forbearance), Tǒng (勇) (valiance), Bào (报; 報) (reciprocity, retribution, or reward for good and evil), Qì (气; 氣; 炁) (inner power, energy), Zhōng (中) (centrality), Máodùn (矛盾) (paradoxical contradictions), Yin-Yang (Yīnyáng (阴阳), connected to dialectical thinking), Shàngsi (上司) (hierarchical relations, deference to superiors), Fēngshuǐ (风水; 風水) (the art of spatial arrangement), Zhānbǔ (占卜) (divination), and Tiānrén Héyī (天人合一) (literally, "harmony of man and nature", but also "holism"). Despite the existence of an evolution of how these terms are used and interpreted from the time they were created to actuality, variants of them remain relevant nowadays (Cheng et al., 2010; Chon & Hao, 2020; Kulich & Zhang, 2010; K. Leung, 2010; Shi-xu & Feng-bing, 2010). The majority of these concepts will be elaborated, directly or indirectly, in the following sections. However, we begin with a concept that is vital and transversal to multiple traditions.

6.2.1 Dào (道)

Chinese culture and society are sometimes referred to as "Dào (道) oriented" (Xu, 2010). This term has no direct translation to English (or Portuguese, for that matter). It can be understood as "the way" or "the path", but also as "the circuit", "the doctrine", "rules", "patterns and laws of nature", "epistemological means of understanding", "method", "nature", "spirit", "pattern", "metaphysics", "perspectives", "theory", "discourse", "a thing's characteristic mode of existence or action", and even as "truth" (K. Peng et al., 2006; Xu, 2010; J. Yu, 2005).

Ancient Chinese thinkers discussed mainly three aspects of Dào: the Dào of Humanity (social Dào), the Dào of Heaven (or natural Dào), and the Great Dào. The Dào of Humanity deals with the arrangement of social relationships between the self and others, comprising recommended ways for people to act. It may be considered as originating from the Dào of Heaven (Hansen, 2020; Hwang, 1999). The Dào of Heaven is the way(s) things have happened and will happen, reliably and constantly. The Great Dào is the entire history of everything that happened, is happening at the moment, and will happen (Hansen, 2020).

In Daoism one may refer to the Dào of Nature and to the Dào of Life. The Dào of Humanity is here understood as part of both the Great Dào and the Dào of Heaven (or Nature). In this reasoning, for life to be meaningful, the way each person lives must have the way of nature as model (Adler, 2002, p.45; Hansen, 2020). Daoism considers the Dào of Nature and the Great Dào to be constant, something permanent that existed even before Heaven and Earth, being the Dào of Humanity inherently variable and mutable. The Dào is described as an attempt to name something that is nameless in its essence, meaning that the fundamental truth transcends language and thought – something that we can name has merely relative existence. Somewhat antagonistically, the Dào of Humanity is perceived as comprising the immensely diverse and multiple ways in which people live, being these a part of the Dào of Nature. Everyone has their own Dào, which cannot be denied existence and is interconnected with multiple other paths throughout one's life, being all part of the Great Dào (Adler, 2002, pp.45-47; Hansen, 2020; Xu, 2010; J. Yu, 2005).

In Confucianism, the Dào is varied as well, for each person and thing has its own Dào, which is an individualisation of the Dào of the Heavens (Xu, 2010; J. Yu, 2005). The political order and social hierarchy of human beings and other living creatures were in this way subjected to the Mandate of Heaven (here, imperial authority) (Chon & Hao, 2020). The Dào

prised by Confucius is the one that leads to a moral life and to virtuosity, in accord with his ideal of collective good (Xu, 2010; J. Yu, 2005).

6.2.2 Confucianism

Confucianism originated from the teachings of Confucius (Kǒngzǐ (孔子), "Master Kong") and of some of his disciples. Confucius lived circa 551 – 479 BCE and was a philosopher and a scholar. In his ideology, individuals are understood essentially as social beings, and their realisation involves the perfection of their moral nature and of society (Adler, 2002, p.14; Chon & Hao, 2020; Dryburgh, 2016).

Nowadays, Confucian principles remain deeply rooted in Chinese society, being a source of learning, values, and social codes for the Chinese (Chon & Hao, 2020). So relevant was Confucian culture to understand the Chinese elite that its values have been made irrevocably related to the Chinese identity, being possible for one to become sinicised simply by the adoption of these core values and behaviours (Dryburgh, 2016). Confucianism prevailed in Mainland China's society throughout the centuries. It developed during the Song-Ming period (from approximately 960 to 1644 CE) into Neo-Confucianism. This Neo-Confucianism refers to the tradition that attempted to re-establish Confucianism after centuries of neglect, and most of its scholars considered the Daoist and Buddhist traditions as being incompatible and as directly competing with Confucianism. However, its conceptual schemes and most of the philosophical vocabulary were drawn from these two thought traditions (S. Tan, 2008; Tiwald, 2020). For this reason, the three traditions were intertwined. Confucianism survived even after the attempts of the communist regime to make a complete break with traditional thought, by adapting itself (Chon & Hao, 2020; Louie, 2008; S. Tan, 2008). Nowadays, there are scholars that are sometimes referred to as Contemporary Neo-Confucians, Modern Neo Confucians, or New Neo-Confucians, to distinguish them from the scholars from the Song and Ming dynasties. This Contemporary Neo-Confucianism, which was developed in the beginning of the twentieth century, may be identified as a philosophy of promoting Confucianism, due to the belief of its perennial relevance and value, by transforming the thinking of past Confucians and by using non-Confucian ideas, and modern Western ideas in particular (S. Tan, 2008). In scientific areas, the multitude of social, psychological, ethical, commercial, and entrepreneurial studies that involve Confucianism in China and the surrounding region – Y. Chen (2018); Chon & Hao (2020); Hwang (1997), (1999), (2001), (2006), (2012); Hwang & Han (2010); Kwek & Lee (2010); Y. Liu (2014); Mattice (2010); Stalnaker (2013); C. Tan (2019); Tweed (2000); Wei & Li (2011); Yang et al. (2016); J. Yu (2005); Zhu (2015) – testifies that it is still a relevant tradition nowadays.

6.2.2.1 Confucian Core Values

Confucius lived through a time of political decay and subsequent wars. He believed that the solution to fix everything was to fix the ruling class. The rulers should be determined based on their moral virtue (Dé (德)). Good rulers would fix society, which would then be at peace, which would consequently fulfil Heaven's Dào (Adler, 2002, pp.26-27,30,32; Hwang, 2001).

A prised concept is Zhèngmíng (正名), or the "positive name" of things. Zhèngmíng is a matter of moral concern – being language transient, the main concern is to determine the applicability of something, making personal realities conform to their normative designations (Mattice, 2010). The emphasis on practicability of this doctrine is obvious and pervading.

The emphasis on personal development towards morality is shown by Rén (仁) (love, benevolence, kindness, compassion, humanity, humaneness, or human-heartedness), Yì (义; 義) (righteousness, appropriateness, justice, goodness, or courage), Lǐ (礼; 禮) (propriety, rites, ritual, courtesy and politeness, or etiquette), Zhì (智) (knowledge, wisdom), and Xìn (信) (honesty, fidelity, faithfulness, credibility, integrity, sincerity, trustworthiness, or

commitment). This terms were standardised as the “Five Constants” (Adler, 2002, pp.33-34; Y. Chen, 2018; Chon & Hao, 2020; Kwek & Lee, 2010). Currently, they are internalised knowledge, moral codes, and social practices that dictate acceptable behaviour (Chon & Hao, 2020).

Rén is considered the most fundamental concept of Confucianism. It relates to human actions such as forgiveness, tolerance, deference, or faithfulness (Adler, 2002, p.33; Hwang, 2001; Kwek & Lee, 2010; Zhu, 2015). In Confucianism, it is considered as both indiscriminate compassion or benevolence towards all others, and as the essential quality to be considered human. The humane person loves those around them, is filial (Xiào (孝)), respectful, reverent, loyal, strong, determined, frugal, reserved, and trustworthy. Rén is sentimental empathy, the most important quality for people’s interrelating. A truly Rén person perceives everything in the universe as a unified entity (Adler, 2002, p.33; Chon & Hao, 2020). Rén is also the base for the other four virtues, being reciprocally enriched by them (Chon & Hao, 2020).

Mencius, or Mengzi (Mèngzǐ (孟子), “Master Meng”)), a prominent Confucian scholar, extended Confucian moral codes, focusing on humane governance (Rén Zhèng (仁政)) and human nature (Rén Xìng (人性)), and calling the Constants that are not Rén “the Four Beginnings”. These are seeds, which must be cultivated to become the intended virtues, being merely dispositions before that (Adler, 2002, pp.37,40; Chon & Hao, 2020; Van Norden, 2019).

Yì is consequently correct action based on good judgment, being necessary for one to grow into a human (which are here distinguished from animals by the realisation of their moral potential) (Adler, 2002, p.40; Chon & Hao, 2020). Yì emphasises proactivity and practicality – the understanding of what is proper action is highly contextual, being ultimately decided by the judgement of the heart-mind (Xīn (心)) (Chon & Hao, 2020). Xīn encompasses an understanding that there is cognition in emotion (Sundararajan, 2015; Wei & Li, 2011). This happens because Xīn comprises both the aspects of Zhī (知) (cognition, reason) and Qíng (情) (emotions, feelings) (Wei & Li, 2011), reason why it is commonly translated in philosophical and cultural literature as “heart-mind”.

Lǐ is the moral force that rules and controls what is correct and proper social behaviour (Adler, 2002, p.39; Chon & Hao, 2020; Kwek & Lee, 2010). It evolved from ritual practices to include concepts of reverence, respect, etiquette and proper conduct, reciprocity, moral order, and social norms. Rén is the inner quality and source of Lǐ – without Rén, ritual is empty and meaningless – being Lǐ the presence of Rén in the social sphere (Adler, 2002, p.33; Chon & Hao, 2020). Ritual, being Lǐ, is a means of cultivating and expressing and already present Rén, albeit raw or unrefined (Wong, 2021). Reciprocally, through the practice of Lǐ, people internalise and reinforce their acceptance of social hierarchy and obedience to social order. The purpose of Lǐ is to determine the distance of interpersonal relationships, to judge suspicion, to identify differences and discern similarities, and to distinguish right from wrong. A person with Lǐ behaves according to their status, does not insult others, and doesn’t ingratiate him- or herself with others either. Behaving according to Lǐ is to cultivate virtue and fulfil promises (Chon & Hao, 2020).

The last of the Four Beginnings, Zhì, is the knowledge needed for personal growth (Adler, 2002, p.39; Kwek & Lee, 2010). The ultimate purpose of Zhì is Rén. Rén is cultivated through extensive learning, firm aspirations, earnest curiosity, and deep thinking. Eventually Zhí was understood as the ability to discern both the external world and one’s own heart-mind (Chon & Hao, 2020).

The last of the Five Constant Virtues is Xìn (not the same as the heart-mind Xīn). It is related to one’s sincerity and to the credibility of one’s words and actions (Kwek & Lee, 2010). Its emphasis is on authenticity (Y. Chen, 2018). Xìn is also related to spontaneity, an important concept for Confucian self-cultivation, for spontaneous interest leads to the most efficient learning (Hwang, 2001). Confucian tradition of learning was more related to a tradition of ethical and spiritual concerns, more than to logic and exact sciences, being the intention one becoming a Jūnzǐ (君子) (a person of noble character) (Adler, 2002, pp.32,34-35; Hwang, 2001;

S. Tan, 2008; Xu, 2010). Thus, learning entails a connection for a genuine interest in something, which is preferable to the appearance of willingness to learn (Hwang, 2001). Furthermore, a lot of what means to do the right thing at the right time is based on an emphasis on spontaneity, meaning that the ethical life is not lived through rigid principles or external goals (S. Tan, 2008). This implies one must react accordingly to each situation. Consequently, Xìn guarantees the implementation of Rén, acting as a baseline for social interaction (Chon & Hao, 2020).

Harmony is also a key term in Confucianism. It is believed to be achieved by being virtuous in everyday life. An important means to do so is Guānxì (关系) (Chon & Hao, 2020).

Guānxi is the relationships system used in Chinese society. Every Chinese person is born into a network of connections, acquiring later its own in-group members throughout different social circles. Different ties (expressive, instrumental, or mixed) are reserved for different categories of relationships (for family members, strangers, and friends, respectively), and complex rules determine the social exchanges' affective and/or instrumental characteristics (Thomas & Liao, 2010). These are not unchangeable, however: Chinese people prefer flexibility in their social lives (K. Leung, 2010).

An important exception to this flexibility is family. Confucian tradition's ideals of individual righteousness are summed up in the Five Ethical Relations (or Five Cardinal Relationships) that make explicit the universal obligations in relations between humans. More specifically, and by order, these are the relations between: ruler and subject; father and son; husband and wife; elder brother and younger brother; and between friends. Apart from the last relationship, all other relationships are hierarchical in their nature. Consequently, the submissive part must obey and respect the authoritative part. However, the authoritative part also has the duty to protect and take care of the submissive part. Between friends, relationships are maintained following consequential exchanges of favours. These are the appropriate relationships and behaviours one should have according to the intimacy and hierarchy of the different people (Cheng et al., 2010; Hwang, 2001; Tweed, 2000).

6.2.3 Daoism

Daoism's origins are not clear. Nevertheless, it is most commonly associated with Laozi (also Lao Tzu) (Lǎozǐ (老子), "Old Master"), and to the text of his supposed authorship, the Tao Te Ching (Dàodéjīng (道德经; 道德經)), "The Book of the Way and of Virtue"). Nowadays it is considered that Laozi was a fictional character, being the book compiled during the century III BCE from diverse sources (Adler, 2002, pp.15-16; Hansen, 2021). The first classical Daoists believed the Dào to be the patterns and rhythms of nature and considered the human being as essentially natural. In this way, individuals attain realisation through the harmonisation of actions and thoughts with the Dào (Adler, 2002, pp.15-16).

Daoism eventually became a religious community comprising gods and immortals, a canon of religious texts, priests, rituals, and meditation. It also adopted Buddhism's institutions (monasteries, nuns, monks) becoming intertwined with martial arts, alchemy, and popular movements (Hansen, 2020, 2021). Its main objective became to attain immortality, and it gained an emphasis on the interconnection of body-mind-spirit. Its spiritual and meditational culture began focusing on Qì (气; 氣; 炁), the matter-energy that makes up everything that exists (including gods and spirits), therefore influencing the development of Chinese traditional medicine, still widely practised today (Adler, 2002, pp.15-16; Hansen, 2021). Nowadays, despite the obvious intertwining of the reasonings and practices, it is possible to distinguish between the Philosophical Daoism (or Daoist Thought), and Religious Daoism (Hansen, 2020; Pregadio, 2020).

6.2.3.1 Daoist Core Values

Daoism states that humans are natural beings and that society is a perverse influence, reason why people should take nature as example for their behaviour (Adler, 2002, pp.43-44).

Homeostasis – the balance between all the parts of a whole – is of particular importance to Daoism (Peng et al., 2006). An important and related aspect is the "void". The Dào of Nature in Daoism is occasionally denominated "nothing", the nameless reality which is the absolute origin of everything. Emptiness is considered useful. "Nothingness" here implies a sense of virtue due to its potential, which in Daoist terms is Dé (德). This virtue is not morality – it is the potential to do whatever one wants (Adler, 2002, p.46).

