THESIS

ARABIC-SPEAKING U.S. COLLEGE STUDENTS' COMPREHENSION OF ENGLISH

EMOTIONAL TONE: A PSYCHOLOGICAL ANTHROPOLOGICAL APPROACH

Submitted by

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ABSTRACT

ARABIC-SPEAKING U.S. COLLEGE STUDENTS' COMPREHENSION OF ENGLISH

EMOTIONAL TONE: A PSYCHOLOGICAL ANTHROPOLOGICAL APPROACH

Emotional tone in Western languages (i.e., the Germanic and Romance group) is influenced by the Western musical scale. Studies have shown that as differences increase between Western and non-Western languages, overall comprehension of emotional gesture and emotional tone decreases (the "linguistic proximity" hypothesis), though ratios between percentages of perception correctness for different emotions is fairly universal (the "in-group advantage hypothesis"), revealing cross-cultural mechanisms that obscure or reveal certain emotions to outsiders. Training in Western music helps Western children and non-Western youth and adults to better recognize Western emotional tone. Social Anxiety and Major Depression have been correlated with reduced emotional tone comprehension, and music therapy is known to relieve these disorders' symptomology. For Westerners and non-Westerners alike, musical exposure and training may help not only emotional tone proficiency but also mental well-being.

Studying Arabic speakers' comprehension of Western emotional tone was novel as an exhaustive search uncovered only two studies on emotional tone recognition by Arabic language speakers (using Web of Science and Academic Search Premiere). Also,here are strict sanctions in Islam on the relation of musical tones to emotion or kinesthetic action like dance (via the "tawhid" tenet), limiting conservative adherents' Western media exposure and possibly affecting their vocal tone expression as well. My convenience-sampled study subjects were in gender-

balanced groups: 12 Arabic international college students and 19 American college student

controls. Research methods included (1) an English emotional tone discrimination test using

recordings of one actor's and one actress' vocalizations of six emotionally different statements,

accompanied by semi-structured and recorded debriefing interviews, (2) participant observation,

and (3) quantitative survey instruments to measure cultural affinity (ARSAA II survey), musical

genre affinity and performance experience, and mental health (DASS 42 survey). I performed

descriptive statistical analysis on the quantitative data, and then theme analysis on the qualitative

data to reveal both culturally shared and also personal reasons for response choices.

The "linguistic proximity" hypotheses was validated for Arabic speakers, as Arabic

students scored 50% lower than American students in accuracy on the emotional tone

recognition tests, with Arabic females scoring lower than Arabic males. Statistically significant

correlates to low emotion recognition scores include, in rank order, those of higher Arabic than

American cultural affinity, those of higher Arabic compared to American musical affinity,

English language experience, and anxiety level (the latter mostly with Saudi females). High

affinity for Arabic culture may lead to integration issues relative to the American educational

system and religious mandates forbidding developing certain kinds of interpersonal relationships;

however, these associations may also simply reflectthe amount of time spent in America.

Quantitative and qualitative data reveal various culturally relative and Arabic-only gender

differences in perceptions of English-language encoded emotions. Some Arabic students

preferred non-translatable emotional terms, and others said that speed and volume of speech

might be more important than intonation for Arabic emotion expression and understanding.

Nine out of the 12 (75%) of my Arabic subjects were Saudi Arabian and thus

conservative Muslims with little exposure to Western tonalities (let alone "emotional" Arabic

music). If their government were made aware of the importance of musical tonality in English language, Islamic "tawhid" strictures on musical expression and exposure might be lifted for students abroad. As it was, many Saudi students I met averred that they enjoyed one or more Western musical genres, which meant they would likely be receptive to such reforms. English language coursework could involve theater and dance attendance, where facial and gestural expressions generally matched dramatized vocal and musical elements. Better English language and emotion comprehension would facilitate better communication and well-being and thus augment students' abilities to become ambassadors for the Arabic world and to find professional opportunities abroad.

ACKNOWLEDGEMENTS

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Chapter 1 – Introduction

The *cultural proximity hypothesis* (Rosenthal 1979) and notion of cultural *in-group advantage* (Elfenbein and Ambady 2002) are that increased conceptual and behavioral differences between cultures (ideas, practices, and beliefs) are related to increased miscomprehension of their respective languages and gestures. Prosody is a term given to the metalinguistic elements of stress, duration, and pitch, which are meaningful units or modifiers of conceptual and emotional expression. They are used in everyday speech acts, in exclamatory responses, in nurturing, and in art such as music and poetry. The study of prosodic differences between cultures has been grounded in the same theory as cross-cultural psychology studies measuring differences in associations between facial expression and emotion or behavior. Participants are examined for perceptions of which facial expressions are described by Ekman's (1992) "basic emotions" (*happiness, sadness, anger, disgust,* and *surprise*), words for which are lexically back-translated for cross-cultural concept agreement. There has been some utility in these tests for revealing cultural uniqueness, but recent meta-analyses discount any theoretically universal recognition *mechanisms* for cross cultural recognition, used by the ethnic groups studied (Elfenbein and Ambady 2002).

In as much, there has been advocation for additional basic emotions (Ekman 1999) and even the music-psychology based dimensional framing of such emotions as on a continuum of valence and arousal (Eerola and Vuoskoski 2013), but these suggestions have sparsely been heeded. Still, in one study with Arabic people that did utilize a two-fold amount of basic emotions, score prediction failed in that there was a great divide between their responses and those of Westerners in the study (Kayyal and Russell 2013). Progress has yet been made in regard to the basic emotions with cross-cultural studies of emotional *prosody* recognition,

because such studies are less abstract in that they only require the accounting of language structure dissimilarities, or "linguistic proximity" (Pell et al. 2009b:419; Rosenthal et al. 1979:217-224), and not necessarily all of the general complexities that can separate cultures.

As languages become more exotic to one another – such as Chinese is to the tonally proximal languages of English, German, and the Romance group – tonal comprehension becomes less accurate overall; however, just as reliably, judges of emotional tones spoken in different languages from their own tend to predictably recognize anger and sadness more so than fear, joy, and other basic or supplemental emotions (Chen, Gussenhoven, and Reitfield 2004; Juslin and Laukka 2003; Banse and Scherer 1996; Johnstone and Scherer 2000; Pittam and Scherer 1993; Scherer, Banse, and Walbott 2001; Thompson, Forde, and Balkwill 2006:419). Prosody is a universal linguistic mechanism, then, just like grammar and syntax, but certain emotions are expressed in more coded ways than others. Arguments exist that this is due to in-group protection of particular emotional and/or conceptual signals (Sauter et al. 2010:2409; Thompson, Forde, and Balkwill 2006). Against these generalities, however, there are implications that arise with the conclusions of two separate intercultural emotional tone recognition studies (Pell et al. 2009b, 2009a): (1) although the Arabic language is vastly different in structure from the aforementioned proximal languages, Arabic speakers' emotional tones are recognized well by Spanish speakers, but (2) Arabic speakers do not recognize their own emotional tone nearly as well as speakers of the other languages do with their own. In that research on emotional tone recognition with the Arabic language is nil, I have sought to better illuminate the subject, but with a study in regard to the Arabic speakers' abilities to recognize a Western language rather than vice versa (which, as mentioned, has been done once before).

And, I have chosen to account for various factors that are thus far neglected or unrealized as important.

Ethnomusicological research from the 20th century forward has shown that music is also a cultural universal, but that it has clusters of uses and functions that vary in both structure and prevalence between ethnic groups. Some of these functions are explicitly ideological and social, and others are explicitly for the evocation of sensation or emotion (Merriam 1964:217-218, 223-226). It is argued that language and music likely co-evolved as ways to differentiate abstract through from meaning (Perlovsky 2012). But, it is unlikely that meaning and feeling are separable in any form of music, including that embedded in language itself. A smattering of language and music studies in Western culture has revealed that particular Western melodies either remind Western people of, or evoke in them, the aforementioned basic emotions (Eerola and Vuoskoski 2013:311-312; Hunter, Schellenberg, and Schimmack 2010; Ramos, Bueno, and Bigand 2011). Others have shown that child and adult speakers of Portuguese, English, French, and Japanese languages, with Western music training, score higher on Western emotional prosody recognition tests than those without such training (Lima and Castro 2011; Magne, Schön, and Besson 2006; Marques et al. 2007; Moreno et al. 2009; Muñoz 2007; Sleve and Miyake 2006). The implication is that emotional sensitivity via linguistic channels is not innate but learned, and that age is not a hindrance to such adaptation.

Such training may not be readily available to Arabic speakers because, after long argumentation amongst religious officials after the beginnings of Islam, a prohibition (*tawhid*) on emotional representation in artistic patterning (including music) was decreed (al-Faruqi and al-Faruqi 1986), and therefore, indirectly (or perhaps not), on such expression in language. In as much, Arabic music now is very strictured, non-rhythmic, only slightly intervallic, and mostly

improvisational religious poetry, with the rest being considered sinful (Lois Ibsen al-Faruqi 1981; Nettl et al. 2008:67). However, Arabic music has the same roots as Western music (Nielson 2012:249), and many Arabs are currently exposed, legitimately (Royal Embassy of Saudi Arabia 2015) or otherwise (Commins 2015:90-91; Nettl et al. 2008:66), to Western music and languages. This may account for their ability to seemingly reproduce Western emotional tone, but that would imply that the Islamic prohibition on expressive tonality imposes upon the speakers a subconscious or intentional disregard (perhaps wrought from fear as much as observance) for such tone when they hear it from others. So then, it would be not so much that cultural difference leads to their lower scores, but rather the intense observation of their religiopolitical mandates does.