In Daoism, the main objective of people's individual lives is to live as long as possible in harmony with both the social and the natural world. It considers then that the wise person should perform "inaction" (Adler, 2002, p.48; K. Leung, 2010) – Wúwéi (无为; 無為). The reasoning is multiple: first, being the Dào inexpressible, we shouldn't trust our cognition to react adequately to events; secondly, if people intend to imitate the natural world, they should act spontaneously, as nature does not act deliberately and consciously; thirdly, by observing nature, people understand that spontaneous action is more effective than planned action – so, action with an exact objective is ultimately illusory, being more effective to act without a clear objective in mind (Adler, 2002, p.48; Danylova, 2016; K. Peng et al., 2006). This process also comprises the understanding of perpetual change, meaning all things in the universe are constantly changing in orderly cycles. One should observe and explore these different cycles – only then will contemplation turn into understanding (Danylova, 2016; K. Peng et al., 2006).

Another relevant concept is non-duality. Non-dualism is a middle term between monism and dualism (Adler, 2002, p.62). It is closely related to the idea of two poles. The familiar symbol of the Yin-Yang (Yīnyáng (阴阳)), the two opposing but complementing forces chasing each other in a cyclical fashion, each with a dot, is called Tàijítú (太极图). Yin is negative, passive, and feminine, being Yang positive, active, and masculine – one cannot exist without the other, and so, a concept cannot exist without its opposite. Moreover, things only exist respectively to their opposite form. Once a phenomenon reaches the extreme, it will regress in the opposite direction. There is no beginning and no end, being the purpose of life in Daoism to return to the eternal origin. The Dào of Nature is here understood as all the cosmos, and all its manifestations. Daoism assumes that all things in the universe have an infinite capacity for procreation. In this way, the universe created itself out of its own potential existence (Danylova, 2016; Hwang, 2001; Ji et al., 2010; K. Peng et al., 2006). Accordingly, in non-dualism, differences are understood as real. However, they possess a relational and complementary relationship, being perceived as aspects of a larger, fundamental whole (Adler, 2002, pp.62-63; Ji et al., 2010).

The concept of Yin-Yang is also related to the idea of fluctuations of Qì. Qì is understood as a permeating everything, which comprehends that human bodies have Qì – as well as what's outside human bodies. In Daoism, the body is then essential for spiritual plenitude – for one to contemplate the natural, cosmic Dào, one must first accept the unquestionability of their physical body (Adler, 2002, p.72; Ng, 2019).

Daoist reasoning is consequently related to holistic and dialectical thinking, a main feature of Chinese reasoning which involves not just analysing opposing perspectives to determine which one is right, but simply accepting them. Opposites are in this way understood as coexisting in a permanent way, which denies the reality of true contradiction. True contradiction, in the holistic reasoning that everything belongs to a whole, is regarded as a kind of error (K. Peng et al., 2006; K. Peng & Nisbett, 2000).

6.2.4 Buddhism

Buddhism in China suffered mutual influences by both Confucianism and Daoism (Louie, 2008). It was founded by prince Siddhartha Gautama, who lived in Northern India at approximately the same time as Confucius. After reportedly meditating until he found the

cause and solution for pain, he became Buddha, “the Awakened” (Adler, 2002, p.76; Hershock, 2019).

Buddhism was initially considered by the Chinese as a weird and socially irresponsible tradition, due to the Chinese premise that all groups owed allegiance to the state above everything else, and because the Buddhist missionaries supported celibacy, which was taken as a violation of the obligation to continue the family line. Despite this initial reticence, several schools of Buddhism were eventually developed in China. The most prominent is called Chan (Zen, in Japanese). Buddhism remained prosper in Mainland China until the communist government abolished all religions (Adler, 2002, pp.16-17; Overmyer, 2008; Shih, 1953). Nonetheless, this tradition, as well as many others, have been experiencing a revival since the 1980’s, and, nowadays, there are Buddhist members of the clergy being ordained again (Overmyer, 2008).

6.2.4.1 Buddhist Core Values

Buddhism assumes that life is suffering. The solution found – to eliminate desires – is connected to the concept of Anātman. It means “non-self”, being related to Mokṣa (the release from the suffering of eternal rebirths), and it implies that people only dislike things because they distinguish between the self and the non-self. Anātman comprehends that each person is a local, temporary system in the cosmic flux of events. Accordingly, Chinese Buddhism understands that reality is impermanent (Wúcháng (无常)) and all that we perceive is an instant of the ever-changing universe (Adler, 2002, pp.76-78; Ji et al., 2010; Smith, 1980; S. Tan, 2008). In China, relationships came then to be understood not as external features of things and people, but as internal, constitutive characteristics – existence in itself is relational. Buddhism further added the notion of Karma, adding a consequential character to phenomenal reality (Hershock, 2019).

Mahāyāna Buddhism (one sort of Buddhism existing in China) further developed the concept of emptiness (Kōng (空)). It is based on Anātman, with the exception of being applied to everything and not solely to human beings (Sundararajan, 2015, pp.175,180). In this case, “empty” refers to “empty of individual nature”, meaning that everything is interdependent. According to this reasoning, the fundamental truth one achieves with enlightenment is then imbedded in the everyday life of everyone (Adler, 2002, pp.81-82).

Upon entering China, Buddhism was understood in humanistic terms (Chan, 1958). This humanism can be found in all the different specifically Chinese Buddhist schools: Pure Land (Jìngtǔ (淨土)), Heavenly Terrace (Tiāntái (天台)), Flower Ornament (Huáyán (华严; 華嚴)), and Chan (Chán (禅; 禪)) (Adler, 2002, pp.83-89; Chan, 1958; Hershock, 2019). The Pure Land school understood paradise as an extension of human living, being a place where human relations continue to matter (Adler, 2002, pp.83-84; Chan, 1958; Overmyer, 2008). Tiāntái developed a middle term between the fundamental emptiness of things and their temporary existences, claiming that things have existence, but just not a nature or existence of their own. The Huáyán school further developed the idea of all-penetrating, all-connecting Dharmas (here, essential truth of things, or moral laws of everything). This means that anything that exists will contain the essential truth of everything else (Adler, 2002, pp.84-85). But ultimately, the school that acquired more success in China was the Chan school (the “Meditation” school) (Chan, 1958; Shih, 1953).

Chan Buddhism asserts that all Dharmas are in one’s own nature. In this way, salvation is to be achieved at the moment one looks into their own mind and sees the nature of Buddha in there. This assumption is quite different from the Indian idea that the body is a hindrance to freedom. The idea of meditation in the Chinese context was also understood within the Daoist mindset – conserving vital energy, breathing, or reducing desire, amongst others (Chan, 1958).

However, the most important element in Chan in the mind, which must be sharpened so that it can intuitively and instantaneously see one’s nature. Enlightenment is seen as an

intuitive and unconscious process. To attain awareness, one should broaden one's horizons, enriching one's experience and deepening one's insight (learning). Chan Buddhism's understanding of the phenomenal world as a middle way, thus comprising the notion of a non-duality between the relative and the absolute, or between appearances and reality, has similarities with other Chinese traditions (Adler, 2002, pp.85-89; Chan, 1958). The ultimate objective of Chan Buddhism is therefore for one to see their original nature (Běnxìng (本性)) and realise their authentic heart-mind (Zhēnxīn (眞心)), so that the dualities of thought and reality, of passion and enlightenment, and of impure and pure will disappear (Hershock, 2019).

6.3 Popular Religion and Folk Beliefs

Chinese local religions and beliefs have always been influenced by Confucianism, Daoism, and Buddhism. Nonetheless, all traditions have always had to adapt to the specific needs of each community, existing different deities and practices according to the place and the time (Overmyer, 2008).

Chinese folk religions and practices are intimately connected to the Chinese sense of self and to the reasoning involved in emotionality. They involve concepts of the Dào, change, and Qì, as well as Yin-Yang ideology. These concepts were eventually blended into an understanding of a circular Dào, implicating cyclic alternance of things and events (Adler, 2002, p.59). Chinese ideals of continuity of life and connectedness are represented in Chinese beliefs about the dead and the spiritual world. The spiritual world is divided into gods, spectres, and ancestors, which are somewhat undifferentiated from live human beings, being all manifestations of Qì and equally affected by the same natural principles, being therefore all part of the natural order, not existing exactly a "supernatural". Practices like geomancy or fengshui are simply ways to ensure that all of the natural world is connected, both the spiritual and the social. Furthermore, the practices of gods worshipping related to these folk beliefs are rooted in an important Chinese culture aspect – the family and local community – being their main function the maintenance of harmony between the social and spiritual realms. The ritual aspects of these practices (prayers, offerings, or others) are seen as ways to interact with the spiritual beings (Adler, 2002, pp.114, 118, 122; K. Leung, 2010; Overmyer, 2008).

Consistent with this ideology, it is believed people have two souls. Upon death, if all the rituals and preparations are done correctly, and if the live family members worship the ancestral spirit, it will be happy, possibly helping its inheritors in the future. Otherwise, the earth-remaining spectre will become unhappy and may cause problems for the family, something which must be avoided at all costs (Adler, 2002, p.62). This is based on the belief that the living and the dead are connected by bonds of mutual influence and response. This mutual obligation comes from a sense of a moral universe in which righteousness and respect, or, conversely, improper and destructive behaviour, will bring, respectively, rewards or punishment. The gods and spirits are expected to accede to requests from the living. Reciprocally, human material actions of worship must be rooted in proper sentiments, namely piety (Qiánchéng (虔诚; 虔誠)) – a sincerity in the request and in the fact that gods and spirits exist and can respond. In Confucian terms, this behaviour entails reciprocity (Bào (报; 報)), one of the most important virtues for this doctrine. In turn, reciprocity is based on the fundamental aspect of things being defined by their relations with other things, being the exchange of offerings and gifts the mechanism through which relationships are maintained and strengthened, process that is repeated in the interactions with ancestors and gods (Adler, 2002, pp.62,114-119; K. Leung, 2010; Overmyer, 2008).

6.4 The Chinese Self

Emotions have a social component, instigating individuals to take certain actions. Construals of a social situation are intimately connected to construals of the self, the others,

and the relationships between these (Markus & Kitayama, 1991). The sense of self is, in this way, vital to determining people's own thoughts, feelings, and actions, their understanding of the world and others, and to establish a relationship between all. Manifestly, different cultures have different senses of the self (Matsumoto & Juang, 2004c).

All people have self-definitions that include internal and abstract traits and attributes, and descriptions involving specific relationships and situations and group membership, but certain cultures tend to emphasise one's perception to comprise more of one or the other. Chinese people, despite considering an abstract self-description viable, will usually prefer a definition of themselves that contains a lot of concrete and specific descriptions regarding their belonging to different groups, and changing according to time, the group, and with whom one is communicating (J. H. Liu et al., 2010; Matsumoto & Juang, 2004c; K. Peng et al., 2006). This is due to their reasoning – Chinese people categorize concepts based on the relationships between them, and less on their underlying characteristics. They are equally prone to attribute behaviours to context, instead of attributing it to personal dispositions (Ji et al., 2010).

This occurs partially because Chinese have interdependent self-construals, that is, their concept of themselves cannot be separated from the others around them (K. Leung, 2010; Yik, 2010). Confucianism asserts that people's lives are a continuation of their ancestors' lives, making them virtually their own body (Hwang, 1999). Chinese educated elite were expected, from ancient times, to produce private biographies and epitaphs, family histories, and genealogies (Dryburgh, 2016). Hence, Chinese people concern themselves not only about their "small selves", but also about their "big selves" (meaning their family, ancestors, and relations) (Hwang & Han, 2010). Consequently, they can even feel their close ones' emotions as their own (Hwang, 2006), such as shame (which is hypercognized in Chinese society). Furthermore, the interdependent self-construal of Chinese people influences them towards being prevention-focused, valuing negative information which may help prevent harmony and interpersonal relationships' disruption (Yik, 2010).

The Chinese self is deeply connected to the concept of face, which can be divided (in Northern China, where Mandarin is spoken, being this difference irrelevant in the Cantonese-speaking south) into Miànzi (面子) and Liǎn (臉), meaning the first the fame and successful public self-image that one acquires due to their efforts and achievements (being the kind of social reputation highly desirable by Chinese individuals), and the second the respect and trust one is given by having unshakeable integrity. People only have one Liǎn, but have multiple Miànzi, depending on the social context. If people lose Liǎn, they cannot function as usual within the group – Liǎn is a social constraint for maintaining social standards, as well as an internalised force of self-restriction. Depending on context, cases of positive morality and achievements may be also felt as gaining face by both acquaintances and family members, but family members will always feel enhancement deeper – particularly negative enhancement. There are indications that Chinese people have consequently an overwhelming concern about other people's appraisal of themselves (implying a concern for appraisals of one's family and intimate relations) (Cheng et al., 2010; Hwang & Han, 2010).

7. Chinese Emotionality in Chinese Emic Concepts

Chinese emotionality has an emphasis on the dual objectives of developing oneself and maintaining balance (Hwang, 2001; Kulich & Zhang, 2010). In Confucianism, this is achieved through a set of moral guidelines people should follow (Cheng et al., 2010; Ji et al., 2010). Emotional transformation begins with the base virtue of Rén (仁), which is a social emotion (social emotions involve people being mindful and synchronising their emotional states with those of other individuals (Ruby & Decety, 2004; C. Tan, 2019)). As Confucianism is a socially hierarchical and group-defined tradition, Rén and Rénqíng (人情) are given favourably to the ones closer to us (Hwang, 2001; K. Leung, 2010; Van Norden, 2019; Zhu, 2015). The concept of

reciprocity, Bào, has a strong connotation of positive emotions towards others, thus representing an important affective dimension of relationships and social interactions (Hwang, 2001; Shi-xu & Feng-bing, 2010; Sundararajan, 2015, p.44; Zhu, 2015).

The Confucian tradition of learning has the ultimate goal of applying the Dào of Humanity through the Five Ethical Relations (Hwang, 2001). This is achieved by the intertwining of morality and rationality, which entails the combination of Rén-Yì-Lǐ (礼; 禮) (benevolence, righteousness, and propriety) with Lǐ (理) (rationality) (Hwang, 2001; Zhu, 2015). A vital virtue of proper action Lǐ (礼; 禮) is yielding, or conceding (Ràng (让; 讓)) (Stalnaker, 2013; Sundararajan, 2015, p.44). It may be understood as a protection of others' control over their own behavioural options in situations of interdependence. In daily life, it means being considerate, agreeable, and aware of others' thoughts and desires (Hwang, 2001; H. Leung & Au, 2010; Sundararajan, pp.44-45 2015; S. Tan, 2008; Van Norden, 2019).

Rén-Yì-Lǐ-rationality Lǐ system states one should consider all aspects of a situation and the heart-minds (Xīn (心)) and nature (Xìng (性)) of the people involved before acting (Cheng et al., 2010; Hwang, 2001; Hwang & Han, 2010; Ng, 2019; Zhu, 2015). Chinese emotionality is thus strongly connected to both dialectical thinking and holistic thinking (Nisbett et al., 2001; K. Peng et al., 2006; K. Peng & Nisbett, 2000; Sundararajan, 2015, pp.25-26). One term for this style of thinking is Doctrine of the Mean (Zhōngyōng (中庸)) (Cheng et al., 2010; Ji et al., 2010; Shi-xu & Feng-bing, 2010), which is favourably applied with family members and with friends (Ji et al., 2010). Children are accordingly raised since young in parenting styles that favour self-control, and aggression-disruption and pro-social cooperative behaviour (X. Chen, 2010; Yik, 2010).

Emotionally, dialectical reasoning leads then to people behaving and expressing themselves in moderate ways, compromising their own wishes to reach an agreement, if necessary (Cheng et al., 2010; Ji et al., 2010; Shi-xu & Feng-bing, 2010). Behaviourally, dialectical thinking can also reconcile apparently inconsistent attitudes and ideas, which helps maintaining harmony in life. In daily life, this harmony may be exemplified when one compromises by conforming to conventions in one's reality, while rebelling on the inside (Sundararajan, 2015, pp.22,24-25).

One of the other key concepts to understand Chinese emotionality is moral creativity. It is considered the source of culture in Confucianism (S. Tan, 2008), entailing a sense of responding swiftly and instinctively to all situations, by applying high-level heuristics that enable people to make faster solutions with a general sense of the situation and with less general information (Sundararajan, 2015, pp.175-180). This is connected, amongst other thing, to holism, a thinking style that entails that nothing exists in isolation, being everything interconnected with everything else. The primary unit of analysis is, consequently, the dynamics among the elements, instead of the elements themselves (Ji et al., 2010). Yet another vital concept is "non-dualism". It asserts that different things complement each other, augmenting one another, and so differences should not be eliminated, but duly combined (Sundararajan, 2015, p.24).

Holistic-dialectical reasoning intends to free one from problems like anxiety or greed. If people feel united with everything else, they will not feel attacked by perceived differences (Danylova, 2016; K. Peng et al., 2006). The experience of emptiness one has with successful meditation, Kōng, may additionally be considered the affective side of Wù (悟) (awareness, comprehension, awakening), implying a savouring of the negative experiences of life (Sundararajan, 2015, p.175). One should then be mindful of one's psychological states, transforming desires into constructive thoughts. Accordingly, the tactic of Wúwéi (inaction) is used to maintain emotional stability: if negative events are naturally balanced, it is unnecessary, and perhaps even harmful, to do something to try to change or eliminate the negative aspect (Cheng et al., 2010). The reasoning of cyclic change allows Chinese individuals to be hopeful when facing hardship, being warier when experiencing good fortune (Hwang,

2001; Ji et al., 2010; K. Leung, 2010). Kōng is therefore related to moral and decision creativity by enabling set breaking (given two choices, chose a third), allowing also the accomplishment of several objectives at once, and enabling awareness of this accomplishment and of the relations between different things, objectives, and emotions (Sundararajan, 2015, pp.175-180).

The successful emotional objective will then be the one that leads to the accomplishment of multiple construals simultaneously (Hwang, 2001; Ng, 2019; Sundararajan, 2015; Wei & Li, 2011). This emotional objective, also understood as an emotion, is harmony. Harmony is pluralistic in structure and is the restauration and maintenance of symmetry breakdown (which happened because of emotional episodes). It can be achieved by inaction, maintaining the current state of affairs, or it may be achieved through harmony enhancement strategies, which play an important role in emotion refinement, emotional creativity, and aesthetic savouring (Sundararajan, 2015, pp.21-23,25,30-31).

Harmony is an aesthetic emotion (Sundararajan, 2015, p.21). There is no clear definition or use of aesthetic emotions (Marković, 2012; Perlovsky, 2014). However, the aesthetic experience can be understood as an experience focused on the activity itself, and not on a goal, being therefore considered a self-rewarding experience. This enjoyment of the pleasure of one's experience, rather than the pleasure of the actual experience, is a form of savouring (Marković, 2012; Sundararajan, 2015, p.30). Aesthetic experiences may therefore be considered as a sort of mindfulness (Marković, 2012). Mental representations of the higher levels (high-level awareness, mindfulness) intend to unify one's entire life experience and depend on imagination – the less mental creativity, the fewer and poorer mental representations (Perlovsky, 2014).

The aesthetic experience thus comprehends both a cognitive and an emotional processing during the experience, being related to creative thinking, imaginative thinking, and openness to experience, which feedback into cognition, analysing symbolism and making perceptual associations, which, then again, are related to diffuse (imaginative thinking) emotions and empathic emotions, besides aesthetic emotions (Marković, 2012). Aesthetic emotions are then emotional relationships between emotions. Harmony, specifically, comprises the relationships between terms, as well as the awareness of this relationship (Sundararajan, 2015, pp.21, 34). Regarding savouring the experience, one will attain the emotional goal of harmony by having a foretaste of it in anticipation – enjoying the experience (Sundararajan, 2015, p.30). Relatively to emotion refinement, the mental processes above described are used in a way that one will sense the tension arising from the different dimensions of authority and friendliness, or ceremonialism and casualness. One will have an aesthetic emotional experience when one is aware of their own responses and experiences at multiple levels, performing intrapersonal adjustment, or tuning (Sundararajan, 2015, p.34).

8. Chinese National Identity and Acculturation

The successful incorporation of Chinese original cultural heritage and intercultural contacts is dependent on contextual factors. Conflict may arise due to low tolerance of ambiguity, low attributional complexity, weak Chinese identity, perceived discrimination, less frequent contact with host nationals, communication issues, perceived impermeability of intergroup boundaries, and related social stressors, like homesickness, isolation, loneliness, cultural distance, or functional stressors, like academic and environmental challenges. Successful acculturation results in lower depression, less negative affect, greater life satisfaction, higher levels of self-esteem, and, in North American cultural contexts, stronger reported independent self-construals. Less accultured individuals were found to employ more group-referenced and values-based collectivist coping (Ward & Lin, 2010).

The difficulties faced by Chinese people when interacting with other cultural groups are highly dependent on how they perceive them. China's high social tightness is related to the

major importance attributed to societal norms, with little tolerance for deviation, which increases one's sense of felt accountability. Chinese people's conduits when interacting with non-Chinese people are then influenced by specific aspects of Chinese culture, such as: the Confucian ethic for social interaction, including the Bào norms; the relative absence of clear norms for out-group interaction; face-work; communication behaviours unique to Chinese culture; and the importance of context for attribution processes. Chinese values of interpersonal connection, social usefulness, and respect to authorities help shaping their vision of social events. Their construction of social groups as entitative makes them more prone to infer personality traits with bases on group-membership (stereotyping), with membership of a group being defined by the person's position in the Chinese individual's social network, being possible for someone to enter the Chinese person's in-group if he or she finds a proper intercommunication channel. Chinese people fundamentally distinguish between outsiders, insiders, and family. The Rénqíng rules (affective and instrumental characteristics that rule social exchange and reciprocity) change accordingly, with out-group interactions being instrumental and less informed by normative considerations. For Chinese, the establishment of a common group identity with out-group members, particularly if there is a great cultural distance, may be more difficult than the activation of Miànzi and Rénqíng among in-group members (Thomas & Liao, 2010). Accordingly, Chinese are relatively less likely to form relationships on the spot (Sundararajan, 2015, p.27).

Chinese identity has been associated with China itself since ever. In Chinese, "China" is Zhōngguó ((中国; 中國), Middle Kingdom). The understanding of imperial China as the centre of the world and as "all under Heaven" (Tiānxià (天下)), that is, the only civilisation in the world, is related to Sino-centric sentiments amongst many Chinese. It is even considered that Chinese have a special responsibility to Chinese culture, as a person's life flows from the history and culture of his or her people. This has been related to Chinese people's difficulty in acculturating, because the adoption of out-group cultural values is seen as a sort of self-defeat (Louie, 2008; S. Tan, 2008). The great divide between Chinese and non-Chinese was, nonetheless, further deepened with the poor experiences with Western modernity and foreign invasions that started in the nineteenth century and lasted until the 1940's, which led to a contemporary Chinese identity deeply related to ideals of nationalism and group-based social comparison. Consequently, concepts like collective memory (humiliation in recent history), opposition to hegemony, empathy with the third world, and feelings about one's country (Àiguó Zhǔyì (爱国主义; 愛國主義), patriotism) are now also associated with Chinese national identity and a distinction from others (Dryburgh, 2016; J. H. Liu et al., 2010; Shi-xu & Feng-bing, 2010). The worst the stereotypes Chinese people have of other groups, the more negative traits they will attribute to their members, being these stereotypes highly affected by recent negative history (invasions, wars) (S.-Y. Peng, 2010).

9. Chinese Communication

Chinese communication is implicit and highly contextual, being obviously affected by Chinese thinking styles and beliefs. The Dào affected Chinese literary scholarship by promoting discursive strategies that involve telling much by speaking little, achieving meaning according to the classics, and obtaining meaning through imagery. This discursive aspect is called Hánxù (含蓄) (implicit communication), communication both verbal and non-verbal that leaves the unspoken to listeners. The resorting to imagery is fundamental, as emotional expressions like love, anger, joy, and depression are dissimulated. Love is expressed through caring and helping each other, and in the division of labour within the family. The notion of holism entails a variety of discursive strategies to make one counterbalance opposing ideas without compromising oneself or directly attacking the other part. Biànzhèng (辩证; 辯證) (dialectics) leads to the avoidance of absolute terms, and to the emphasis on connections between

everything and attention to opposites. Further, the Zhōngyōng (中庸) ideology obviously implicates that one should not take a prominent position in anything and should also be balanced in the act of speaking itself. These last concepts are prominently associated with Kèqì (客气; 客氣) (polite communication), a basic principle observed in everyday communication that is applied differently according to in-group or out-group communication, embodying also values of modesty and humbleness. They also explain the ubiquitous use of modifiers in Chinese speech, which are used to condition meaning. Other related aspects of daily communication are: Zìjǐrén (自己人) (insider communication), the communication that determines what is communicated and how it is communicated according to the relationship, which is also related to the Chinese preference of engaging in conversation with people they know and with whom they have been introduced through their Guānxì, being strangers, conversely, seldom approached; and Miànzi (面子) (face-directed communication). The respect due to someone is pervading, being everyone's business in the in-group. It is also connected to being polite (yǒu lǐmào (有礼貌; 有禮貌)), as politeness is at its core the respect for other people's feelings, and, in Chinese context, for other people's face [notice the similar but different understanding of Kèqì and Lǐmào, based on the Chinese characters]. Yet another concept, Zhíjué (直觉; 直覺), (resorting to an instinctive or experience-based way of making decisions), has relevance for speech in the sense that people communicate in general, simplified, and vague ways. Communication here implies a sense of sudden realisation of something from the receptive part. Lastly, Quánwēi (权威; 權威) is connected to the citing, referring to, and expressing respect towards the powerful, knowledgeable, and elderly, because they are seen as bearers of truth or morality. This concept may be associated with Tīnghuà (听话; 聽話) (listening-centred communication). It implies that not everyone is allowed to speak, being listening seen as a kind of communication. Ultimately, the Yin-Yang aspect of the Chinese mind implies that people may behave in opposite ways, if the context is different (Fang & Faure, 2011; Shi-xu & Feng-bing, 2010; Tao, 2010).

The main beliefs here implied are that speaking may have negative consequences, that others' perceptions are vital to the interpretation of messages, and that the main functions of Chinese communication are to maintain existing relationships, reinforce role and status differences, and preserve harmony within the group. Nonetheless, Chinese culture was also affected by globalisation. Accordingly, contemporary Chinese communication characteristics are undoubtedly associated with the changing institutional, social, cultural, and philosophical contexts (Fang & Faure, 2011; Faure & Fang, 2008). For instance, Jìndàishǐ (近代史) (modern history) pertains the collective memory of national humiliation, and consequently the feelings of opposition to cultural hegemony and patriotism. Despite reluctance in saying "no", strong and occasionally vociferous opposition to foreign repression is nowadays common in Chinese communication (Shi-xu & Feng-bing, 2010). Correspondingly, particularly in big cities, traditional attitudes like self-restraint or self-effacement have receded (Faure & Fang, 2008).

10. Characteristics of the Chinese Language

The Chinese language differs greatly from Indo-European languages in many aspects. Despite its numerous spoken variants, there are some common characteristics. To begin, the syllable is the smallest phonological unit that can carry meaning, being perceptually a whole unit that cannot be readily separated into phonemes. Chinese syllables carry tones, which produce differences in meaning. Mandarin, for instance, has four tones (high-level, rising, dipping, and falling tone, plus a fifth, "neutral" tone) (Cheung et al., 2010; McBride-Chang et al., 2010). The notes for Mandarin are relevant because Modern Standard Chinese was largely based on the Northern Mandarin dialect, and specifically on the Beijing Mandarin dialect (even though it contains features from Chinese spoken in other regions, and even from non-Chinese

languages), being for this reason the official language of China often equated to Mandarin (in the sense that the Standard Chinese, in both written and spoken forms, is an abstract idealisation not actually spoken by anyone, as it often happens in the process of standardisation of languages) (P. Chen, 2008). It was found that tones are not just another aspect of prosody, being perceived categorically, like phonemes. Chinese is also characterised morphologically by compounding, leading to strong correlation between word learning and morphological awareness, being also grammatically simple, due to minimal grammatical inflections. Regarding the writing system, the basic unit is the character, which is associated with a syllable and is in most cases interpreted as having complete meaning. Because of this, character, pronunciation, and meaning are intertwined (Cheung et al., 2010; McBride-Chang et al., 2010; So & Best, 2010).

Due to its relational and contextual nature, Mandarin emphasises verbs (nouns indicate focal attention to an object, while verbs indicate the relationship of the object and the environment (Durst-Andersen & Barratt, 2019; Tomasello, 1999g). Additionally, students of Mandarin Chinese will know that the basic syllables of Mandarin are approximately 400, being around 1200 with the different tones, resulting in a lot of characters having the same sounds, and even the same sounds and tones (high homophony). Sets of morphemes may also be transformed from, for example, nouns to adjectives, resorting to modifiers – isolated, these conceptualisations have the possibility of being any one of them (P. Chen, 2008; S. Wang & Lu, 2013). Mandarin is also a very image-based language, with the sequence of words enticing mental images of the elapsing action (Durst-Andersen & Barratt, 2019).

10.1 Chinese Language and Emotionality

Different emotions are characterised by distinct acoustic features, being these acoustic features – duration, intensity, and pitch features – similar across languages. However, due to emotion being socio-cultural in essence, there are also variations in the vocal expression of emotion. Chinese is a tonal language (C. Chen et al., 2009; T. Wang & Lee, 2015; Zatorre, 2003). Tone processing and pitch are relevant in tonal languages, despite existing differences between the languages (C. Chen et al., 2009; Zatorre, 2003). Regarding Chinese, both native Mandarin and Cantonese speakers focus on both pitch height and pitch direction when perceiving tones (So & Best, 2010). Specifically in Mandarin, the main role of pitch is to convey tonal information. More precisely, the pitch variation in the dynamic tones (rising, falling) cannot be structurally suppressed if one wishes to convey tonal information. Besides speech rate (syllables per second), pitch variation (mean fundamental frequency and fundamental frequency range) is vital in encoding and distinguishing emotions in Mandarin (P. Liu & Pell, 2014; T. Wang & Lee, 2015).