Psychological distress is common amongst international students, and in various cases it is, at least in part, due to language difficulties (Edwards and Romero 2008:31; Kim 2011:297-8; Nair et al. 2012:1618; Yang, Noels, and Saumure 2006:502). There are some correlations between (1) diagnoses of either Major Depressive Disorder, MDD (Emerson et al. 1999, Kan et al. 2004, Murphy and Cutting 1990, Perón et al. 2011, Uekermann et al. 2008) and/or Social Anxiety Disorder, SAD (Quadflieg et al. 2008, Quadflieg et al. 2007), and (2) emotional tone miscomprehension in Western sufferers' own native tongue. Being that music therapy is known to ameliorate the symptoms of both disorders (Davis, Gfeller, and Thaut 2008:217-219), a question of causation is raised: is a lack of music exposure (or affinity to certain genres) at least partially causal to miscommunication and unintentional apathy, which leads to these symptoms, or do these disorders cause ambivalence towards music and emotional tone? A problem herein lies: international students or otherwise non-permanent residents that experience internal and/or interpersonal struggles due to difficulty with foreign linguistic prosody (unbeknownst to them)

may be misdiagnosed if they seek counseling for their ails. The diagnosis may initially be

"Adjustment Disorder," usually related to disadvantaged or minority status (American

Psychiatric Association 1994:624), but such labeling and misdirected attention could potentially

lead to a looping of psychological distress, amplifying it and making it more similar to severe

disorders (Kirmayer and Sartorius 2007:836). Given that MDD and SAD are frequently

diagnosed in the Arabic world (and perhaps unjustifiably treated as biomedical rather than

psychosocial problems [Kirmayer and Sartorius 2007:835]), this is not implausible for Arabic

international students. But diagnosed or not (especially as Arabic people are unlikely to report

the effects of such struggles as being anything more severe than fatigue or headache [Al-Bannay

et al. 2014:554]), it is likely the case that language difficulties can cause experiences similar to

those whose outward expressions are generally associated with MDD or SAD by Western(ized)

clinicians. As such, transcultural psychiatrists such as Kirmayer and Sartorius aforementioned,

as well as Kleinman (1988) would argue against such insensitive or incomplete diagnoses.

 I have founded my research on discovering associations that might be drawn between the

data within and intuitively implied significances of these studies, and have chosen to use

quantitative surveys (for cultural affinity, mental health indicators, and emotional tone

recognition) to elucidate these, but have augmented such coarse methods with participant

observation and semi-structured interview. In this way, I have greatly reduced chance responses,

accounted for changes in response decision, included the crucial element of gender

differentiation between subjects (to break down the usual outcome generalizations), and

distinguished between personal responses and culturally informative ones (by establishing a

consensus threshold for responses by which to analyze them, and further distinguishing between

shared and outlying explanatory themes). No less, I have elicited from my subjects the

emotional terms that they prefer to describe particular English emotional tones with. In as much that all of this could be done to provide depth and nuance to each sort of study aforementioned, let alone what they could provide when combined, there have apparently been large gaps in the fields of language, music, and transcultural psychiatry, and my goal was to help fill them.

As mentioned, my study was focused on Arabic speaking people. I chose to acquire student participants from the Colorado Front Range, and all but one live in Fort Collins (the other living in the city of Greeley). Research on this particular population demographic provided a window into the lives of not only Arabic speaking people, but those who are visiting the states and may or may not stay. In as much, their capacities and motivations for the process of learning ESL (English as a Second Language), and retaining it, are likely very unique to those of other Arabic demographics (such as immigrants to the States or Arabs in their home countries). My own incentives in this choosing were twofold: (1) if I discovered that Arabic students had emotional tone comprehension problems, and found correlations in the data, I could propose ameliorative actions that can be taken by students and/or educational institutions so that the students (potential future leaders and innovators) can live more integrated, professionally successful, and/or mentally healthful lives; and, (2) if such correlations existed, I could also make proposals for augmented language experience requirements for entry into, and communication training modules for those already working in, diplomatic careers in the government and NGO sectors.

The next chapter of this thesis (Chapter 2) will provide detail to the background theories, history, and studies aforementioned. Chapter 3 will describe the context of my study, including the geographical region and particular colleges in which it took place, the demographics of ethnicity in Fort Collins as well as Colorado State University (the source of 91.67% of my

Arabic participants), the sources and levels of Arabic students' exposure to the English language, and Arabic student gathering places. Chapter 4 will outline (1) the procedures of my research including the sampling strategy used to acquire American and Arabic student participants, the qualitative methods used including that of participant observation as well as debriefing interviews, and quantitative survey instrumentation, and (2) the analytical methods used, such as content/theme analysis and descriptive statistics, to discover meaning in the research data gathered. Chapter 5 will provide the analysis and results of the quantitative data, and Chapter 6 will do likewise for the qualitative data. Chapter 7 concludes my thesis research paper with a synthesis of the findings, and their significance pertaining to Arabic international students, higher education curricula, and international business and diplomacy; and, with considerations for future research. Appendix A contains copies of the quantitative survey instruments used in my study, and Appendices B and C contain raw interview and participant observation data from which Chapter 6 was formulated.

Chapter 2: Theory

2.1 Introduction

In this chapter I present the background research that inspired my own. It ranges from studies in linguistics, language and culture (including sociolinguistics), and music and culture, to transcultural psychiatry. I segue through each subchapter by linking disparate data, revealing that there are knowledge gaps to be addressed, and that specific foci of each research field can be linked with those of the others to fill those gaps.

2.2 Prosody

2.2.1 As a Universal Linguistic Device for Symbolism and Empathy

2.2.1.1 Symbolic Prosody

Vocal tone, considered the primary component of prosody (also comprised of metalinguistic elements of stress and duration), when used in a smattering of languages to emphasize particular words, often attaches notions of or represents the speakers' position of either submission or dominance (Nuckolls 1999:234). This occurs when a tone or frequent tone action such as rising or falling pitch at sentence termini is maintained through discourse. Many cultures, from industrial to hunter-gatherer, consider low tones to be dominant (Borkowska and Pawlowski 2011:56, Nuckolls 1999:233). This may reflect instinctual reactions to the sexual dimorphism of both body testosterone levels (Borkowska and Pawlowski 2011:56) and vocal tract size and morphology (Nuckolls 1999:234). With the given quantity of evidence that this is a human universal, the term *frequency code* has been applied to this phenomenon of *magnitude sound symbolism* (1999:233-4). However, there is evidence that cultural learning may play a large part in such perceptions, whereby in a study of one cultural group the frequency code was

not recognized until around age 11 (1999:234). So, it may be that such late adoption of tonal power signification reflects child-rearing practices that are careful in regards to parental power sharing equity and the teaching of respect for both genders. Such late adoption may be a confounding variable for the studies of other cultures' tone height perceptions.

A myriad of European studies using ERP (event-related potential) detection have shown that, "[...] at the functional level, prosody has both emotional and linguistic functions" (Marques et al. 2007:1454). It expresses subjective feelings and denotes conceptual persuasion simultaneously. Looking into prosodic confusion, writing on *speech networks* in just the English language alone, Dell Hymes (1972) noted that

> "[t]here may be persons whose English I can grammatically identify but whose messages escape me. I may be ignorant of what counts as a coherent sequence, request, statement requiring an answer, requisite or forbidden topic, marking of emphasis or irony, normal duration of silence, normal level of voice, etc., and have no metacommunitative means or opportunity for discovering such things. [...O]ne's speech community may be, effectively, a single locality or portion of it; one's language field will be delimited by one's repertoire of varieties; one's speech field by one's repertoire of patterns of speaking." [1972:54-55].

These problems directly relate to the very mechanisms of empathy.

> "[e]mpathy can be decomposed into several distinct but interacting processes: sensorimotor synchrony (also called the chameleon effect – moving, breathing in synchrony with another person); vicarious emotion (or emotional contagion – feeling the same emotion as another person); perspective taking (seeing or understanding things from the other's point of view); and fantasy or imaginative elaboration (constructing scenarios to situate the other's actions and experience in their life context). Some of these effects may be subserved by relatively simple mechanisms of imitation but others require more complex cognitive functions and, depend [sic], to varying degrees of detailed knowledge of the social world." [Kirmayer 2008:459]

In that empathy is key for socialization and idea sharing, and prosodic recognition required for it being functionality unique from culture to culture (or between subcultures and dialects even), prosody should then be of concern to all social scientists, travelers, and translators.

2.2.1.2 Emotional Prosody

The Foundations: Measuring Emotion

Transcultural psychology studies tend to rely upon the theoretical *basic emotions* first proposed by Ekman (1992) and founded upon studies of cross-cultural facial expression recognition accuracy. These are happiness, sadness, fear, disgust, and anger (and sometimes surprise). However, Ekman (1999) revised his list after the research base grew, to include the emotions of amusement, contempt, contentment, embarrassment, excitement, guilt, pride in achievement, relief, satisfaction, sensory pleasure, and shame. In static fashion, very few researchers' studies have involved Ekman's supplemental emotions, or qualifiers of valence, perhaps to the detriment of their value. Presumably, the justification for this lack of method advancement is that timely, affordable, and single-handedly productive empirical investigation requires simplicity. Some have sought to embrace the newer ideas though.