11. State of the Art

In spoken language, emotionality can be conveyed both by variations in speech melody and by verbal emotional content. The understanding of emotional prosodic cues (the modifications of pitch over time) is a vital characteristic of human communication and social life, with emotional prosody interacting with content to show certain emotions, sometimes contrastingly (irony, sarcasm) (Wittfoth et al., 2010). But notwithstanding extensive research on the identification of concrete emotions, people sometimes refer mixed emotions, being relevant the evaluation of affect resorting to different dimensions. Two of the more prevalent are valence and arousal (Valenza et al., 2012).

As dimensions of affect, valence and arousal are fundamental in numerous psychological and functional processes, changing with personality (assumed to reflect the most basic individual differences in how people behave, think, and feel), and with culture (Kuppens et al., 2017). Valence and arousal are processed differently in visual and auditory information,

depending on whether the objects are familiar or not and if they are animate or inanimate, with valence more easily defined in visual cues (Kensinger & Schacter, 2006). Valence and arousal also influence the memory and processing of emotional episodes (Kensinger, 2004). They also interact in affective words, leading to the expression of different emotions (J. Wang et al., 2016). Additionally, they interact with each other, with people on average feeling more aroused with increasing valence, regardless of it being positive or negative (Kuppens et al., 2017).

11.1 Affective Valence and Physiological Arousal in Chinese Context

Cultures differ in the emotions they consider proper to express socially, with people being socialised into thinking and expressing emotions differently. Consequently, the emotional states they consider adequate and desirable will also differ. Chinese culture possesses a lot of self-conscious emotions (emotions that involve reflecting on one's own actions) (Yik, 2010). Likewise, "happiness" (Xìngfú (幸福)) did not enter Chinese language until recently. Previously, it existed Fú, or Fúqi (福气; 福氣). Across times, it entailed desires of blessings from the spiritual world and pleasures derived from human society – in general, material abundance, physical health, virtuous and peaceful life, and relief from the anxiety of death. In Confucian thinking, happiness is contributing to society. In Daoism, happiness is Tiānrén Héyī, cognitive insight and self-transcendence. Buddhism does not recognise mundane happiness, as it advises the release from all desires. Ultimately, Chinese often refer desiring harmony, existing conditions for it which do not necessarily correspond to what is desirable in other societies (Lu, 2010). Emotion regulation and control is a staple of Chinese culture, as strong emotions are believed to disrupt psychological well-being and social harmony (Ji et al., 2010). When facing stress, Chinese tend to use avoidance or emotion-focused coping strategies (avoiding the issue, reframing it, analysing one's thoughts and emotions…) (Cheng et al., 2010). Comparing Western (Americans of European descent) individuals with Chinese individuals, it was found that North Americans desired emotions with positive affect and high arousal (excitement, enthusiasm, elation). On the other hand, individuals from East Asia (including Chinese) prised emotions with positive affect but low to medium arousal (calmness, content, peppiness), existing a preference for experiencing deactivated affect (Kuppens et al., 2017; K. Leung, 2010; Tsai, 2007; Yik, 2010). Exceptionally, in analysis with Hong Kong Chinese, valence and arousal were perceived independently (not existing the usual V-shaped line) (Kuppens et al., 2017).

East Asians (Japanese and Chinese) were also found to use dialectical thinking in emotionality, reporting higher neither-pleasant-nor-unpleasant feelings (neutral valence) than their North American counterparts, especially in mixed situations. The expectation of change may entice people to suspend their affective evaluation of a situation, with Chinese in particular reporting more coexisting opposing emotions (Leu et al., 2010).

12. Hypothesis

Despite existing some research on emotional prosody in European Portuguese (Castro & Lima, 2010), and on valence and arousal regarding auditory verbal stimuli in general (Belin et al., 2008; Fairfield et al., 2017; Hatzidaki et al., 2015; Kanske & Kotz, 2012; Kensinger & Schacter, 2006; Nygaard & Queen, 2008; Soares et al., 2013; J. Wang et al., 2016; Wittfoth et al., 2010), and even existing some studies involving European Portuguese in particular (Palogiannidi et al., 2015; Soares et al., 2012, 2013), there is an absence of work respecting the comprehension of emotional characteristics in European Portuguese by Chinese natives. Most of the studies available are concerned with emotion recognition in natives of the languages in which the study is conducted, and try to connect prosody to content. Portugal and China have a history of intercultural relationships since the 16th century. It's even possible to say that both

countries have never been closer. The mutual exchange and movement of people, ideas and goods is unlike to diminish. In fact, more likely than not, it will increase. Therefore, mutual understanding is an objective for which everyone should strive – understanding other cultures will not only avoid culture shocks and conflicts that may arise due to misunderstandings but will also enlighten people to different ways of viewing the world, enabling a better exploration of the human experience. In a more practical way, this work will hopefully provide some understanding on a topic not much explored until now.

Departing from the extensive literature review performed, this study intended to explore affective assessments (valence and arousal) to audio stimuli (in Chinese and in Portuguese voiced by a Chinese and by a Portuguese) by native Chinese. Namely, we hypothesise that:

a) Chinese individuals with less knowledge of the Portuguese language, and/or with less exposure to the Portuguese culture will show valence and arousal values more divergent from the values of European Portuguese natives than their fellow countrymen with a deeper understanding and exposure to the Portuguese language and culture;
b) Prosody will be impacting in the perception of emotionality by all participants, regardless of proficiency in Portuguese;
c) Content will have more relevance in the perception of emotionality in individuals with more knowledge of the language/with more exposure to Portuguese language and culture.

13. Methods

13.1 Participants

A convenience sample of 23 students (18 female and five male, M= 24,09 years (SD= 3.01) was recruited. The recruitment process involved presentation of the study in classrooms (with the previous permission from the teachers), posting in the public boards of the university's departments and in social networks, and the contact via e-mail to different people. The initial sample size was determined using the G*Power program (*G*Power*, 2019), with the conditions of f= 0.10, alpha of 0.05 and power of 0.80, and was defined in 40 participants (20 per condition, being the conditions defined by the time spent learning Portuguese: 4 years of study of Portuguese or less vs. more than 4 years). However, several constrictions resulting from the COVID-19 pandemic, which made several international students remain in China, and caused the remaining ones to be wary and with availability limitations of their own, lead to the comparatively reduced number of participants. The study inclusion criteria were as follows: (I) be over 18 years old; (II) being from Mainland China and native speakers of Mandarin Chinese. The sample revealed different levels of proficiency in European Portuguese, time of stay in Portugal, time of learning of Portuguese language, age, and study areas, academic degrees, and educational institutions.

More specifically, the group comprised students from bachelor, masters/post-graduate, and doctorate degrees, who were enrolled in different curricular years and were studying in different educational institutions. Their areas of study were separated as follows: specifically Portuguese Language and/or Portuguese Culture; Languages, Humanities, Social Sciences; and Others. The number of individuals of each area was 7, 9, and 7, respectively. The time of study of Portuguese ranged from 0 to 168 months, averaging 54 months. Their time of stay in Portugal ranged from 6 to 168 months, averaging 40 months. Some participants had started learning Portuguese in China, and others didn't study Portuguese at all, reason why the time of learning of Portuguese and the time of stay in Portugal does not match. A total of 17 individuals reported speaking Portuguese in social contexts daily or almost every day, 5 weekly, and 1 monthly. They all reported being native speakers of Mandarin Chinese.

The self-report measures descriptive statistics (median, interquartile range, and range) for each variable of our sample are presented below on Table 1.

Questionnaire	Participants' Values (Age= 24,09 years, F/M= 18/5)		
	Median	IQR	Range
RRS-10			
Brooding	8,00	3,00	8,00
Reflection	5,00	2,00	8,00
BAI	9,00	7,00	28,00
BDI-II	33,00	11,00	33,00

Table 1. Descriptive Statistics for the Self-report Measures. Note: F/M – number of female participants and male participants; RRS – Ruminative Response Scale; BAI – Beck Anxiety Inventory; BDI-II – Beck Depressive Inventory II; IQR – Interquartile Range.

13.2 Materials

13.2.1 ANEW (EP) – Audition Database

The ANEW (EP) Audition Database (C. Rosa et al., 2018) is a database of European Portuguese spoken words composed of: a) 40 positive words – high valence and high activation; b) 40 negative words – low valence and high activation; and c) 40 neutral words – medium valence and activation. To create a Chinese version of a subset of these stimuli, three native speakers of Mandarin from the master's degree of Portuguese as Second Language (Mestrado em Português Língua Estrangeira) of the University of Aveiro, two female and one male, participated in this study as volunteers, participating in the selection of the words and, posteriorly, in their recording, having read and signed an informed consent before each of the procedures in which they were involved. They were presented with the aforementioned list of 120 spoken words (40 positive, 40 negative and 40 neutral) and were asked to select only 10 words from each group that, according to Chinese cultural values, better expressed positive, negative, or neutral valence. The words that reached the higher agreement were selected. Subsequently, the volunteers were asked to provide a translation to Chinese for each word [Table 2]. These translations were back translated and confirmed resorting to the translation services of Royal School of Languages in Aveiro.

Negative	PT Agressão	Assassinar	Depressão	Massacre	Maus-tratos	Mutilar	Sufocar	Suicídio	Tortura	Violação
	CH 攻击 Gōngjī	谋杀 Móushā	抑郁 Yìyù	大屠杀 Dà túshā	虐待 Nüèdài	支解 Zhījiě	窒息 Zhìxí	自杀 Zìshā	折磨 Zhémó	强奸 Qiángjiān
Neutral	PT Avenida	Barril	Carruagem	Fase	Indústria	Povoação	Relógio	Reunião	Tecido	Teoria
	CH 大街 Dàjiē	桶 Tǒng	车厢 Chēxiāng	阶段 Jiēduàn	工业 Gōngyè	居民 Jūmín	表 Biǎo	会议 Huìyì	布料 Bùliào	理论 Lǐlùn
Positive	PT Alegria	Campeão	Contente	Extraordinário	Genial	Paixão	Promoção	Sorte	Sucesso	Triunfante
	CH 喜悦 Xǐyuè	冠军 Guànjūn	满意 Mǎnyì	卓越 Zhuóyuè	天才 Tiāncái	热爱 Rè'ài	晋升 Jìnshēng	幸运 Xìngyùn	成功 Chénggōng	凯旋 Kǎixuán

Table 2. Translations in Chinese for the selected words.

The final list of 30 words was recorded by these volunteers, both in Portuguese and in Chinese. They were asked to express each word as they internalised it and with the prosody corresponding to the affective valence (negative, positive, and neutral). The recordings were made in a soundproof chamber in ESSUA (Escola Superior de Saúde da Universidade de Aveiro), resorting to an AKG microphone, model Perception 120 USB, from USB Recording Microphone, and to the program Adobe Audition Build 13.0.0.519, using a sampling frequency of 48 000 Hertz at 16 bits. The audio was stored in wav files without compression, which were analysed for their length with the tool REAPER v6.0 (Cockos, 2006), and for their minimum,

medium, and maximum frequencies resorting to Tony application (Mauch et al., 2015). Length of the words and pitch differences are considered relevant for emotionality. Editing can change the results (Belin et al., 2008), reason why the use of the soundproof chamber and these measurements were of particular importance. The specific nature and stimuli of this work demanded the use of acted speech samples. Despite the known differences in acted, elicited, and natural speech samples, acted samples are considered empirically similar to natural speech samples regarding the emotional prosody elements of the words, notwithstanding the existence of some differences (it was found that they generally are more expressive than the real ones) (Banse & Scherer, 1996; Koolagudi & Rao, 2012; Milner et al., 2019; Paulmann & Uskul, 2014). An equivalent number of stimuli from male and female individuals is desirable, to avoid sex-based bias (Besson et al., 2002). For this reason, there was a posterior process of selection of one of the female individual's produced stimuli, based on proficiency and prosody production, resulting in a male and a female version of the final list of spoken words.

13.2.2 Self-report Measures

Sociodemographic questionnaire: The sociodemographic questionnaire included questions about the participants' sex, age, area of study, academic degree, nationality and native language, time of learning of Portuguese, time of stay in Portugal, and frequency of use of Portuguese in social contacts.

Beck Depression Inventory-II (BDI-II) (Beck et al., 1996, volunteer translated version for this study): The BDI II is a self-report instrument that measures the intensity of depressive symptomatology through a set of 21 multiple choice items, each item containing between 4 to 7 statements. The total score is obtained by summing the score of the 21 items to a maximum of 63 points, with higher scores indicating higher symptomatology: a total score between 0-13 means a minimum level or absence of depressive symptoms; 14-19, mild depressive symptomatology; 20-28, moderate depressive symptomatology; and 29-63, severe depressive symptomatology. The original version of the BDI-II showed good psychometric characteristics with a Cronbach's α of 0.93.

Beck Anxiety Inventory (BAI) (Beck et al., 1988, Chinese validation by Che et al., 2006): The BAI is a 21-item measure of anxiety. Each item represents an anxiety symptom that is rated on a 4-point Likert-type scale (from 0="Absolutely not" to 3="Severely") according to how the person felt during last week. The total score is calculated by the sum of the 21 items and varies between 0 and 63: 0-21, low anxiety; 22-35, moderate anxiety; 36 and above, potentially concerning levels of anxiety. The validation study for the Portuguese population exhibited good psychometric characteristics with a Cronbach's α of 0.92. The Cronbach's α for the Chinese version is 0.95, which indicates that the Chinese version of the BAI is a credible scale for measuring anxiety.

Ruminative Responses Scale-10 (RRS-10) (Treynor et al., 2003, Chinese validation by Lei et al., 2017): The reduced version of RRS is composed of 10 items that are divided into two subscales of 5 items: reflection and brooding. Participants are asked to indicate what they generally do when they feel sad or depressed, rating each item on a Likert scale ranging from 0 (almost never) to 3 (almost always). Higher scores indicate a stronger tendency to ruminate. In the validation study for the Portuguese population, the instrument presented good psychometric characteristics with a Cronbach's α of 0.75 for the reflection subscale and 0.76 for the brooding subscale. The Cronbach's α of the Chinese population are, respectively, 0.70 and 0.61 (total 0.75). Despite the lower values, the authors considered it showed acceptable internal consistency of the RRS-10 in their Chinese undergraduate sample.

Final questions: at the end of the procedure, the participants answered a final questionnaire evaluating their difficulties: if they understood all the words, and if not, if these words were in Portuguese, Chinese, or both languages; why they hadn't understood them (accent, words having multiple meanings, not knowing the word); and approximately how many words they couldn't understand. It was considered that the participants might have difficulties understanding content also in Chinese, for different reasons. First, we didn't use professional voice actors in the auditory stimuli in Chinese. Despite the students speaking in Mandarin, in what seemed to the author to be a very standard and understandable accent, it was feared that participants, depending on their regional specific origins, might understand the speakers accent or pronunciation differently. Secondly, as it was referred previously, there are large numbers of homophonous words in Modern Chinese. The meaning of these words is inferred by context (P. Chen, 2008). For this reason, the valence and arousal values of the words in Chinese might be affected by the vast possibilities of meaning that a native speaker of Chinese could imagine when hearing the words, as these were not inserted in sentences.

Translations: As we intended that individuals with minimum to no knowledge of Portuguese had no difficulties understanding the study, all documentation, including consent forms, questionnaires, and instructions, was translated into Chinese by one of the three volunteers. Regarding the BDI-II, despite some differences from the original version, there is a validated Chinese version (Chinese Behavioral Science Corporation, 2000; Leong et al., 2003; Yeung et al., 2002). However, due to financial constraints, it was not possible to acquire this version. Consequently, the translation of the questions was made by the same student. Concerning the RRS-10, the validated terms for Chinese were requested to the author of Lei et al., 2017, who kindly provided them. The translated terms for the BAI were taken from Che et al., 2006. These last terms were in Traditional Chinese. The author feared that the participants might have trouble understanding them, because in Mainland China the usual script is, since the 1950's to the 1960's, Simplified Chinese. However, not all characters were modified upon simplification – from the innumerable characters used in Chinese throughout the ages, there are several which have only historical use. In the Standard Modern Chinese, a total of 2264 characters have undergone simplification. This simplification is achieved mainly through reducing the number of component strokes in the characters, and by reducing the number of characters in common use. In the first case, a component of a character is replaced by one with fewer strokes, a character is replaced by one of its components, or by another, usually homophonous, character with fewer strokes. In the second case, one of the variant graphic forms of a character is selected as the authorised standard, being the other forms abolished (P. Chen, 2008). But this didn't cause a complete break with the traditional characters. Knowledge of them is necessary to read historical documents. Additionally, due to the process of simplification, it is possible to infer, from practice, the meaning of a traditional character, being possible for people in Mainland China to read, even if not completely fluently, texts in the traditional script (S. Wang & Lu, 2013). By asking the volunteer who was making the translations, the author was further informed that university level students of Mainland China, despite not having frequent contact with Traditional Chinese characters, should not have problems reading them, or should only have punctual problems at most. Indeed, some participants required some help in this questionnaire regarding some specific words, but in general most participants reported no issues at all.

13.2.3 OpenSesame Experiment

According to the study objectives, an OpenSesame task was developed (Mathôt et al., 2012), in which the following three sets of auditory stimuli were introduced: a) 30 words (10 positive, 10 negative and 10 neutral) taken from the ANEW-EP Audition database spoken in Portuguese by a Portuguese person (PT-PT); b) the same 30 words spoken in Portuguese by a

Chinese (as described above) (PT-CH); and c) the same 30 words spoken in Mandarin by a Chinese (CH-CH). The 90 stimuli were randomly presented. Existing recorded differences in the valence and arousal levels based on the sex condition, and besides, so that the experiment was not too long, which could compromise the participants' attention and engagement, the male participants heard the stimuli spoken by the male voice, and the women heard the stimuli spoken by the female voice. Two Self-Assessment Manikin (SAM) scales were used to assess the valence and activation of each stimulus. Regarding valence [Figure 1], the participants' answers could vary between 1 ("Very unpleasant") and 9 ("Very pleasant"). As for arousal [Figure 2], their answers could vary between 1 ("Little/no arousal") and 9 ("Very activating"). Approximately half of the participants were presented first the SAM for Valence, while the orders evaluated their Arousal first.

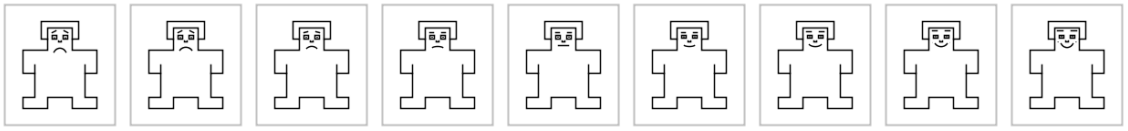

Figure 1. SAM for evaluation of the affective dimension "Valence".

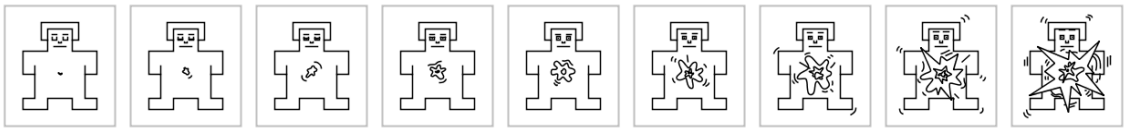

Figure 2. SAM for evaluation of the affective dimension "Arousal".

Concerning the terms for "affective valence" and "physiological arousal", they were based on the terms from Yee, 2017 (respectively, «**愉悅度**» and «**激烈度**»). This paper worked with Cantonese-speaking Chinese from Hong Kong, and used Traditional Chinese characters. Nevertheless, for the reasons cited above, these concepts, being isolated terms, were used and simplified when necessary in the translations explaining the procedure. Therefore, in the descriptive text for the participants, and in order to make the text seem fluid and understandable, "valence" was presented as «**愉悅程度**», and "arousal" as «**激烈程度**». The terms for "unpleasant" and "pleasant" (valence) were also taken from this paper (respectively, «不悅» and «愉快»). This paper was also the base for the terms for "calm" and "agitated" (concerning arousal) (originally and respectively, «平靜» and «激動», on our work «平静» and «激动»). The terms for "positive" and "negative" (valence) were based on Lin & Yao, 2016, being originally «褒义» and «贬义», and on our work maintaining them and adding also «愉快» and «不悅». The use of several descriptive terms was considered important because we didn't want to unknowingly affect the participants' understanding of the study by using terms like "happiness", or similar (which, as it was elaborated above, has specific valence and arousal level which may not correspond to the desired emotional states in Chinese society). Consequently, the instructions for the participants regarding valence included descriptions like "sentiments that are negative, unpleasant, or that we wish to avoid" for negative valence, and "sentiments that are positive, pleasant, or that we wish to have" for positive valence.

13.3 Procedure

Data collection took place in person, in classrooms at the University of Aveiro and at ISCTE (Instituto Superior de Ciências do Trabalho e da Empresa). The locations were chosen based on the lack of visual and auditory stimuli, which could affect the experiment. During the exposure to the stimuli, the participants were requested to even turn off or put away their phones. This was one of the reasons why presential participation was important: even with the best intentions, most people can hardly control their environment so that it is distraction and

emotion-inductive free, particularly during a lengthy experiment such as ours. Another reason was that the OpenSesame task might behave differently depending on the computer model, or unexpected issues may arise upon online loading, or even that other program-unrelated problems might arise. In fact, even after our best efforts, the slide for the instructions for arousal, in the male version, was presented before the instructions for valence. The male participants didn't report any problems understanding the instructions (the main instructions were not affected, existing maybe a weird phraseology at the beginning of the text, as the instructions for valence were supposed to have been presented before). Nevertheless, possibly due to the Chinese language phraseology, some female participants (whose presentation was not affected by this issue, being the slides presented in the correct order) were confused at the beginning, thinking that the instructions were already the experiment, being necessary some elucidation from the author's part. This further stresses the need, in this case (as the author is not fluent in Chinese, and required help, being necessary contextualisation for the person who was translating) to have presential data recovery, as in this way the author was able to fill in any information that might not be clear for the participants.

After agreeing with the terms in the consent form, the participants filled the sociodemographic questionnaire. Afterwards, they performed the OpenSesame experiment [Figure 3].

Figure 3. Visual representation of the procedures of the OpenSesame task.

While they were answering the questionnaires and evaluated the stimuli, the participants were seated. During the OpenSesame experiment, they wore headphones (Hama HK5618 135699), and were at a distance from the computer screen that was comfortable for them. To end their participation, the participants answered the final questionnaire, evaluating their difficulties.

14. Results

14.1 Stimuli Parameters

14.1.1 Pitch

The first analyses performed were related to the stimuli parameters, namely pitch (Hertz) and duration (milliseconds). Considering pitch, a 3 (Condition: CH-CH vs PT-CH vs PT-PT) x 3(Stimuli Valence: Negative vs Neutral vs Positive) Mixed ANOVA was performed [see Figure 4]. Main effect of Condition ($F(2,114)=82.1$, $p<.001$, $\eta^2_G=.125$), and interaction Condition*Stimuli valence ($F(4,114)=10.0$, $p<.001$, $\eta^2_G=.034$) were observed.

Given the main effect of Condition on this analysis, multiple comparisons with Bonferroni corrections were performed. Significant differences were achieved between the three conditions, $t_{PT\_PT\_PT\text{-}CH}(57)=15.17$, $p<.001$; $t_{PT\text{-}PT\_CH\text{-}CH}(57)=7.14$, $p<.001$; $t_{PT\text{-}CH\_CH\text{-}CH}(57)=-4.29$, $p<.001$). Descriptively, the PT-PT language condition evidenced the higher pitch mean value of all conditions (M=203.346), being followed by the CH-CH (M=167.681), with PT-CH condition having the lowest value (M= 150.556).

Considering the interaction Condition*Stimuli Valence, multiple comparisons with Bonferroni correction were also performed. Significant differences were found between: the negative stimuli of PT-PT condition and the negative stimuli of PT-CH condition (t(57)= 10.049, p<.001); the negative stimuli of the PT-PT condition and the neutral stimuli of the PT-CH condition (t(57)= 3.447, p=.039); the negative stimuli of PT-PT condition and the negative stimuli of CH-CH condition (t(57)= 5.160, p<.001); the neutral stimuli of the PT-PT condition and the positive stimuli of the same condition (t(57)= -3.785, p=.013); the neutral stimuli of the PT-PT condition and the neutral stimuli of the PT-CH condition (t(57)= 3.744, p=.015); the positive stimuli of the PT-PT condition and the negative stimuli of the PT-CH condition (t(57)= 5.646, p<.001); the positive stimuli of the PT-PT condition and the neutral stimuli of the PT-CH condition (t(57)= 5.363, p<.001); the positive stimuli of the PT-PT condition and the positive stimuli of the PT-CH condition (t(57)= 12.486, p<.001); the positive stimuli of the PT-PT condition and the negative stimuli of the CH-CH condition (t(57)= 3.720, p=.016); and the positive stimuli of the PT-PT condition and the positive stimuli of the PT-CH condition (t(57)= 6.867, p<.001). Descriptively, these results indicate that the PT-CH and the CH-CH conditions revealed more similar values, and an increasing trend negative<neutral<positive. The PT-PT condition revealed higher values in all stimuli valence according to a V-shaped trend in pitch.

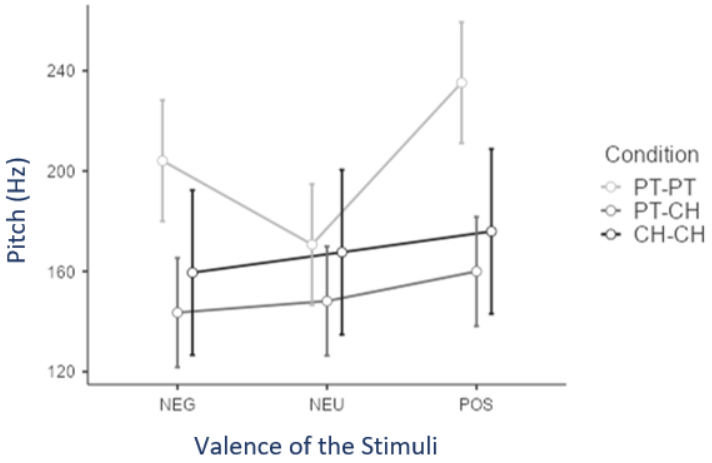

Figure 4. Pitch differences depending on Condition and on Valence for the entire sample. Note: CHCH – Chinese words voiced by Chinese; PTCH – Portuguese words voiced by Chinese; PTPT – Portuguese words voiced by Portuguese.

14.1.2 Duration

Regarding the stimuli duration, a 3(Condition: CH-CH vs PT-CH vs PT-PT) x 3(Stimuli Valence: Negative vs Neutral vs Positive) Mixed ANOVA was performed [see Figure 5]. Main effect of Condition (F(2,114)=802.71, p<.001, η^2_G=.880), of Stimuli Valence (F(2,57)=16.5, p<.001, η^2_G=.218), and of interaction Condition*Stimuli Valence (F(4,114)=5.48, p<.001, η^2_G=.091) were observed.

Considering the main effect of Condition, multiple comparisons with Bonferroni corrections were performed. Significant differences were achieved between the three conditions ($t_{PT\_PT\_PT\text{-}CH}$(57)=30.55, p<.001; $t_{PT\text{-}PT\_CH\text{-}CH}$(57)=37.10, p<.001; $t_{PT\text{-}CH\_CH\text{-}CH}$(57)=3.89, p<.001). Descriptively, the PT-PT condition evidenced the higher duration mean value of all (M=1882), followed by the PT-CH condition (M=870), and finally by the CH-CH condition (M= 756).

Regarding the main effect of the Stimuli Valence, multiple comparisons with Bonferroni corrections were also performed. Significant differences were achieved between the neutral and the negative stimuli (t(57)=3.57, p=.002), as well as between the neutral and the positive stimuli (t(57)=-5.69, p<.001). Conversely, no significant differences between the negative and the positive stimuli were found (t(57)=-2.12, p=.116) Descriptively, the negative and the

positive stimuli evidenced higher, and similar, duration mean values ($M_{POSITIVE}$=1279; $M_{NEGATIVE}$= 1190), compared with the neutral stimuli ($M_{NEUTRAL}$= 1039).

Lastly, considering the interaction Condition*Stimuli Valence, multiple comparisons with Bonferroni correction were performed. Significant differences were found for all comparisons, with the exception of the negative and the neutral stimuli of the PT-PT condition (t(57)= 2.254, p=1), the negative and the positive stimuli of the PT-PT condition (t(57)= -3.151, p=.093), and between: the negative and the neutral stimuli of the PT-CH condition (t(57)= 2.397, p=.714); the negative and the positive stimuli of the PT-CH condition (t(57)= -0.260, p=1); the negative stimuli of the PT-CH condition and negative stimuli of CH-CH condition (t(57)= 2.210, p=1); the negative stimuli of the PT-CH condition and the positive stimuli of the CH-CH condition (t(57)= 2.247, p=1); the neutral stimuli of the PT-CH condition and the positive stimuli of the PT-CH condition (t(57)= -2.657, p=.367); the neutral stimuli of the PT-CH condition and the negative stimuli of CH-CH condition (t(57)= -0.571, p=1); the neutral stimuli of the PT-CH condition and the neutral stimuli of the CH-CH condition (t(57)= 2.067, p=1); the neutral stimuli of the PT-CH condition and the positive stimuli of the CH-CH condition (t(57)= -0.616, p=1); the positive stimuli of the PT-CH condition and the negative stimuli of the CH-CH condition (t(57)= 2.602, p=.424); the positive stimuli of PT-CH condition and positive stimuli of CH-CH condition (t(57)= 2.466, p=.601); and the negative stimuli of the CH-CH condition and the positive stimuli of the CH-CH condition (t(57)= -0.060, p=1). Descriptively, these results indicate that the PT-CH and the CH-CH conditions revealed more similar values and that the PT-PT revealed significantly higher values for all three stimuli valence (Negative, Neutral, Positive) ($M_{PT\text{-}PTnegative}$= 1858, $M_{PT\text{-}CHnegative}$= 911, $M_{CH\text{-}CHnegative}$= 799; $M_{PT\text{-}PTneutral}$= 1679, $M_{PT\text{-}CHneutral}$= 711, $M_{CH\text{-}CHneutral}$= 667; $M_{PT\text{-}PTpositive}$= 2108, $M_{PT\text{-}CHnpositive}$= 926, $M_{CH\text{-}CHpositive}$= 802).