Pertinent to my study in particular, more recent research (Kayyal and Russell 2013) adds to this case the corroborative outcomes that Americans and Palestinians agree on the emotion of happiness, but differently associate facial expressions to a variety of other emotions (including the basic emotions but also, e.g., contempt, perplexity, relaxation, and hesitancy) whose lexical terms were even back-translated for intercultural concept agreement. This goes to show that, at least for facial expressions, the basic emotions may be basic to every culture but not interculturally recognized, and that even a two-fold increased number of emotions by which to measure perceptual or behavioral differences will not always increase chances of finding universal *expressions* of the basic emotions. In that Elfenbein and Ambady (2002) also found no universal pattern of recognition accuracy rates in their meta-analysis of a myriad of emotional recognition studies, it would seem that nurture, more so than nature, plays into how we facially

emote. It may be, however, that there are universal patterns by which cultures comprehend and miscomprehend each other's vocalized emotions.

Cultural Relativity

Pioneer Dennis Tedlock, working with the narratives of Zuni people in New Mexico, found that

> "notation of prosodic, tonal, and rhythmic patterns that include shifts in volume, changes in voice quality, and pausing to determine line properly reflects the dramatic and aesthetic elements of performance [and that] these narratives do not describe emotional states but 'evoke them' by dramatic shifts of pause and voice." [Bonvillain 2008:101, emphasis added]

To boot, Niko Besnier studied conversational rules of the residents at Nukulaelae, a Polynesian atoll, and affirms likewise that, "the reproduction of prosodic features, in fact, is critical because different prosodic cues are associated with different emotional states" [Bonvillain 2008:103]. Sometimes such emotional states can be hidden with prose. Researchers dePaulo, Lanier, and Davis (1992) discuss how, in Western cultures, habitual liars sometimes lie in predictably "negative" tones (1992:232). Regarding a study on emotion in the legal system, they also revealed that "judges who expected [a] defendant to be found guilty appeared wiser and fairer to people who could hear the words they used when delivering their instructions to the jurors, but they appeared less wise and less fair to those who could see only their visual behaviors or hear the tone of their voice" (1992:233). Such a finding is hypothetically revealing of the judges' true emotions or biases belied by their choice of words or linguistic eloquence, and what sorts of linguistic factors play into their unintended or desired evocations of emotions in others.

Recognizing such cues *between* cultures, however, is problematic. The *cultural proximity hypothesis* of Rosenthal et al. (1979) was developed from the results of nonverbal cue recognition (PONS) tests given to an array of people from different ethnic backgrounds in a multitude of study replications. The hypothesis from their significant findings on emotional tone is that the degree of miscomprehension between people from different cultures is dependent upon the subjectively perceived degree of exoticness between their concepts and practices as well as technical degree of difference between language groups, *linguistic proximity*, i.e. (1979:217-224). The aforementioned meta-analysis of Elfenbein and Ambady (2002) revealed that an *in-group advantage* of emotional recognition exists for each culture, which decreases between cultures that approximate each other in cultural *dimensions* – that is, location on continuums of individualism or collectivism, power structure, and gender roles, i.e. (Elfenbein and Ambady 2003:93, 105-107). This "advantage" seems to help people within each culture keep their emotional or situational cues tightly bound in some ways.

Scherer, Banse, and Walbott (2001) performed a multilanguage study wherein judges from Great Britain, the Netherlands, the United States, Italy, France, Spain, and Indonesia (a linguistically distant culture from the others) all judged the emotional tonality within pseudo-sentences spoken by Germans and constructed by a professional linguist to have no recognizable lexical elements (to remove referent association and thereby judgement confounds). The best judgments of prosodic emotion were ranked in the national order, and "the overall recognition rate of the Indonesian sample is lower than that of the other countries," (2001:85), with scores half as high for recognition of fear and joy (a commonly used synonym for *happy*) than the other emotions. Other nationalities scored better than the Indonesians with those two emotions, but also scored lower on them compared to anger, neutrality, and sadness. A native-language

assessment study with subjects from Britain, England, and the Netherlands revealed that perceptions of confidence, friendliness, emphasis, and surprise varied considerably between groups (Chen, Gussenhoven, and Reitfield 2004) – and these are countries of fairly *proximal* cultures and languages.

Another study, involving English listeners of English, German, Chinese, Japanese, and Tagalog, revealed similar differential scoring. It revealed that listeners "were least accurate in identifying emotions expressed in Japanese and Chinese," and that overall, "recognition of sadness and anger in speech was better overall than recognition of fear and joy, as reported in previous research (e.g. Juslin and Laukka 2003; Banse and Scherer 1996; Johnstone and Scherer 2000; Pittam and Scherer 1993)" (Thompson, Forde, and Balkwill 2006:419). The authors refer to the evolutionary theory of emotional communication, suggesting that "recognizing a pleasant sound may not bear on one's survival, but recognizing and locating a threatening sound may be the difference between life and death," and "sensitivity to sadness, on the other hand, may be adaptive for group cohesion, because displays of sadness signal to group members the need for help, support and protection," (Thompson, Forde, and Balkwill 2006:419-420), suggesting that the out-group can be sympathetically rallied to help by tone recognition. Another study, between British and Ashuar people, augmented this concept when it was found that "vocalizations of several positive emotions (achievement/triumph, relief, and sensual pleasure) were not recognized bidirectionally by both groups of listeners" (Sauter et al. 2010:2409). Similarly to the prior discussion, the authors suggest the possibility that

> "this is due to the function of positive emotions. It is well established that the communication of positive affect facilitates social cohesion with group members (22). Such affiliative behaviors may be restricted to in-group members with whom social connections are built and maintained. However, it may not be desirable to share such signals with individuals who are not members of one's own cultural group" (Sauter et al. 2010:2410).

Overall, these research models in emotional tone recognition between cultures (1) corroborate the *cultural proximity* and *in-group advantage* hypotheses and tie them to the implications of technical differences between linguistic groups, *linguistic* proximity, and (2) potentially validate the evolutionary and social exclusion theories of emotional tone that influenced their authors to begin with.

2.2.1.3 In Arabic

There are great differences in expressive qualities and admissible content between Standard Arabic (SA) and Dialectal Arabic (DA). SA is the form of Arabic language taught in college and used in reading, writing, and business interactions, but not informal conversation, which, as Albirini (2011) notes, is done instead with regional DA variants, of which there are very many (Glottolog 2015). More specifically,

> "speakers switch to SA for eight main reasons: (i) to introduce formulaic expressions; (ii) to highlight the importance of a segment of discourse; (iii) to mark emphasis; (iv) to introduce direct quotations; (v) to signal a shift in tone from comic to serious; (vi) to produce rhyming stretches of discourse; (vii) to take a pedantic stand; and (viii) to indicate pan-Arab or Muslim identity" [Albirini 2011:541, emphasis added].

Even when being abstract or symbolic in explanation (Albirini 2011:539) or when speaking poetically (something usually done for the sake of gaining audience attention rather than for art), the *eloquent language* of SA is used (2011:545). The Low Speech of DA is used when filling silence with arbitrary utterance or deemphasizing the significance of a discourse segment (2011:548), when "speaking down" to people (2011:550), and when giving concrete examples to convey or elicit emotion (2011:554). There is therefore a power struggle, between Arabic tribes or regional communities and the more globalized Arabic communities, that is embedded in Arabic communication where situationally varying degrees of code switching between Standard

Arabic and Dialectal Arabic occur because of it. The most salient features of this struggle, in regards to my study, are those of code-differentiated tones of seriousness and comedy (perhaps even elation), and the conversational relay/elicitation of emotion which may be more lexically and syntactically bound than tonally influenced.

Pell et al. (2009b) conducted a study of how well participant speakers of English, German, Hindi, and Arabic (Syrians and Jordanians) could judge emotions in their native languages via tonality alone, by listening to pseudo-utterances that were encoded by 2 male and 2 female amateur-level actors or public speakers from their native language. For the same reasons that an emotion recognition researcher would be interested in miscommunication and misconception between cultures apparently more exotic to one another (a la the *cultural proximity hypothesis* and *in-group advantage*), *linguistic proximity* was focused upon here. "Whereas English and German are considered closely related in both linguistic and cultural terms (i.e., both from the Germanic branch of Indo-European languages), Hindi is a more distantly related language from the Indo- European family, and Arabic comes from an entirely distinct language group (Semitic)" (Pell et al. 2009b:419). In standard Western academic grading, from highest (A) to lowest (F), they found that Arabic speakers were best able to recognize sadness (A), then fear, anger and neutrality (all B), followed by happiness (BC), disgust (CD), and surprise (D) (Pell et al. 2009b:428). Corroborating the prior universalizing studies mentioned, but by averages rather than by each group in particular, the other language speakers tended towards recognition of anger, then fear and sadness, with the rest following; however, English speakers (a contrast group relative to that of my own study) recognized anger, fear, and sadness altogether, with the rest following. Arabic speakers as a whole apparently scored lowest (59% correctness) of all language representative participants, with the German

judges at 67%, Hindi judges at 69%, and English judges at 81%, but all performed well above

the 14% score of chance correctness (2009b:430).