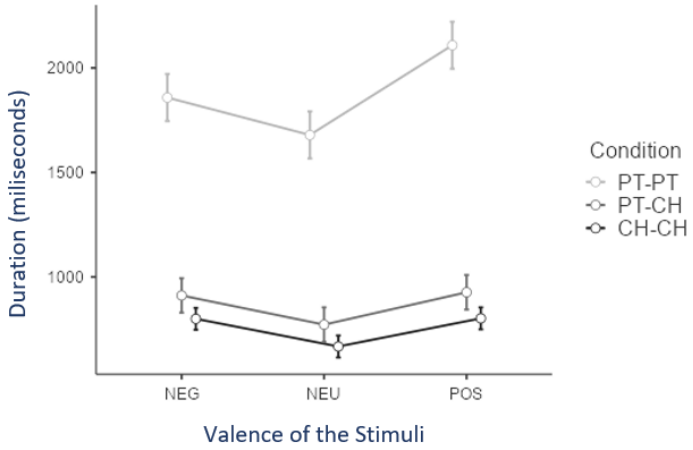

Figure 5. Duration of the stimuli words in milliseconds. Note: CHCH – Chinese words voiced by Chinese; PTCH – Portuguese words voiced by Chinese; PTPT – Portuguese words voiced by Portuguese.

14.2 Affective Valence

A 3 (Condition: CH-CH vs PT-CH vs PT-PT) x 3(Stimuli Valence: Negative vs Neutral vs Positive) x 2 (Portuguese learning time: 4 years or less vs More than 4 years) Mixed ANOVA was performed [see Figure 6]. Main effect of Stimuli Valence (F(2,42)=107.791, p<.001, η^2_G=0.734), interaction Valence*Portuguese Learning Time (F(2,42)=4.210, p=.022, η^2_G=0.097), interaction Condition*Valence (F(4,84)=48.858, p<.001, η^2_G=0.277), and interaction Condition*Valence*Portuguese Learning Time (F(4,84)=4.537, p<.01, η^2_G=0.034) were observed.

Given the main effect of valence, multiple comparisons with Bonferroni corrections were performed. Significant differences were achieved between the three levels of valence, $t_{negative\text{-}neutral}$(21)=-8.31, p<.001; $t_{neutral\text{-}positive}$(21)=-9.66, p<.001; $t_{negative\text{-}positive}$(21)=-11.44, p<.001.

The lowest value of valence was obtained for negative stimuli (M=23.5, SE=1.71), followed by neutral (M=43.5, SE=1.43), being the highest value for positive stimuli (M=63.8, SE=2.36).

Additionally, considering the interaction Condition*Stimuli Valence obtained in mixed ANOVA, multiple comparisons with Bonferroni correction were applied. Significant differences were found for all comparisons, with the exception of CH-CH Neutral - PT-CH Neutral (t(21)=1.781, p=1), CH-CH Neutral – PT-PT Neutral (t(21)=1.607, p=1), PT-CH Negative – PT-CH Neutral (t_l(21)=-3.077, p=.206), PT-CH Neutral – PT-PT Neutral (t(21)=-0.803, p=1), and PT-CH Positive – PT-PT Positive (t(21)=-3.314, p=.119). Descriptively, these results indicate that the neutral values are more similar, independently from the condition, which is consistent with the definition and emotional understanding of neutral words (they do not transmit emotionality). Additionally, these findings reveal that the CH-CH Condition has the greatest amplitude amongst all three stimuli valences, followed by PT-PT, having PT-CH the least amplitude of values. Accordingly, significant differences were found between PT-PT and PT-CH stimuli for negative valence (t(21)=7.562, p<.001). However, no significant differences were found for positive valence.

Descriptively, the interaction Valence*Portuguese Learning Time seems to be expressed by attenuation of emotional valence in the level of less than 4 years, that is, participants with less than 4 years of study of Portuguese classified positive stimuli with lower valence (M= 59.7) and negative stimuli higher valence (M= 27.2) than the group with more than 4 years of learning ($M_{positive}$= 67.8; $M_{negative}$= 19.9).

Conversely, no main effect of Condition (F(2,42)=0.202, p=.818, η^2_G=0.001), interaction Condition*Portuguese Learning Time (F(2,42)=2.360, p=.107, η^2_G=0.009), and main effect of Portuguese Learning Time (F(1,21)=0.447, p=.511, η^2_G=0.005) were found.

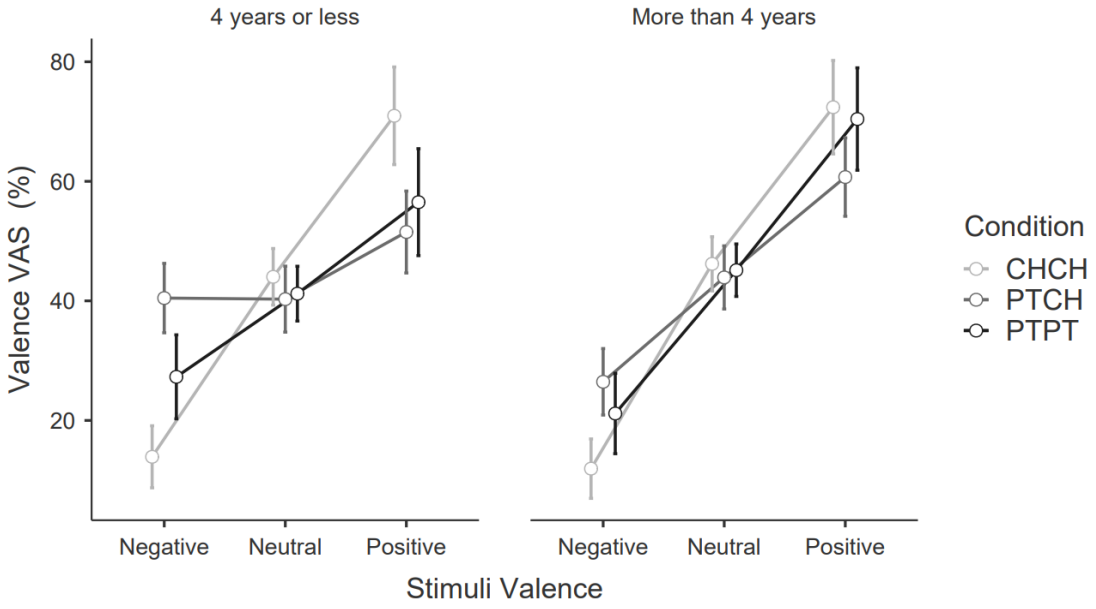

Figure 6. Affective Valence ratings per Portuguese Learning Time, Condition, and Stimuli Valence. Note: CHCH – Chinese words voiced by Chinese; PTCH – Portuguese words voiced by Chinese; PTPT – Portuguese words voiced by Portuguese.

14.3 Arousal

A 3 Condition (CH-CH vs PT-CH vs PT-PT) x 3 Stimuli Valence (Negative vs Neutral vs Positive) x 2 Portuguese Learning Time (4 years or less vs More than 4 years) Mixed ANOVA was performed [see Figure 7]. Main effects of Condition (F(2,42)=2046.2, p<.001, η^2_G=0.078),

Stimuli Valence (F(2,42)=44.843, p<.001, η^2_G=0.347), and interaction Condition*Stimuli Valence (F(4,84)=12.113, p<.001, η^2_G=0.055) were observed.

First, given the main effect of condition, multiple comparisons with Bonferroni corrections were performed. Significant differences were found between CH-CH and PT-CH (t(21)=5.521, p<.001), and between PT-CH and PT-PT (t(21)=-7.998, p<.001), but no differences were found between CH-CH and PT-PT (t(21)=-0.721, p=.999). Descriptively, these results indicate that overall arousal in PT-CH condition was significant lower (M= 35.9) than other conditions which achieved similar values (M_{CH-CH}= 44.8; M_{PT-PT}= 45.8).

Considering the main effect of stimuli valence, multiple comparisons with Bonferroni corrections were performed. Significant differences were achieved between the negative and neutral valence (t(21)=-7.09, p<.001), and between neutral and positive valence (t(21)=-7.90, p<.001). No differences were found between negative and positive valence (t(21)=-1.50, p=.447). This result showed that participants tend to rate neutral stimuli with lower arousal (M= 26.5) and negative and positive stimuli with higher arousal ($M_{Positive}$= 51.7; $M_{Negative}$ = 48.2).

Lastly, the interaction Condition*Stimuli Valence seems to be explained by the absence of significant differences between negative and neutral stimuli por PT-CH condition (t(21)= 3.11, p=.191). In fact, for the other two conditions significant differences were found in the comparison between neutral and negative stimuli (t_{CH-CH}(21)= 7.307, p<.001; t_{PT-PT}(21)= 6.999, p<.001). Additionally, and in the same direction, significant differences were found between negative stimuli in PT-CH condition (M= 38.4) and negative stimuli in both the other conditions (all p values <.001; M_{PT-PT}=52.4; M_{CH-CH}= 53.9).

Conversely, no effect of the interaction Condition*Portuguese Learning Time (F(2,42)=0.461, p=.634, η^2_G=0.001, interaction Stimuli Valence*Portuguese Learning Time F(2,42)=1.733, p=.189, η^2_G=0.020, and interaction Condition*Stimuli Valence*Portuguese Learning Time F(4,84)=1.634, p=.173, η^2_G=0.008 were found.

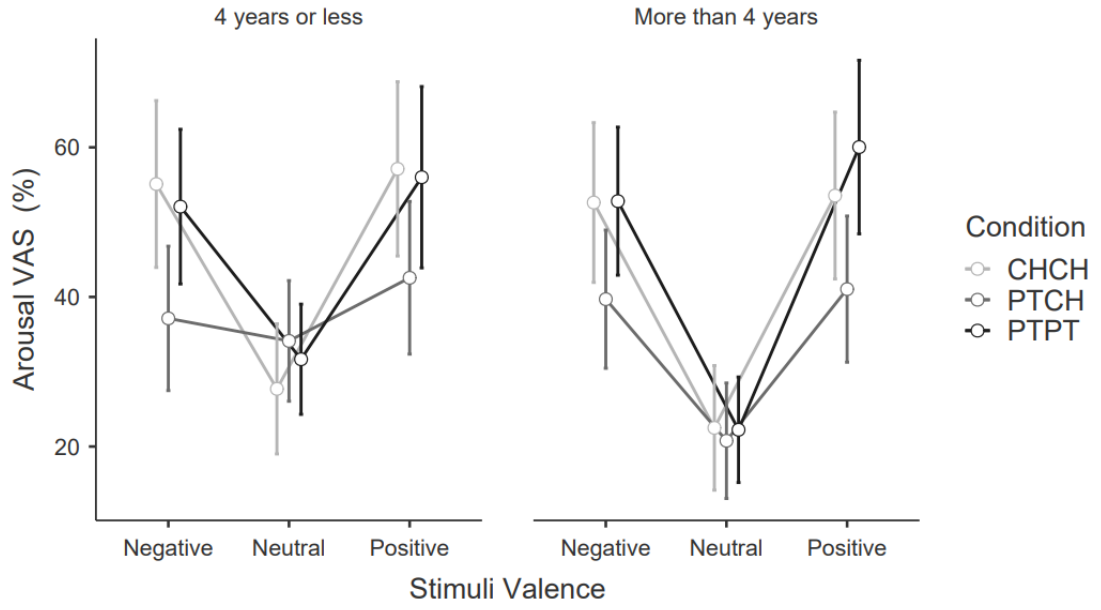

Figure 7. Arousal ratings per Portuguese learning time, Condition and Stimuli Valence. Note: CHCH – Chinese words voiced by Chinese; PTCH – Portuguese words voiced by Chinese; PTPT – Portuguese words voiced by Portuguese.

14.4 Self-reported Measures

Considering the exploratory nature of this study and the conceptual interest of anxiety and depressive symptoms, as well as emotion regulation strategies, namely rumination, in this thematic, self-report data were inserted in the two previous ANOVA models (valence and

arousal), as a covariate. No major changes were observed, with the exception for RRS brooding. In fact, in addition to previous significant effects, in the valence ANOVA model a significant interaction between Brooding rumination and Condition was found ($F(2,40)= 4.050$, $p= .025$, $\eta^2_G=0.014$).

To further explore this effect, correlation analyses were performed. Interaction seems to be explained by an almost significant negative correlation in the PT-CH condition ($r=-0.391$, $p=.065$), indicating that participants with higher brooding rumination tended to give lower values of valence in this condition [Figure 8]. Interestingly, although not statistically significant, the other two conditions revealed different correlational patterns ($r_{PT-PT}=-0.129$, $p=.558$; $r_{CH-CH}=0.030$, $p=.891$).

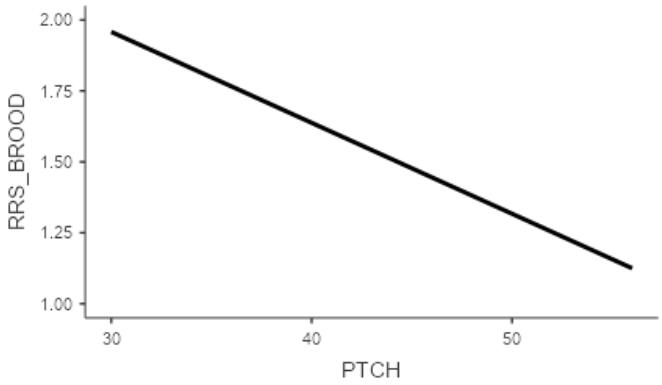

Figure 8. Interaction between the language condition PT-CH and the Brooding subscale of the RRS-10 (Ruminative Response Scale).

15. Discussion

15.1 Pitch and Word Duration

Consistently with the literature that asserts that emotions in the Chinese context should be displayed moderately, our results revealed that the pitch of the stimuli suffers minimum changes in the CH-CH language condition. Conversely, there is a clear pitch difference between the neutral and the negative and positive valence stimuli in the PT-PT condition. In this condition (Portuguese spoken by a native) there is a clear V-shaped line, with the values for the neutral condition being always spoken with a lower pitch, while the values for the other two language conditions (PT-CH and CH-CH) barely show any bend, being the pitch slightly higher in the positive valence condition.

Again consistently with literature, it is also possible to verify that the PT-PT condition is the one with the highest pitch values in all valence conditions. The PT-CH stimuli, despite being closer to the CH-CH condition's values, is always the one with the lower pitch.

Overall, our data indicates that, when speaking in Portuguese, the Chinese speakers were immensely affected by the linguistic and emotional cues of Chinese, which affected both the pitch and the duration of the words, making them similar, regarding these parameters, to the words in Mandarin (much more moderate in pitch, and shorter in length).