A prior study by Pell et al. (2009a) complicates these recognition scores. Argentine

judges analyzed similarly created pseudo-utterances in their own Spanish language, as well as in

(high) German, (Canadian) English, and (Jordanian/Syrian) Arabic. The score details are as

follows:

> "[V]ocal attributes of joy were identified significantly more accurately in Spanish (89%)
> than in Arabic (59%) and German (57%), which in turn exceeded hit rates for joy in
> English (32%). Expressions of anger were identified more accurately in both Spanish
> (81%) and German (77%) when compared to English and Arabic (67% and 66%,
> respectively). Expressions of disgust, which were recognized relatively poorly when
> compared to other emotions, demonstrated significantly higher recognition rates in
> English (52%), Arabic (45%) and Spanish (43%) when com- pared to German (28%).
> Sadness was recognized with the least accuracy in Spanish (51%), which differed
> significantly from Arabic (77%), English (74%), and German (65%). Interestingly, fear
> showed no significant differences in recognition accuracy across the four languages
> (English = 61%; Spanish = 57%; Arabic = 53%; German = 51%)." [Pell et al. 2009a:114]

Tones in the Arabic language were first best recognized for sadness, at balance with all others for

fear, second best recognized for joy, second for disgust, and third for anger. Overall, the Spanish

emotional tone recognition score was 64%, with Arabic as 59%, English at 58%, and German at

56% (Pell et al. 2009a:113). So it seems possible that there is not as much cross-cultural

prosodic miscomprehension taking place between Arabic speakers and those of romance

languages (at least Spanish), at least when the latter are the judges, even if their particular

languages are very distant. However, the authors remarked that "interestingly, these findings

contrast with those of our questionnaire which showed that the vast majority of our participants

(92%) perceived the Arabic task as most difficult for categorizing vocal emotions" (2009a:117).

It is likely that this inconfidence is due to the totally foreign grammatical and syntactical

structure of the Arabic language. Indeed, various *word*-level (not sentence level) studies of

prosody, at least, on American and Arabic subjects, have revealed that "the expression of Arabic word-level prosody is remarkably like that of English, both in the expression of stress and linkage of pitch accents to stressed syllables and in the occurrence of pre-boundary [word-final segment] lengthening" (de Jong and Zawaydeh 1999:20, emphasis added). It may be that such small similarities allow the Spanish speakers to comprehend Arabic tonality fairly well, even when intimidated by structure.

But then the question remains: why would it be that (1) Syrian and Jordanian people cannot judge emotions in their own language as well as people of other cultures can for their own respective languages (Pell et al. 2009b), and (2) why is it that Spanish-speaking judges can recognize Arabic emotional tone better than Syrians and Jordanians can (on the rational basis that the Spanish speakers recognized all languages equally well *overall*)? Given, only two studies are at my disposal, but it may be that even as Arabic people speak with shifting vocal tones, they actually listen for context more than said tones to understand the emotions of others. And, this may have something to do with their historical formulations of and current sanctions on "music." This theory can only be understood with some background explanation on music as a cultural universal, the effects of music training on Western prosody recognition, and finally, the historical development of and current sanctions on Arabic music.

2.3 The Role of Music in Culture

Melville J. Herskovits, an American anthropologist, noted in his 1948 volume "Man and His Works" (Merriam 1964:217-218) that there are five divisions of uses of music in every culture: material culture, divided by technology and economics, where work songs, activity synchronization songs, and ritual songs exist; social institutions, divided by social organization

(including life cycle songs), education (such as mnemonic devices), and political structure (including national/tribal anthems and propaganda); cosmology, divided by belief systems (songs in myths and those for religious functions, e.g.) and the control of power (over nature, i.e., with songs of supplication and supernatural assistance); aesthetics (graphic and plastic arts, folklore, music, drama, and dance); and language (including special types or codes only communicable by instruments). Anthropologist Alan P. Merriam added to this list other important purposes of music as validated by studies in ethnomusicology: emotional expression, some of which is not revealed in ordinary discourse; symbolic representation, in a completely metaphorical manner contrasted to the priorly listed role of specialized language; physical response, such as for crowd control, trance, rest, and invigoration; and contribution to the continuity and stability of culture as well as the integration of society (Merriam 1964:223-226).

Leonid Perlovsky, a United States Department of Defense project leader in language evolution research and past Chief Scientist working on artificial intelligence, would agree with Merriam. He contributes to the existence of a strong argument for music being an evolved trait, relative to (1) passively displaying honesty amongst otherwise convoluted verbal language (or oppositely to actively deceitful obscurations of intent), (2) infant directed speech (*IDS*) and other unique social affiliations, and to (3) more primal affect such as animal cries and mimicry (2012:185-188). He avers, with corroboration from a myriad of studies, that verbal language evolved to differentiate concepts of reality, and that music (even vocal tone sequencing) evolved along side of it as a way to maintain primal emotional synthesis which would otherwise be destroyed by the favoring of purely lexical abstraction over semantic *feelings*, which are necessary for sympathy and group cohesion (2012:191-193). The truth is more likely to be found in the meeting place of his and Merriam's argument and that of Herskovits;' it is most

likely that emotions evoked by music are inseparable from the elements of very unique and complex cultural worldviews, norms, rituals, and shared experiences. Therefore, affinity to another culture's music may be relative to affinities for other aspects of that culture as well, either naturally through cultural proximity or willfully through personal interests and motivation.

2.4 Western Music Performance and Basic Emotion Recognition

As noted earlier, the *basic emotions* model has been used in the majority of cross-cultural psychology studies. This is also the case in cross-cultural studies of emotional perceptions of musical scales (Eerola and Vuoskoski 2013:311-312). In European and American countries, the seven Greek musical modes – 7 tone variations of the whole Western 13 tone chromatic musical scale – are the norm in musical media. Although the Greeks were very poetic about the particular modes being associated with particularly nuanced emotional responses for musicians and non-musicians alike, classical and pop musicians today are rarely so: the dominant music theory now is that there are merely major (positive) and minor (negative) modes. A plethora of music perception research with human subjects, from the 20th century forward, drives the conclusion that the artistic justification for labeling of modes as simply positive or negative is not just theory but popular consensus (Hunter, Schellenberg, and Schimmack 2010). However, adding the element of tempo to such studies challenges their simplistic generalizations.

Ramos, Bueno, and Bigand (2011) performed research that revealed increases in tempo as causational to transformed emotional responses, whereby (1) two of the four minor modes went from sadness to both fearfulness and anger, and (2) the three major and other two minor modes went from happy to elated, and from sadness to serenity and happiness, respectfully. In as much, the results seem to partially validate the usefulness of valence (negative to positive) and

arousal (high and low) dimensions in studies of music and emotion (Eerola and Vuoskoski 2013; Hunter, Schellenberg, and Schimmack 2010:48), but the conversion of the last two modes from negative to positive valence goes against that theory. Of technical importance, complications indicate that, contrary to much prior music theory,

> "the pitch interval between the 1st and the 3rd tone of the mode [a marker of "major" and "minor"] is not the only one that determines the emotional expression of the mode. For Example, the Dorian and Aeolian ["happy" and "sad"] modes have the same minor interval between the 1st and the 3rd tone of the mode; they differ only by one pitch interval between the 1st and the 6th tone." [Ramos, Bueno, and Bigand 2011:170]

It required changes in tempo with multiple musical modes rather than just one "negative" and one "positive" mode (noted for only their minor or major third interval respectively), to objectively state that there are more than just those polar valences to the emotional conceptualizations and elicitations that arise with certain musical scales – something that probably every true music enthusiast is already emotionally aware of in regards to particularly favored songs. At least three of the modes tested have nuanced emotional feeling to them that may not accord with linear progressions on a Cartesian coordinate system in the way that the others do; and, it may also be the case that the others would not have been described as they were if choices beyond the basic emotions were given to participants. Each musical mode could have painted a very different picture in the participants' minds.

In direct connection with this, increased recognition of the differences between these scales (e.g., musical training) may help people recognize others' emotional prosody. Research done with 11 musician and 11 nonmusician French citizens (naive to Spanish or Portuguese), on the prosodic correctness of 120 Portuguese declarative sentences (where normal sentences were left alone and the endings of others were altered by computer), showed that both groups did generally well to recognize which sentences were congruous and which were incongruous, but,

"when the local pitch changes were small and difficult to detect, (weak prosodic incongruities) musicians performed better than nonmusicians [which is] in line with the hypothesis that musical expertise, by increasing discrimination of pitch – a basic acoustic parameter which is equally important for music and speech prosody – facilitates the processing of pitch variations not only in music [...] but also in language." [Marques et al. 2007:1459-1460, emphases added].

In another study by Sleve and Miyake (2006), 50 Japanese Americans between the ages of 19 and 52, having lived continuously in America for at least 6 months at the time of the test, underwent testing for recognition of a variety of linguistic parameters including prosody. Length of residence turns out to be a better predictor of L2 phonology and syntax than age of arrival for adult learners, noting a common degree of plasticity between age groups, but, "the inclusion of musical ability [...] accounted for additional variance in receptive and productive phonology" (Sleve and Miyake 2006:678).

Also in regards to age as a non-limiting factor in such recognition training, one study involved both adolescent and middle-aged Portuguese speaking musicians, all of whom had performed either instrumental or vocal music for more than 8 years. They were tested for their recognition of emotional prosody within their own language, and

"musicians were more accurate than musically naïve listeners in recognizing emotions," and "this effect was general across the seven emotional tones tested (six universal emotions and neutrality), was observed in two age groups (young and middle-aged adults), and was widespread across the participant sample." [Lima and Castro 2011:1027]

Another revealed that American youth with music training, during an age at which their auditory cortex is still developing, are a match for adults when it comes to prosody recognition competence (Magne, Schön, and Besson 2006). Research in Portugal has statistically corroborated this, and reveals that such training does not take long to have a measurable effect (Moreno et al. 2009). So, there is potential for music learning to trump years of cultural experience, as well as any supposedly biological predisposition for either musical ability or

emotional intelligence, when it comes to emotional prosody recognition skills. Analogous studies of language acquisition and retention show that teenage and adult groups are equals at grasping Universal Grammar Principles, perceptual abilities, production skills, and syntactic, morphological, and metalinguistic comprehension (Muñoz 2007:3-4), as well. Musicality and therefore intracultural let alone foreign emotion recognition aptitude is then, quite possibly, just a matter of training.

All of these studies indicate that there is a consensus amongst the Western language groups that particular vocal tone patterns correspond to particular emotions, representing them and evoking them. Due to the fact that non-musicians do not judge such emotions as well as musicians, it can be said that they are not as culturally consonant. Such consensus may be due to the fact that Western cultures were fabricated in part by music itself: from the 6th century to medieval times, music used to be held in the utmost esteem, on par and integral with the study of mathematics, and required in educational coursework during the modern equivalent of a master's degree, without which one could not credibly engage in the prestigious areas of natural philosophy (fundamental to modern science) and theology (and hence law, when merged with the study of rhetoric) (Glick, Livesey, and Wallis 2014:43, 47, 101). These are fields of great social agency in the formation, conservation, or change of culture.

Musical training was conceptually loaded, then, and likely affected orthopraxical speech tonality for the transmission of abstract ideas and emotions, from the Latinate to the Germanic and English language groups, making certain spoken tonal sequences not naturally expressive but rather manmade. In fact, research outcomes from a study by Thaut, Trimarchi, and Parsons (2014), involving PET scans of musically trained and untrained controls who were tested for melody and rhythm recognition, reveals that whereas non-musicians process melody in the

superior temporal region of their right hemisphere, musicians process it mostly in the spatially homologous, hemispherically opposite region: in which exists their speech recognition area, "Wernicke's Area" (letter to author from Thaut, October 26, 2015). This location was not activated for tempo or meter recognition, so it would seem that this musician/non-musician difference is not necessarily relative to the learning of sheet music per se, but to the awakening of a neural mechanism that links melody to linguistic prosody.

So, the cultural dissonance seen in modern people lacking musical education could be relative to the post-industrial deprioritization of the arts in Western education systems, leading non-musicians to actually have less acculturation. There is yet a common capacity for feeling the weave and weft of Western culture, but a naiveté and incompetency of an important loom technique – one that, at the least, can lead one to heightened socializing skills, and that, at its most deft utility, can lead formally educated actors let alone musicians to stardom for their powers of evocation and sensitivity. Esteem for such ability is apparently not universal, however; at least one culture has come in the last millennium to explicitly enforce the suppression of emotional symbolism in music.

2.5 A Primer on Arabic Music

Historical Arabic music theory was just as heavily influenced by Persian, Mesopotamian, and Greek sources as Western music was (Nielson 2012:249). Its driving theory through time is recorded as having involved reflections on the mathematical, philosophical, and cosmological, yet it was eventually directed towards the sole purpose of religious worship or representation (Saoud 2004). Arabic music history also involves a great deal of sexual, political, and financial intrigue that led to dramatic shifts in policies regarding its composition and performance in the

courts and in public. Prior to Islam and even in the early centuries of its dominance, slave

women and transgender men were often trained as seductive courtesans of sorts – *singing girls* or

effeminates, respectively – as well as master performers of musical genres that are now in the

"controversial" tiers of the Arabic music hierarchy (Nielson 2012). The studious satirist Abu

Uthman 'Amr ibn Bahrf al-Jahiz, between 776-869CE, said in his *Epistle on the Singing Girls*

that in their songs "there is not one mention of God (except by inadvertence) or of the terrors of

future punishment or the attractions of future reward," and that all of them are "founded on

references to fornication, pimping, passion, yearning, desire, and lust" (Nielson 2012:253).

Singing girls, especially, were able to corrupt powerful officials, and some of them became very

powerful themselves, immersed in lust, envy, greed, and sometimes torture and murder

(2012:248).

Religious arguments from the end of the first millennium CE through the first centuries

of the second eventually led to widespread authoritative opinion that music (1) influenced

emotions and could drive a person mad, (2) caused excesses of the court that related poetry to

financial and moral decay, (3) and involved patronage that tended to be enacted on a platform of

sin and could easily lead to apostasy – a problem of potentially apocalyptic magnitude,

considering the caliphs (rulers) of Arabia themselves were patrons (2012:257). Masculine men

came to dominate musicianship in the courts, even gaining great popular fame, yet held very

little appeal as courtiers and contributed very little overall to music culture due to the shame and

poverty of such a position brought on by the ultimate prohibition of musicians and other artists

on holding any titles or social honor (2012:251, 260). As Islam gained adherents and widespread

authority through the centuries, *tawhid* ("unity with Allah"), a fundamental tenet of the religion,

began teaching "that [...Allah] cannot be musically associated with sounds that arouse

psychological or kinesthetic correspondences to beings, events, objects, or ideas within nature"

(al-Faruqi and al-Faruqi 1986:512, emphases added). This is as much based in the

aforementioned social troubles related to musicians as it is to the decree (*hadeeth*) of Mohammed

that the lawfulness of music can only be associated to sinners and the end-times of the world

(Saoud 2004:2). So, for observers of Islam beyond those early arguments, it is taboo to

standardize tonal patterns for the representation of particular emotions, because doing so is to

exclude Allah from such music and therefore to not live in tawhid.

In as much, "music" is very different for Arabic people today. In the book *An Annotated*

Glossary of Arabic Musical Terms by Lois Ibsen al-Faruqi (Greenwood: Westport, CT, 1981),

research of modern Arabic musical culture reveals that there is a four-tiered hierarchy of music

types based on religiopolitical acceptability. From the top down,

> "it begins with music-like utterances that are not music (e.g., Koran and religious chants)
> and goes on to music that is legitimate or *halal*: chanted poetry, music for family
> celebrations such as weddings, and occupational folk songs, and finally, military music.
> [The] next category consists of a number of genres that are controversial, consisting
> largely of what we consider to be classical music, followed by music that is illegitimate
> (*haram*), associated with unacceptable contexts such as nightclubs." [Nettl et al. 2008:66,
> emphasis added]

This hierarchy moves "from vocal to instrumental, from nonmetric to metric to the use of

repeated driving rhythmic formulas, from improvised to composed, from traditional to

Westernized" (Nettl et al. 2008:67). Authors al-Faruqi and al-Faruqi (1986) note that "Melodic

and rhythmic elaboration is confined to small segments of [Arabic] musical scales, often

encompassing no more than four or five tones" and "intervals of more than a third rarely occur,

motivic materials are usually very short in content, and changes in dynamic level (loud vs. soft)

are very minimal if at all present" (Maurer 1998). It stands to reason, then, that for Arabic

people it is these differences that denote the elements that give emotional content to music. This

seems to accord with Western views, as structured, melodic music is perceived as emotionally evocative.

In Saudi Arabia, a most conservative Islamic kingdom where music is absent in public places because Clerics deem it a sin (Commins 2015:90) and where it is not even taught in schools, *halal* music is still actively promoted by the Saudi Arabian Society for Culture and the Arts (Royal Embassy of Saudi Arabia 2015). However, in all traditional Middle Eastern societies, musicians are a group of people usually held in low esteem unless they make it to international stardom (Nettl et al. 2008:66), probably because such fame can be leveraged for religiopolitical pride (Commins 2015:91). In spite of this generality, Saudis disobey their culture's strictures on music by listening to and downloading popular Western music from the internet, watching satellite television broadcasts with Arabic musical entertainment and talent contests, and even participating in an underground music performance scene, both in private physical locations and taking place as a YouTube video genre (Commins 2015:90-91). With such rebellion existing in Saudi Arabia, it may be extrapolated that it also occurs in many analogously conservative Arabic countries. In as much, access to the world of controversial and *haram* music is not hard to come by, but actual engagement with it, and therefore wanton influence by and mimicry of the emotions that can be encoded by it (Western or not), all depends upon the religious integrity, or perhaps revolutionary ideals, of a Muslim person – a truth that any stranger might be hard pressed to uncover about them.

All in all, it seems likely that strictures on Arabic music, specifically the notion of *tawhid*, would cause conservative Muslims of any nationality to have at least a subconscious aversion to highly tonal, or emotionally patterned, expression in general. By the findings of the Pell et al. studies (2009a, 2009b) on Arabic perceptions of Arabic emotional tone, and non-

Arabic language speakers' perceptions of Arabic vocal tone, it seems that Arabs tonally express themselves in recognizable ways to other cultures yet possibly avert their minds from *recognition* of such tone at least as it is expressed by other Arabs. In that the languages themselves are extremely distinguishable from one another, it would seem that there is some mysterious factor at the root of the languages' tonal similarities. Perhaps it is historical Spanish-Arabian contact. Perhaps it is that, although Arabic people may not have conscious affinity for non-Arabic music from other nearby countries or from multimedia, the possibly unavoidable exposure to such music itself influences them by way of unintended or subconsciously preferred production of such tones, easily recognized by speakers of Spanish, at least. More research on this is surely needed.