15.2 Valence and Arousal Levels in Speech – Production and Perception

Overall, our results indicate a tendency for synchronisation of the values in all conditions with increasing time of learning of Portuguese. As it is visible from Figure 7, the values of positive valence from Portuguese stimuli voiced by native Portuguese speakers became more arousing than the Mandarin stimuli, although that difference was not significant. When the participants had spent less time learning Portuguese, the stimuli in Portuguese voiced by the Chinese volunteers were less distinguishable than the stimuli in Portuguese voiced by native

Portuguese and the stimuli in Mandarin, with the negative and neutral stimuli in particular having very similar arousal values, indicating a lack of capacity to interpret the negative cues in this accented speech. This indicates that, interestingly, when the subjects with 4 years or less of Portuguese learning listened to a Chinese voicing Portuguese words, they weren't able to discriminate between neutral and negative stimuli. These results can have two explanations: difficulties expressing emotionality by the speakers; and difficulties understanding this emotionality by the listeners.

Reduced emotionality with the use of one's non-native language, even when one's proficient in that language, is frequently reported by bilinguals and multilinguals (Dewaele, 2015; Panicacci & Dewaele, 2017; Pavlenko, 2008). The first language may be experienced as more emotional due to the co-evolution of emotional regulation with this specific language. Other languages, however, may become the most emotional language if they have become the more proficient language through long use and immersion, with multiple factors influencing how multilinguals evaluate the emotional force of the expressions, such as (by order) language dominance, proficiency, usage frequency, age of acquisition, and the context of acquisition (through instruction or naturally). Regarding specifically Mandarin speakers, in a pilot study with Mandarin-English bilinguals residing in the USA and with different ages of English acquisition, the speakers who reported English as the most emotional language associated it with the language with the least cultural restrictions on emotional expressiveness, indicating that for these individuals, a strong or automatic inference about the language that felt more emotional concerned emotional display rules, and not necessarily their subjective impressions of emotionality. Accordingly, individuals with later age of acquisition of English mostly reported stronger emotional resonance with Mandarin, but preferred English for expressing emotion (for anger, taboo phrases, or intimacies). Additionally, most individuals with earlier acquisition of English (who moved to the USA as children, or had otherwise been immersed in the language since very young) had less preference for using English in emotional situations, especially anger, which might indicate that they didn't understand Chinese cultural prohibitions against emotional expression. However, the few participants who said they preferred to express anger in Mandarin indicated that English felt too strong, which might indicate an adherence to Chinese cultural conventions (Caldwell-Harris et al., 2011). Indeed, verbal expressions of love and affection are discouraged in Chinese cultural contexts, where this feelings should be express through concern and caring acts. Accordingly, swearing and expressing anger is considered too vulgar and inappropriate (Caldwell-Harris et al., 2011; Dewaele, 2015; Pavlenko, 2008).

Neither the speakers nor the participants in this study are in condition of experiencing Portuguese as the main emotional language, due to a lack of sufficient time of usage and immersion. It is then possible to infer that they will stick with Chinese communication values and strategies. Significant differences were found between PT-PT and PT-CH stimuli for negative valence, but no significant differences were found for positive valence. Here, the greatest amplitude of values of valence was found for the CH-CH condition, being followed by the values of the PT-PT and of PT-CH conditions, respectively. The ability to discriminate the emotional character of the words is superior in one's native language, being followed by emotionality in another language spoken by a native of that language. People often report understanding content in a foreign language more easily when it is spoken by a fellow countryman. However, the opposite happens for emotionality, which is better expressed by a native speaker.

This ability to understand one's group emotionality better than others is referred to as "in-group advantage". Members of a cultural group are more accurate in recognising the emotions displayed by someone from their own cultural group than by members of other cultural groups, existing a similar advantage when identifying emotions from vocal stimuli. This is explained by the transference and misapplication of culture-specific emotionally relevant cues from the native culture to the non-native stimuli. Other linguistic differences, such as unit

size of tones or attention paid to pitch height and direction can also impact cross-cultural emotion recognition. This advantage may also be subjected to learning – increased exposure to other cultural norms, like living in a different country, are likely to diminish this in-group/out-group chasm. Correspondingly, increased familiarity with the language is likely to lead to an increase in emotional prosody recognition (Dewaele, 2015; Paulmann & Uskul, 2014). In a study with participants of Spanish, Arabic, and Chinese origin that intended for them to identify emotions in English vocal samples, cultural background and language proficiency were the most relevant in the participants' performance, with language proficiency having the strongest effect. Chinese in particular had the most difficulty with the task (Dewaele, 2015). However, this study was made in 1984 (a time when China was opening to the world), and in students of an intensive English course. In a posterior, more recent study with Chinese and British participants, and consistently with the possibility that living in a foreign country (to attend university, for example) should lower the in-group advantage, Chinese participants were slightly more accurate than British participants at recognising emotions displayed by members of other cultural groups (Paulmann & Uskul, 2014). This was also verified in our study, with the participants who had studied Portuguese the longest discriminating emotionality in Portuguese stimuli voiced by non-natives [existing significant differences between the values of the negative and the neutral stimuli], which didn't happen with the participants with less time of learning of the language.

Foreign-accented speech may also interfere with the processing of positive valence. Additionally, it may be correlated to a negativity bias, which may indicate heightened attention to negative words. This was however inferred from a study using native and non-native vocal stimuli in Spanish, which were evaluated by native speakers of the language (Hatzidaki et al., 2015). Therefore, the negativity bias may only be associated to hearing one's language spoken with foreign accent, which was not the case in this study (the participants were hearing foreign accent, but on their non-native language). Unfortunately to this work, studies analysing emotional prosody in Mandarin (and in several other languages) are predominantly attempting to identify discrete emotions in prosodic speech, not evaluating specifically valence and arousal. There are, indeed, databases and studies of valence and arousal for Chinese words. However, a lot of the bibliography consulted and most used in the area (Ho et al., 2015; Yao et al., 2017; Yee, 2017; Yeh et al., 2016; L.-C. Yu et al., 2016) used just a few trained annotators to rate the words, or used different methodology (computer programmes). More importantly, however, they used written words – visual stimuli affect emotionality differently from auditory stimuli.

In studies of emotional recognition in Mandarin by both native and non-native speakers, a general advantage in recognising negative emotions (anger, sadness, and fear) and neutral speech through vocal speech cues was found (P. Liu & Pell, 2012, 2014). The authors theorised that the communication of negative emotions possibly reflects biologically driven responses to threat, which are indicated to other members in similar ways across language groups. Conversely, the communication of positive emotions that facilitate cohesion and affiliation within the group may be restricted to in-group members. Consequently, the expression of these emotions is greatly influenced by cultural rules and language variables, being more diversified in how they are encoded and decoded across cultures and languages (P. Liu & Pell, 2014). Disgust, happiness, and pleasant surprise were the most misidentified emotions. It was theorised that disgust and happiness are preferably expressed through other means of communication, like facial expressions. The misinterpretation of pleasant surprise was explained by the authors due to the positive valence of the stimuli, which might seem to the participants as a form of happiness (P. Liu & Pell, 2012). In a different study, confirming the consistent findings of high recognition for angry stimuli, Asian participants recognised angry sentences in English better than angry sentences in Chinese, which was explained by the authors by resorting to the acoustic distinctiveness of angry expressions (loud volume), which is globally recognised but less acceptable in Asian cultures (Paulmann & Uskul, 2014).

Our findings revealed levels of arousal in the typical V-shaped line (negative-neutral-positive, with negative and positive stimuli being more arousing than the neutral ones) for the CH-CH and PT-PT conditions, meaning the participants recognise similarly arousal in these conditions. The lack of distinction of negative and neutral stimuli in the PT-CH condition, by individuals with less time of study of Portuguese (who therefore probably have less knowledge of content and meaning in Portuguese), can suggest confusion of the participants resulting from the application of Chinese emotional vocal cues in the Portuguese speech. As it was previously referred, intonation is intertwined with emotionality in Chinese, being some aspects of emotional and affective prosody indissociable from linguistic prosody, such as pitch, power, and duration cues (Gandour et al., 2003; Kao & Lee, 2006), which acoustically are related, for instance, to fundamental frequency (F_0) and intensity (Koolagudi & Rao, 2012). In Chinese in particular, tonality is also relevant for emotionality (Kao & Lee, 2006; A. Li et al., 2011). The etymological tone, the neutral intonation, and another, expressive intonation, were theorised to be important aspects of pitch movement in tonal languages, with expressive intonation being dependent on voice features, general pitch of the sentence, and tempo of speech. So, in Chinese, besides the tonality aspects of lexicon, there are also other intonations respective to emotional expressions. Again, studies that focus on specific emotions make up the majority of the studies of linguistic prosody in Mandarin, with some negative emotions having somewhat similar pitch characteristics to other positive emotions (for instance, anger and happiness both sharing higher pitch and power, with sadness and fear presenting values closer to neutral). It exists also some confusion, both among native and non-native speakers, regarding some emotions (Kao & Lee, 2006; A. Li et al., 2011; P. Liu & Pell, 2014). However, there are indications that some negative emotions (anger, disgust) are displayed with a non-lexical falling tone, while other expressions (happiness, surprise) are displayed with a non-lexical rising tone (A. Li et al., 2011). In a specific study, neutral speech was displayed through relatively low mean F_0, narrow F_0 range, and moderate speech rate (P. Liu & Pell, 2014). A similar study with European Portuguese also showed the same confusions between different emotions. Neutral speech was confused with sadness, having both low mean F_0 and F_0 variation (Castro & Lima, 2010). Once again, these studies focus on the identification of discrete emotions, which was not the purpose of this work. Furthermore, they attempted to identify emotionality solely through prosody, excluding content, which is also an important aspect of emotionality (Koolagudi & Rao, 2012). Nonetheless, some inferences may be made from comparisons between these studies. First, neutral speech is similarly portrayed in both European Portuguese and Mandarin Chinese, existing however possible differences with other emotions that cause confusion with neutrality in Portuguese (as understood by the Chinese participants). Secondly, these studies show that native speakers themselves might misidentify emotionality, which has diverse explanations (such as content interference), but was also explained by the authors as due to different interpretations of the requested emotion, to individual differences is the portrayal of emotionality (the speaker's specific voice information is increasingly more recognised as an important aspect of emotionality in speech), and to the understanding of different categories of the same "emotion", which they accounted for some prosodic discrepancies, even between languages (Castro & Lima, 2010; Koolagudi & Rao, 2012; Lin & Yao, 2016; P. Liu & Pell, 2014).

15.3 Rumination

Regarding the self-report measures analysis', despite the relevance given in the literature consulted to the Chinese pondering and regulation of emotions and thoughts (in order to make them harmonious), this should not be understood as a greater tendency for maladaptive rumination on the Chinese people's part. In fact, in a study analysing mindfulness (defined as the awareness that emerges through paying attention intentionally, in the present moment, and non-judgementally, to the unfolding of the experience at each moment) and

rumination on Chinese adolescents, mindfulness significatively and negatively correlated with the participants' internalisation of symptoms and rumination (M. Yu et al., 2021).

Concerning specifically our sample and results, the brooding subscale of rumination had significative results in the PT-CH language condition. This type of rumination is analysed verifying the prevalence of repetitive self-denigrating thoughts about one's ability to cope with distress (e.g. "I think "Why do I have problems other people don't have?""), and is connected to depressive tendencies, including in Chinese individuals (Jose et al., 2014). Being only significative in this specific condition, we speculate that the individuals with bigger brooding tendencies, being exposed to words with somewhat confusing verbal emotion cues (Portuguese language, but with emotionality expressed differently than usual as it is understood by native speakers), interfered with these participants emotionality perception, possibly causing them difficulties understanding the intended valence, which might have activated ruminative thoughts of frustration, incompetence, failed performance, or more depressive mood, reason why they evaluated the words in this language condition more negatively.

15.4 Socialization and Language Proficiency

Regarding the questions evaluating the participants difficulties during the procedure, none understood all the words to which they were exposed, with 17 reporting they didn't understand words in Portuguese, and 6 not understanding words both in Portuguese and in Mandarin. Concerning the possible reasons for not understanding the words, the participants could choose more than one option.

Overall, the participants with the less reported difficulties in understanding content only had troubles with words in Portuguese, existing a tendency for individuals with more time of learning of Portuguese to have less difficulties in both languages.

These questions were created solely to evaluate the level of understanding of the content in Portuguese, and also if the fact that the words in Mandarin were isolated affected their understanding by the participants. Mandarin speakers depend heavily on context to infer meaning from words, due to the high homophony in the language, being this therefore a topic to consider.

Different reasons were mentioned for the difficulties faced by the participants. It is difficult to infer exactly which are the exact reasons for not understanding the stimuli of each particular language, for each individual. However, the much higher number of people who reported not understanding words only in Portuguese leads us to believe that the words in Chinese were mostly understood. Some participants verbally commented with the author that they didn't understand the words at first, but, after hearing the words in Portuguese, they made the association between the word in Portuguese and the word in Mandarin, realising its meaning. The time of learning of Portuguese was the most indicative – the more time they had spent learning Portuguese, the more words they reported understanding at the end. Besides the obvious implications for Portuguese, due to the mental connection made by some participants referred above, this might also have affected the results in Mandarin.

Nonetheless, overall, arousal and valence ratings were similar in CH-CH and PT-PT, leading us to suggest the important and relevant role of prosody in transmitting emotionality, allowing to overcome the language barrier and the misunderstanding of meaning. It is possible that in our sample, despite the obvious emotionality attached to the stimuli in Chinese, the lack of the habitual contextualization in speech for the words in Mandarin caused some confusion among the participants, affecting their understanding of content (possibly existing words with approximate valence that sound similarly or are, indeed, homophonous, hence giving the participants plenty of word choices from which to infer).

The question regarding the time spent speaking in Portuguese socially is relevant because the mean through which one learns and practices language (in class only, or through

socialization) impacts language acquisition and the emotionality attached to it (De Leersnyder, 2017; Hammer, 2017). Despite the initial controlled processing of the non-native language, individuals will, in due course, once a native-like proficiency is established, achieve a more automatic language processing (Abutalebi, 2008). This is helped by socialisation. People tend to experience more frequently and intensely emotions that match a certain culture's most salient goals and concerns, because culturally congruent emotions tend to be promoted and rewarded. Consequently, people in the same cultural context are subjected to the same emotion regulation, eventually experiencing more similar patterns of emotion than people in different cultural contexts. It was found that minorities attitudes towards adopting the values and customs of the dominant culture were not related to their levels of emotional fit, being their acculturation (the modification of emotional patterns) caused not by their willingness to be a part of the other culture, but due to the exposure and social interactions in the new culture instead. As a result, new emotional patterns to not necessarily substitute the old ones, being possible their coexistence, with the diverse patterns being activated depending on the interaction context (De Leersnyder, 2017). Highly accultured individuals often use their non-native language at work, even with members of their mother language, and are embedded in social groups with predominant speakers of the foreign language. Eventually, the foreign language may be used also in private domains (Hammer, 2017).

In our sample, the frequency of the reported use of Portuguese in social contexts didn't indicate any higher content discrimination in Portuguese, possibly because even though the reported frequency is similar, the level of use of Portuguese changes as one becomes more fluent, going from simple sentences to full conversations (that is, the content and duration of the interaction changes).

15.5 Acculturation to the Portuguese Society

Works that analyse specifically the adaptation of Chinese individuals to the Portuguese society are scarce. Of the literature that was consulted, most studies deal with Chinese investment in Portugal or study Chinese immigration in Portugal, but often from a historical point of view, not exploring people's acculturation and emotional adaptation. The few works that were found that delve more deeply into this subject were almost all master's dissertations. Nonetheless, some general inferences can be made from these works.