2.6 Language Acquisition, Well Being, and Linguistic Relativity

In one study of discrimination factors in the lives of Mexican American adolescents, it was found that 20 of 68 interviewees experienced stress because of their accent (Edwards and Romero 2008:31). Another study of 749 metropolitan Mexican American students and their families found that "language hassles and discrimination emerged as significant, independent predictors of changes in symptoms for internalizing disorders, and language hassles was also a significant predictor of growth of externalizing symptoms," showing the role of language adjustment to be a cultural stressor "in the development of mental health difficulties for this population" (Nair et al. 2012:1618). Similarly troubled Chinese youth have experienced "[1] depressive symptoms [caused by] the indirect effects of speaking English with an accent, [2] being stereotyped as a foreigner, and [3, the perception of] discriminatory experiences" via not being able to properly reproduce "the dominant standard in the United States for the correct use

of language, a standard that is tied to a person's accent" (Kim 2011:297, emphases added), leading to *victimization* and adjustment problems (Kim 2011:298). Corroboratively, for 81 non-English speaking international students at a Canadian university, from East and South Asia, Latin and South America, East and West Africa, Central Europe, and areas of the Middle East, "language self-confidence [was] associated not only with psychological adjustment, but also with sociocultural difficulty" where actual or perceived language self-confidence helped with even small daily tasks (and thereby decreased many instances of difficulty leading to a better mental state), suggesting that "communicative competence in the host language directly promotes better well-being, perhaps because the language provides a vehicle of self-expression and identity negotiation, which is physiologically rewarding" (Yang, Noels, and Saumure 2006:502, emphasis added).

In the Western world, associations exist between decreased competency in vocalized emotion recognition and diagnoses of Major Depressive Disorder or *MDD* (Emerson et al. 1999, Kan et al. 2004, Murphy and Cutting 1990, Perón et al. 2011, Uekermann et al. 2008), and Social Anxiety Disorder or *SAD* (Quadflieg et al. 2008, Quadflieg et al. 2007). So it seems that even English speakers, i.e., can experience social distress and simultaneously have problems with their vocal tone and/or accent. Given the literature thus far relating music to emotional tone in speech, and the fact that music therapy is proven to ameliorate depression and anxiety (Davis, Gfeller, and Thaut 2008:217-219), this begs the question of causality. If increased involvement with music in life can ameliorate depression and anxiety, and also help with vocal emotional tone, it may be that psychosocial distress experienced by non-native speakers can be helped by the same approach. Some non-native speakers may need such help more than others, and they may approach professionals for help, but since music education and exposure is not a practice in

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traditional counseling (let alone language classes) as biomedical diagnosis and treatment, their problem may be amplified thereby.

A diagnosis of Major Depressive Disorder (MDD) requires at least one Major Depressive Episode, and these are powerfully debilitating (American Psychiatric Association 1994:327) to the degree that they are viewed as components of the neurophysiologically extreme "Axis I" disorders (1994:625). Anxiety disorders, also very debilitating, fall under the same axis. Similarly to the Western world (Collins, Patel, and Joestl 2011), these disorders are leading contributors to the disease burden in Arabic countries (Mokdad et al. 2014). Adjustment Disorder (AD) symptom severities fall short of criterion in both prior disorder sets, but can be impairing in very similar ways. There are acute and chronic versions of it, and it is coded with associations to depressed mood and/or anxiety, and disturbance of conduct (American Psychiatric Association 1994:624). It is usually attributed to the stressors of being in a disadvantaged status (1994:625), such as can be the case with non-permanent residents. A Western psychiatric clinician, unlikely to have any education in culturally specific perceptions of prosody, who has given the diagnosis of AD to a non-native resident, may have accounted for ethnic background and current living situation but might not attribute their troubles to any potential sort of language barrier if the resident communicates concepts in English well enough. Such a diagnosis might exacerbate the resident's troubles.

A dangerous presumption might be that they simply cannot cope, since they will exhibit "*marked distress that is in excess of what would be expected given the nature of the stressor, or by significant impairment in social or occupational (academic) functioning*" (1994:623, emphases added). Given the holding pattern they are put in – as outpatient sufferer of "AD," among the other 5-20% of all psychiatric patients *principally* diagnosed with AD (1994:625) –

they could experience an endless *looping* of distress whereby (out of proposed order, but

appropriate for these circumstances):

> "attention to sensations [rather than symptom causation] increases their salience and intensity, leading to greater and more focused attention," "availability of healthcare services and caregiving services increases the tendency to seek care," "emotional arousal interferes with functioning, leading to performance decrements, negative self-appraisal, and greater emotional arousal," and then the perception of "disability sanctions the avoidance of unpleasant circumstances and hence reinforces disability." [Kirmayer and Sartorius 2007:836, emphasis added]

Their distress may be so amplified that they become subject to experiences that lead to

intensified diagnosis in the Axis I category, with SAD, MDD, or both. It may only be after such

a diagnosis that attention is paid to their misperceptions of others' vocal emotional tone.

It must be recognized that there are cultures in which some emotions are interwoven with

others, and even with concepts and bodily feelings, making emotions uniquely complicated

rather than universal and discrete. For example, Robert Levy (1973:305)

> "investigated the emotional lives of Tahitians and discovered that the culture had 'no unambiguous terms that represent the concepts of sadness, longing, and loneliness', making it difficult for the islanders to grapple with depression and melancholy when they did occur." [Collin 2013:284]

Similarly, "the words "depressed" and "anxious" are absent from some American Indian and

Alaska Native languages," where "a culturally different expression of illness, such as ghost

sickness and heartbreak syndrome, do not correspond to DSM disgnoses" (NAMI 2015). Ghost

sickness is amongst the 25 "culture bound syndromes" listed in the DSM IV (American

Psychiatric Association 1994:844-849), and this is not an exhaustive list (Hinton and Good 2009;

Kirmayer 2008; Kirmayer and Sartorius 2007; Kirmayer, Lemelson, and Barad 2007; Kleinman

1988; Sapolsky 1998; Office of the Surgeon General 2001:161-2, 166; Watters 2010).

Traction is being gained in some academic circles by the argument that although

depression does have some universal qualities between cultures, it occurs with a myriad of

culturally specific symptoms both mental and somatic (Kohrt et al. 2014:394), and has a way of working itself out in unpredictable ways far more so than by any sort of psychiatric intervention such as cognitive behavioral therapy or psychopharmacology (Bracken et al. 2012). It therefore seems to be mostly psychosocial in nature, whether or not looping can create real biochemical dysfunction (revealing that physiological markers may be getting confused as causational factors). In Middle Eastern countries, "people may be unwilling to admit psychosocial complaints to avoid social stigma" and will "use socially acceptable forms of illness such as headache and fatigue to report consciously or unconsciously their psychosocial health problems" (Al-Bannay et al. 2014:554). This may seem to a Westerner as repressive or exacerbating of serious illness, but is likely a socially acceptable *idiom of distress* – "a way to express dissatisfaction with living conditions, [and] legitimate difficulties in performing social roles" (Kirmayer and Sartorius 2007:835, emphasis added) – that confers strength to them in the face of adversity while implicitly and recognizably informing others around them that they need space, time, or some other reprieve. This implies that their cultures are well enough aware of the real impacts of psychosocial stress and that they have instituted a discrete social rather than technological mechanism to prevent its potential ravages.

In this regard, there are many cultures like those of the Middle East. Arthur Kleinman (1988) outlined the stages through which biopsychocultural healing takes place in much of the non-Western world (1988:131-134), which comprise a generally less alienating, more socially integrated and supportive, cultural mythos-encoded process that greatly contributes to the positive courses and outcomes of illness, at the very least by decreasing the worry-inducing, self-deprecating, and socially nerve-wracking effects of psychological illness amplification. In light of the reality that differences exist in psychiatric illness, treatment, and outcomes from culture to

culture, he suggested the creation of a "program for teaching anthropology at different levels and in different contexts of psychiatry," from academe to residency to practice (1988:153-159, emphasis added), so that both disciplines can educate and actively work with one another in order to lessen the potentially detrimental psychological and chemical impacts of purely biomedical approaches to healing. With this approach, there would likely be no such diagnosis as "Adjustment Disorder;" there would only be a recognition of socioeconomic or cultural disconnect, and a sensitive planning process for fixing it.

2.7 CONCLUSION: CULTURAL INFLUENCES OF PROSODY, MUSIC, AND MENTAL WELL BEING

Although prosody is a culturally universal mechanism for the auditory expression of concepts and emotions, its references are in many ways ethnically exclusive. This specificity can overlap somewhat between cultures that are *proximal* in ideologies and behaviors, but can be a barrier against cross-cultural understanding otherwise. In the case of Western languages, there is a significantly shared emotional prosody. For people from the cultures in which these languages are spoken, studies have shown that the various modes (permutations) of the Western musical scale predictably elicit or remind them of particular emotions. Yet just as miscommunication and misunderstandings increase between cultures of increasingly dissimilar ideologies and behaviors (a la the *cultural proximity hypothesis*), increases in technical differences between Western languages and others causes emotional elicitation and recognition to decrease. Too, there is a curious universal amongst a smattering of cultures whereby people seem to code the tones they use for *fear* and *joy/happiness* differently from other cultures. Oddly, the outcomes of studies (scant as they are) on emotional tone recognition of Arabic expressions by culturally and linguistically distant people, and on the competency of Arabic people to understand emotional

tone in their own language, imply that there may be some counterintuitive overlap between Western language tonality and Arabic tonality; but that, crucially, Arabic people may subconsciously or intentionally ignore and therefore "miscomprehend" or rather disregard such tonality (perhaps due to the nature of *tawhid*, a particular Islamic music law, and Islam's very different notions of what music is and should be used for).

The notion that concepts are fully *effable* or translatable from one culture's language to another has been argued against by linguistic anthropologists since the early 20th century with *linguistic relativity theory*, namely an *essentialist* view of cultural complexity describing "the belief that a given language evolves to describe the essence of a given culture in a way that cannot easily be translated into other languages and other cultures" (Collin 2013:283). This belief is backed up by the facts that even professional linguistic translators for international diplomacy often cause unintended negative reactions (2013:287), and word-borrowing from another language often seems to be the only resort to explain a foreign concept (2013:294). In that concepts (symbolized by words) are tied to emotions (symbolized by sound) in a way that imbues them with felt experience, it may be that both a push towards cultural affinity and participation (and not just foreign language acquisition), as well as knowledge of the relation between music and emotion, is a great way for anyone of a given culture to acclimate to another. This could eliminate certain degrees of perceived ethnocentricity, xenophobia, chauvinism, or even racism (for both host culture and foreign people), and in the process lessen any negative emotional impacts – even the precipitation of mental disorder symptoms – from confusion during intercultural acclimation.

Chapter 3: Context – Arabic International Students at CSU

3.1 The Arabic Populations of Fort Collins and CSU

Colorado State University, in the heart of Fort Collins, has an average annual student enrollment of nearly 30,000, with 5% of that population being of international origin, and the total representing nearly one fifth of the entire city population (Colorado State University 2014). The demographics for permanent Arabic residents of Fort Collins are not available, as the US Census Bureau only offers ethnicity options of "white, alone," Black of African American alone," "American Indian or Alaska Native alone," "Asian alone," "Native Hawaiian and other Pacific Islander alone," "Two or More Races," "Hispanic or Latino," "and "White alone, Not Hispanic or Latino" (United States Census Bureau 2015). However, CSU demographic data shows that 357 students from predominantly Arabic speaking countries (CIA 2015) were enrolled during the Fall semester of 2014 when I did my data collection (iR Interactive 2014). This includes 227 undergraduates and 130 graduates. Some of these students may be from the nearly 4,400 that are not considered on-campus, resident-instruction students (Colorado State University 2014). Either way, the lifestyles of these Arabic international students altogether are likely very different from those of permanent residents, so the two groups may have very little to do with one another. These 357 students are accounted for in the following tables, alphabetically ordered by country.

Table 3.1: Undergraduate Enrollment of Students
from Predominantly Arabic Speaking Countries

Jordan	1	Kuwait	24	Libya	2	Morocco	2
Oman	55	Pakistan	12	Qatar	11	Saudi Arabia	113
Syria	1	Tunisia	1	UAE	5		

Table 3.2: Graduate Enrollment of Students
from Predominantly Arabic Speaking Countries

Egypt	3	Iraq	8	Jordan	5	Kuwait	3
Libya	47	Morocco	3	Oman	3	Pakistan	9
Saudi Arabia	48	Tunisia	1				

3.2 English Language Preparation

Many non-Western students require intensive English language coursework before they can engage in a Western university education. This is determined by whether or not they score 80 or above on the Test of English as a Foreign Language (TOEFL) and 6.5 or higher on the International English Language Testing System (IELTS) exam (INTO CSU INC. 2015). CSU provides intensive English language coursework through the INTO program that are either 2 years long or just the second year, depending on prior English proficiency (some of which may be gained in high school, and/or by family status, as English is often a language of business and government).

3.2.1 Exposure: Western Languages Spoken in Arabic Countries

Over the course of world history, many transactions, some peaceful and some violent, have taken place between Middle Eastern and Western cultures. As a result of this and of the English language becoming a multinational language of industrialization, various Western languages are spoken in some of the predominantly Arabic speaking countries. This is a factor that is accounted for in my research by way of four prompts on the demographics survey component of my study: (1) "parent's home country or countries" (to reveal non-Arabic language influence, whether or not such language is actively studied or replicated), (2) "languages spoken, in order (primary, secondary, etc)," (3) "# of years you have spoken English (even while first learning)," and (4) "# of years you have spoken a Romance Language (ie, French, Italian, Spanish, etc)."

Regarding the four countries which my participants call home: I have been told by my participants that English is spoken in Saudi Arabia for business purposes, even though it is not listed by the Central Intelligence Agency (2015) as even a minority language there, however, English and French are noted to be "widely understood by educated classes" in Egypt, with Italian and English being "widely understood in the major cities" of Libya, and with French often being "the language of business, government, and diplomacy" in Morocco. The only one of my Arabic participants who speaks a language outside of Arabic and English is the Moroccan participant. He is a speaker of Arabic, French, and English, and his parents are also from Morocco. The other two non-Saudi Arabian students, as well as two Saudi Arabian females whose mothers come from Jordan – a country where English is "widely understood among upper and middle classes" (Central Intelligence Agency 2015) – can be considered as equally well-exposed to non-English Western languages as the trilingual participant, though they are self-

admittedly not proficient as such. Especially for students and immigrants from Arabic countries such as Saudi Arabia that don't officially speak Western languages, music taboos may have some effect on how willing and able they are to replicate symbolism and emotion in Western language prosody altogether, given the inherent correlation between Western music and speech – whether or not they objectively or subconsciously comprehend it.

3.3 Cultural Organizations and Clubs, and American Venues

3.3.1 Introduction – Comfort and Taboo in Public Places

Given the reality of musical constraints as a form of enforced piety in Islam, the pervasiveness of Western music in public places is likely problematic for the socialization of observant Muslims of any culture, let alone Arabic international students (Islamic or otherwise). It should be considered that these groups might feel a certain degree of discomfort, or even guilt and fear, when they are immersed in Western music. Even official use of a Western language in an international student's home country, or a more liberal stance on Islamic law, does not necessarily imply familial or community acceptance of the (classically) language-corresponding music. Although Arabic people are more likely thereby to commingle together in culturally appropriate situations, there are exceptions. I will list those locations of both circumstances which I have been exposed to.

3.3.2 Arabic Club, Muslim Student Association (MSA), and Saudi Student House

The two official Arab-centered clubs at CSU are the Arabic Club and the Muslim Student Association (MSA). Another club, called Saudi Student House, is somewhat active but loosely organized through Facebook. I spent time at club meetings of each organization, in various

settings. The objectives of the first two are openly stated to the public while the third is fairly

mysterious, and this is even reflected in the degrees of advertisement and exclusivity of each

club. I describe this in detail in my participant observation analyses in Chapter 5.

Arabic Club is a language-learning focus group comprised mostly of non-Arabic learners

of Standard Arabic.

> "Although designed for the additional practice of students of the [Standard] Arabic
> language outside of the classroom, all are welcome to attend this group dedicated to the
> study of Arabic culture as a whole. We explore facets such as media, food, music, Islam,
> and of course the beautiful language. Native speakers are encouraged to attend as well, as
> they constitute a valuable resource for practicing conversation and providing their
> perspectives." [Arabic Club 2015, emphasis added].

The MSA is comprised of students who are already Muslims, or who are interested in Islam.

From their CSU website:

> "The Muslim Students Association of Colorado State University consists of a group of
> students dedicated to preserving and educating the general public about their Islamic
> heritage. The group has two main focuses: to provide necessary services to the Muslim
> students of C.S.U. and to promote awareness of issues related to Islam, Muslims, and the
> Muslim world. Services for Muslim students include prayer and sports reservations,
> advocacy, and advice. Awareness of Muslim issues, which comprises a major part of the
> work of the M.S.A., includes everything from lectures to benefit dinners to movies. The
> issues addressed include a wide variety of topics, from mundane to sublime, secular to
> religious, local to international. An emphasis on providing an unique perspective on
> contemporary American problems is a goal of the M.S.A." [MSA 2015]

3.3.3 The Islamic Center

The Islamic Center of Fort Collins is right next to the CSU campus. This is very

convenient for busy and transportation-challenged Muslim students of any ethnicity. It is a place

of worship not dissimilar in purpose to a mosque, but one that also serves as a frequent "open

house" for non-Muslims to visit and learn about Islam through seminars and by way of

conversation with the congregation members. For its members, it also facilitates "social, civic,

humanitarian, educational, scientific, research-oriented, literary, athletic and other activities compatible with the Islamic teachings" (ICFC 2015).

For devout Muslims, such activities with their own faith community must be a sort of respite from their more liberal American social surroundings. It must be stated here that the 9 of 12 Arabic participants in my study who are Saudi Arabian are Muslims by law – in Saudi Arabia any person born to a Muslim man is deemed Muslim, and there is no religious conversion without exile, imprisonment, or death (U.S. Department of State 2013). In as much, they are likely to take taboos much more seriously than the other 3 students, whether due to authoritarian religious integrity or fear of possible deviance and the resulting banishment or worse.