As it was developed in the introductory literature, the relationship between the countries of origin and general perceptions, or even pre-conceived ideas about others, affect people's interaction with individuals from different cultural contexts. Historically, the Portuguese and Chinese international relations have been positive and mostly peaceful, culminating in the last century with the return of Macao to China as a Special Administrative Region, and being maintained, if not strengthened, by immigration, economical relationships, trades, and investment (Á. Rosa, 2018; Á. Rosa & Alves, 2019; Y. Yu, 2016; Zhang, 2016). Nowadays, there are created more and more Confucian Institutes and university degrees that focus on Portugal-China relationships and in the teaching of Chinese language and culture in Portugal. Accordingly, the number of Chinese universities that provide degrees in Portuguese language and culture and that have exchange programs with Portuguese universities has been rapidly increasing, compared to just a few years ago (currently, more than 30) (Y. Li, 2017; Zhang, 2016). For these reasons, it is possible to affirm that the relationships between the two countries is positive, and in this sense it doesn't affect negatively possible acculturation from Chinese individuals in Portugal.

Individually, despite existing some pre-conceived ideas (some positive, like being hardworking and friendly, others not so much, including some malicious hearsay in some contexts) about Chinese (Matias, 2007; Y. Yu, 2016; Zhang, 2016), Portuguese mostly do not know much about the Chinese or Chinese society, being their knowledge resumed to some general concepts like kung-fu, eating with chopsticks, being patient, or martial arts films (Fu,

2020; Á. Rosa & Alves, 2019; Y. Yu, 2016; Zhang, 2016). Nevertheless, in a specific study, it was found, admirably, that all the Portuguese interviewees completely accepted Chinese immigration, with Chinese being considered an important part of the economy, and who should be treated like everyone else. Some perceived positive contributions, besides for the economy, were the introduction of new practices and perspectives, and enriched culinary and gastronomic experiences. On the other hand, some negative or less positive aspects were the difficult communication due to the language barrier, the enclosed Chinese circles, which discourage personal connections, the shock to Portuguese traditional commerce and industry, originated from the powerful Guānxì maintained by the Chinese entrepreneurs with suppliers and family in China, and cultural shock. Some Portuguese were also very suspicious, thinking that some Chinese restaurants do not have very high hygiene. Deriving from the economic concerns, however, some showed interest in having a more diversified offer in the businesses created by Chinese, indicating some curiosity and availability to frequent these establishments (Y. Yu, 2016). In a different study, the Portuguese interviewees showed some fascination to "oriental" themes, but were quite indifferent to the Chinese individuals themselves, alleging that they were very ambitious and closed within their social circles, which didn't allow for much sympathy or friendliness from outsiders, existing also a sense that the Chinese business model harms traditional Portuguese commerce. They reported maintaining strictly utilitarian relationships with the Chinese, indicating a large affective and social distance, exacerbated by a sense that Chinese are not interested in learning Portuguese or in being involved in Portuguese society, inclusively staying away from Portuguese schools and healthcare. Some of these reports were theorised by the author to be majorly related to ignorance on the Portuguese side (Matias, 2007).

Accordingly, unless they are living in Portugal, a lot of Chinese seem to not be very knowledgeable about Portugal, relating it mostly to nice weather, beautiful landscapes, and football (Zhang, 2016). The ones that do live in Portugal can be divided into different groups, which have their own reasons to be in the country and their own socioeconomical backgrounds, which, on their turn, affect people's socialisation and consequent adaptation.

Chinese living in Portugal can be divided into those who live in Portugal permanently, and the ones who live here temporarily. The first have several different origins: Mainland China (mostly Zhejiang, Shangdong, and Fujian provinces), Macao, Hong Kong, and Taiwan, and previous Portuguese colonies, like Mozambique and East Timor (some also distinguish the Chinese who, in the early 20th century, came to Portugal after migrating first to other European countries, moving here due to economic easiness. Historically, this group favoured restaurant businesses and commerce in the shape of the characteristic "Chinese stores"). Of these, the first mostly work in commerce (having started their migration in the 80's), while the second are involved in different areas, including business and tertiary services. Of course, the Chinese originating from Macao distinguish themselves by their higher proficiency in Portuguese, existing some with dual Portuguese and Chinese ancestry. The latter are nowadays often second, third, or even fourth generation immigrants, descendants from migrants who arrived mostly in the 70's, and tracing their roots back to the previous colonies. Due also to previous contact with the Portuguese language and culture (integration and assimilation into Catholicism, working in different activities pertaining the national economy instead of favouring ethnic trading, etc.), they are completely integrated into Portuguese society. It is also possible to distinguish the beneficiaries of the "Golden Visa", who mostly come to Portugal due to easiness of investment and to provide their children with good education, considering also that Portugal is a good place to escape air pollution (which is rampant in China) (Fu, 2020; Y. Li, 2017; Y. Yu, 2016; Zhang, 2016). The immigrants in Portugal who didn't have previous contact with Portuguese language and culture (coming mostly in the 80's) were mostly farmers in their native regions, having low formal education. In Portugal, most of them have jobs in very specific areas related to commerce, retail, and restaurant business. A lot of them communicate mostly with other Chinese, limiting their social contacts to these very specific

social circles. The ones who eventually created their own businesses often expected their children to help after school, existing a tendency for these second generation Chinese to leave school earlier than their fellow Portuguese students, and to have their social lives highly dependent on the social circles of their families. For this reason, many of these second generation immigrants have medium to high levels of proficiency in Portuguese, but few consider that their knowledge of Portuguese doesn't need improving (Y. Yu, 2016). Accordingly, it was found that these initial migrants from Mainland China wished to work in Portugal solely for economic reasons, not intending to live in the country permanently, and desiring to return to China once their financial situation was good enough. For his reason, they mostly don't learn Portuguese and restrict their social contacts to other Chinese (reason why they might seem very enclosed within themselves). Their agricultural backgrounds were considered to shape their mentality respectively to the mutual help they display within their circles, enabling the growth of the Chinese community in Portugal, but was also pointed as a reason to a possible stagnation (Fu, 2020; Y. Li, 2017). Despite the specific socioeconomical background being unknown (something which could be improved in possible future studies), the author knows from personal communication that one of our participants, the one with the highest time of stay in Portugal (168 months – 14 years) migrated to Portugal as a child. This individual studied previously at a Chinese university, and reported speaking Portuguese socially daily or almost every day. Nevertheless, reported not understanding from 4 to 6 words at the end of the stimuli presentation, all in Portuguese. Some of these migrated children end up not being completely fluent in Chinese, sometimes feeling that they don't belong to either society (Zhang, 2016). However, on the other hand, some never quite integrate into Portuguese society, for the reasons elucidated above (Y. Yu, 2016). Again, further inquiries should have more specific questions regarding people's socioeconomical background, and more detailed post-experiment questionnaires.

The Chinese who live in Portugal temporarily are mostly seasonal workers and university students (Y. Yu, 2016; Zhang, 2016). Chinese university students in Portugal (which comprised our sample) mostly wish to learn Portuguese to improve their work opportunities (Zhang, 2016). They come to Portugal in interchange programs, coming here for a year or half a year in the third or fourth grade of their bachelor's degrees. Some remain here or return for master's and doctorate degrees (with some coming here specifically for these degrees) (Cui, 2018; Y. Yu, 2016). They consider that Portugal, as a potential place of study, is safe, and that studying in Portugal is a way to increase their proficiency in Portuguese, contributes to finding a good job, and enables them to travel inside Portugal and to other European countries (Cui, 2018). Sometimes, it is easier to be admitted in a Portuguese university than in a Chinese one, for the same area, which also affects the students' choice (Fu, 2020).

Most studies, however, do not focus on the university students, considering the generality and diversity of the Chinese population in Portugal. These studies are, however, relevant, because they analyse possible culture shock, which enables us to better understand which values and attitudes are specifically different between the two societies.

The major problems faced while adapting to Portuguese context, as reported by older immigrants, university students, and possible future migrants in China, are, or hypothetically are, by order, language barrier, different cultural values and lifestyle, and gastronomy (Cui, 2018; Y. Yu, 2016; Zhang, 2016). So, the lack of understanding of Portuguese is considered a major barrier to adaptation to Portuguese society.

At a study comparing Portuguese and Chinese societies, the major differences found were less respect and acceptance of hierarchy by the Portuguese, far more competitiveness and hurriedness of the Chinese, and a deep long-term orientation by the Chinese, versus a short-term orientation by the Portuguese. The major difference was the Chinese tolerance to ambiguity and higher risk-taking, with the Portuguese, comparatively, not being much receptive to changes or unorthodox ideals or behaviours. Some more similar traits were the importance given to social connections and family union, with Portuguese being just slightly

more individualistic than the Chinese, and similar restriction levels. Regarding personal opinions, Chinese found Portuguese society to be mostly slow, comfortable, and quiet. Some favourite features of Portugal and the Portuguese society were the climate, tranquilness, and security. Conversely, some negative aspects were lack of efficiency, the food, and bureaucracy. In this study, the majority of Chinese reported willingness to know and relate more to Portuguese, having however some problems starting friendships with Portuguese, due to some unexpected or unknown factors (Fu, 2020).

At another study, regarding the actual perceptions of the different people's, overall, most Chinese immigrants seem to consider the Portuguese to be friendly, nice, and open, despite existing some that assess Portuguese as polite, but distant, existing however still a few with negative perceptions (unfriendly and racist) (in this study, 4%). The biggest cultural shock reported by Chinese immigrants was, besides the (major) issue with the language, different daily rhythm (with Portuguese being considered far more relaxed), generational differences caused by the different political and educational systems of the two countries, different efficacy, problem solving, and reasoning of rules (with Portuguese society considered not very effective, and being Portuguese people seen as adhering strongly to the rules and being more inflexible – which was deemed as having some good and some bad aspects – and with Chinese considering rules more like guidelines), the aforementioned different daily habits and gastronomy, and, finally, different beliefs and religion (the Confucian and Buddhist influences one the Chinese side, and Christianism on the Portuguese side) (Y. Yu, 2016).

There are, however, some similarities as well. Chinese immigrants reported that they found both Portuguese and Chinese peoples to be nice, harmonious, and hospitable, being patient, tranquil and non-radical to certain degrees, relatively more traditional, with moderate attitudes, and sharing a passion for gastronomy (Y. Yu, 2016). The findings in these studies mirror other literature and reports on the topic (Á. Rosa, 2018; Á. Rosa & Alves, 2019), with some referring also that, regarding leisure activities, Portuguese very much prefer outdoor activities, while Chinese prefer indoor activities (Á. Rosa & Alves, 2019).

Specifically in the case of university students, the inquiries made pointed to a general perception that university in Portugal is easier. The differences in teaching styles and expectations are plenty, being teaching and learning in Portugal more focused on the student, while revolving around the teacher in China. The classes are also considered more fun, agitated, animated, and relaxed than the ones in China (with some considering, however, that sometimes they are too agitated to learn effectively). However, due to the different methods of evaluation (more oral presentations in Portugal, for instance), students still considered they needed to study a lot to have good grades. Teachers were considered more approachable than the ones in China, behaving more like tutors. Again, the major issue was the language. Some students with more difficulties in Portuguese found the classes more difficult to follow, needing more time and patience from the teachers. Likewise, the different food was perceived negatively by a considerable amount of people (being considered too heavy and lacking variety). Other issues pertained difficulties adapting (troubles finding familiar cooking ingredients), and inefficacies in public transportation and in healthcare. Regarding the local inhabitants, the Chinese students mostly considered them to be nice, warm, and helpful. Most of the perceived negative aspects are a natural consequence of culture shock. Just after moving, people notice cultural differences more prominently, and the possible cognitive, emotional, and physical consequences are a result of this (Cui, 2018).

Summing up, according to these studies, the mutual ignorance, the language barrier, the different gastronomy, and discrimination (existent or eventual) are the main reasons for the lack of adaptation of the Chinese to Portuguese society.

Despite these studies being exploratory and tentative, they confirm the literature consulted concerning Chinese values and social behaviours, such as an adherence to one's Guānxì, closeness to family, preference for behaving depending on the context, and practicality and pragmatism. Most Chinese showed willingness to initiate relationships of some

sort with Portuguese. Moreover, some Chinese immigrants (not belonging to the same sociodemographic group as our sample, but being in Portugal longer), indicated that, in some aspects, Portuguese society is quite similar to the Chinese one. Portuguese were perceived as considering their family and friends important as well, and as disliking extreme behaviour and open confrontations, which matches Chinese preference for harmony. In this way, societal differences should not hinder acculturation by the Chinese in Portugal much.

Nevertheless, there are still some problems, such as mutual ignorance and misunderstandings (some interviewees in different studies, both Portuguese and Chinese, considered the others to be "closed and unfriendly"). These problems have different causes, including diverse contextual and personal factors, and, particularly to this study, different societal behaviours and emotional displays, which hinder intercultural communication.

Being language the major issue found in the adaptation process, university students who study Portuguese, and particularly those that have been exposed to the language for the longest time, should have acculturated better. As a matter of fact, the longer the time our participants studied Portuguese, the more they perceived emotionality more similarly when exposed to stimuli in Portuguese and in Chinese spoken by natives. This indicated, besides an obvious improvement of content knowledge, a possible better perception of the emotional cues in Portuguese speech.

16. Conclusion

Our analysis resulted in an understanding that, consistently with literature that pertains to acculturation and intercultural adaptation, Chinese individuals improve their perception of emotionality in speech in European Portuguese the more they learn the Portuguese language.

All our hypothesis were confirmed. Acculturation is a process deeply intertwined with emotionality, and our results indicate that the more deeply accultured individuals also responded to the enacted emotionality more accurately. Despite this, prosody influenced all participants regardless of proficiency, further confirming its relevance in expressing emotionality. Consistently, it is possible to infer that content displayed a greater relevance in individuals with more knowledge of Portuguese.

However, these results are highly tentative, and several aspects should be improved. If made, future studies should have a bigger, more representative sample, so that more potent statistically significative results can be obtained. The PT-CH language condition could also be evaluated by a sample of Portuguese individuals. A native Portuguese could record the words in Mandarin Chinese, being the same process repeated. Ideally, a study with a bigger sample of both Chinese and Portuguese individuals evaluating the stimuli could be made. Further analysis to how non-lexical pitch is displayed in Mandarin would be pertinent, as well as analysis evaluating the interaction of content, contextualisation, and prosody in this language. An evaluation of how, possibly, Portuguese values, society, and culture affect Portuguese people's display of emotionality would balance this work. Further sociodemographic and post-experiment questions, more developed and more pertinent, and with the chance of written answers by the participants, would be interesting.

Summing up, there is still plenty to discover regarding this subject. This is a theme in which there is still much work to be performed. In light of the curricular subjects of the master's degree, further understanding of emotionality and emotion-reasoning, categorisation, and display by both Chinese and Portuguese will undoubtedly diminish possible misunderstanding during inter-cultural communication. It is inclusively generally relevant for those who wish to improve their knowledge of the interplay of thought, feelings, and culture, and to those who wish to better comprehend humanity and the human experience in general.

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