3.3.4 Exceptions: Coffee Shops and Hookah Lounges

Coffee is perhaps *the* positively sanctioned drug in Islamic culture. A famous Arab legend, as related by the

> "(brother of biographer Najm al-Dīn Abū [1570-1651, A.H. 977-1061])" involves
> Solomon having "come in his travels to a town whose inhabitants were afflicted with
> some unspecified disease," and "on the command of the angel Gabriel, he roasted coffee
> beans "from the Yemen," from which he brewed the drink, which when given to the
> sufferers, cured them of their illness." [Hattox 13]

Brunngraber (1952) is noted to have interpreted it that "Gabriel presented the first coffee to the ailing *Muhammad* for his recuperation" but, no matter if this is one legend interpreted in two different ways or two actual occurrences of coffee playing an important role in two legends, "for this reason, coffee is sacred in Islam, and it is even used as a ceremonial drink" (Rätsch 1998:175). In as much, coffee shops abound in Arab countries today (al-Labbad 2014). It was

the case that when doing participant observation, my informants wished to get coffee with me at any cafe of my choosing, so it is my opinion that Arab students are very likely to socialize in American cafes even if such places happen to have highly Western atmospheres.

The smoking of a certain form of tobacco, called *shisha*, is quite popular in the Arab world (Maziak 2011). It is done through a large waterpipe called a *hookah* and usually shared with others. Whether frowned upon, it is therefore a loosely sanctioned social activity similar to drinking in Western cultures. Hookah lounges have been multiplying in American cities, and strategically placed near college campuses (2011:2). According to the head of the CSU Arabic Club, two such lounges in Fort Collins, Algiers and Sahara Night, attract Arabic people young and old. These places may be a place of respite even more so than cafes, given their tailored ambience.

Chapter 4: Methods

4.1 Sampling

Due to the very small population of Arabic speaking students on campus, it was necessary to implement purposive sampling, however the snowball effect did lead to some the acquisition of students outside of my field of solicitation, providing a small degree of randomness. I solicited the English and Foreign Language departments as well as any possible Arabic clubs at CSU, Front Range Community College, UC Boulder, UNC Greeley, and UC Denver, and I solicited any intensive language learning programs in these institutions as well. I also sought out cooperation from Islamic Centers in the cities of these schools. My requests were for demographic data of Arabic students, contact information of integral people in any of these departments or organizations who could help me advertise or give me access to meetings, and future event scheduling information. Despite my diligence, either myriad insurmountable bureaucratic obstacles or simple failure to communicate caused me to put all of my energy into organizations and people within Fort Collins mainly, and Greeley twice, where I could easily persist, in person, and get the attention and participants that I needed.

I handed out flyers and verbally solicited for study group participants at (1) meetings of CSU's Arabic Club and Muslim Student Association, at (2) one off-campus Saudi House meeting (in Fort Collins, with mostly CSU and Front Range Community College students), at (3) one on-campus Arabic Club meeting (in Greeley, with mostly University of Northern Colorado students), at (4) one open house event at the Fort Collins Islamic Center, and then – after learning, via participant observation, about where Arabic students study and commingle as well as what department they are most likely to be found in – in (5) Fort Collins' public coffee shops (Alleycat Cafe, Mugs, Cups, and Starbucks) as well as (6) the two with lounges on CSU campus

(Morgan's Grind and Sweet Temptations), and also (7) on corkboards in the Engineering department. I was informed by the unofficial leader of the Arabic Club, as well as the Moroccan participant in my study, that many of the local Arabic speaking people, students and otherwise, spend much time in the hookah lounges throughout town late at night on Fridays and Saturdays; however, as someone who stopped smoking 13 years ago and tends to be irritated when in a smoky environment, it was unfortunately necessary for me to avoid such locales, as extended visits would have been necessary to become comfortably acquainted with any group of loungers (to become welcome to a palaver), let alone to convincingly describe my study and its implications or engage in participant observation.

It is the case that perhaps twice as many initial study group solicitees than actual participants agreed to take part in my study. In participant observation as well as small talk before and/or after the recorded audio interview component of my study, I was informed that it is not abnormal for Arabic people to lie, in that they try to be as polite as possible with strangers who they wish not to be involved with. To be more explicit, using my fieldnotes from time spent time with participant M5, "They don't reveal when they misunderstand something, disagree with something, or are apprehensive about something (which he later added to by telling me that many will say yes to my research and then never call or show up, because they don't want to show their confusion or actual dislike, and/or because they don't want to appear unfriendly "like terrorists")." I was also informed, by both him and my key female Saudi informant (from a class I took) who moved away and became unavailable for the audio test, that Arabic people are very businesslike and seek compensation for anything they do. In my view, this could also be said of Americans generally, and more easily of American college students. However, a friend of M3 during later participant observation opined against both Arabic generalizations, so it may just be

a case of culture specific inclusivity and/or anxiety (which is indeed rated highly for the Arabic students in my quantitative data) from being a solicited international student. Nonetheless, I was successful at acquiring a reasonable number of participants given the mixed methods nature of my project. In ratio to the demographic numbers given in the prior chapter, Arabic speaking participants in my study included 5 males and 4 females from Saudi Arabia (5.6% of students from that country), 1 Moroccan male (20% of students from that country), 1 Egyptian female (33% of students from that country), and 1 Libyan female (2.04% of students from that country).

A limitation also existed for the American student control participants in my study. These subjects were acquired through my solicitations at the MSA event (with random passers-by), the CSU Arabic Club, the coffee shops mentioned, and also the departments of Anthropology and Fish & Wildlife at CSU. There were 10 males and 9 females in the American sample. My research paradigm did not consider audio test debriefing interviews with the American student controls until late in the process; it was grounded theory that brought my advisor and me to the realization that such data would be useful as a comparison or contrast to the Arabic consensus responses, but I had already gone through the survey and audio test processes with the nineteen American students by that time and did not receive much correspondence or cooperation from them when I asked for their help again (some were simply unavailable and some were out of reach). Only six of them ended up being available for interview.

All participants were given research primers and the option to cease participation at any time. Verbal consent was acquired for their participation. Their names are all coded to protect their identities, in an alphanumerical sequence relative to when in my research they did the survey and audio test components. For the 12 Arabic students, M stands for male and F for

female (i.e., M1 through M6 and F1 through F6), and the American students are simply labeled E1 through E19.

4.2 Data Collection

4.2.1 Participant Observation

Throughout the course of my research, including the initial solicitation period, I spent close to 24 collective hours doing participant observation – the foundational method of ethnographic data collection (Bernard 2011:256-291) – including unstructured interviews. The experiences I had, which took place in all of the locations (and with each organization) disclaimed in the sampling subchapter above, ranged from one-on-one conversations to interactions with dozens of people. Either during and/or after each event, I wrote extensive fieldnotes. In my qualitative data analysis chapter, particularly salient examples from and realizations inspired by these events compliment my theme analysis of the audio test debriefing interview responses (though most participant observation subjects were not audio test subjects). Without *this* data, much of my interview data would be more personally rather than culturally informative. I compressed all of my fieldnotes for brevity and impact, and have placed them in Appendix B.

4.2.2 Survey

4.2.2.1 Demographics

In the first section of my survey instrument, I requested responses on gender, age, education level (to show for gap or continuity in language learning), information relevant to SES (socioeconomic status) such as number of earners in family and average monthly family

earnings, marital status as well as family size and genders and ages of individuals therein (as a

proxy for heightened experience with opposing genders), home country and that of both parents

(to reveal exposure to Western language/culture), as well as number and year-level of Western

languages spoken. There were not enough responses to SES data, so this factor was removed

from analysis. For the sake of bivariate analysis simplification, I initially combined family size

and genders therein with a threshold of "married and/or >/= 2 opposite gender others." This

accounts for exposure to the possible same-gender *code* that may only be revealed by at least 2

others of the opposite gender: to a spouse's friends and siblings, and/or to the participants' own

siblings or roommates of opposite gender. *However, there were flaws in this variable. For*

example, I phrased the question in a way that elicited responses revealing only current living

situation (that included, i.e., one roommate and no current *intimate relationship) and not for that*

of the past (potentially with intimate relations and/or siblings). The number of "no" or "n/a"

responses marked due to that factor alone led me to obviate this question from my analysis.

4.2.2.2 Modified ARSAA II instrument

The Acculturation Rating Scale for Arab Americans II (ARSAA II), translated from the

Acculturation Rating Scale for Mexican Americans II (ARSMA II) by Jadalla and Lee (2012), is

a standardized questionnaire for discovering associations between cultural affinity to home or

host country and health choices/outcomes of Arab Americans. The study in which this scale was

used was conducted in California.

> "ARSMA-II was developed by Cuéllar, Arnold, and Maldonado (1995) and is widely
> used to assess acculturation among Mexican Americans. […] Factor analysis (FA) was
> run on ARSAA-II, and the factor scores and their interaction, which represents a
> bicultural mode of acculturation, were used for the analyses involving acculturation," and
> "[…] Principal axis factoring with direct oblimin rotation was used to generate two
> factors (a) Attraction to American Culture (AAC), which had 13 items; and (b) Attraction

to Arabic Culture (AArC), which had 15 items." [Jadalla and Lee 2012:161]

The survey originally had 30 questions, but they did not factor in bicultural questions 405 and

428, because they proved statistically insignificant (Jadalla and Lee 2012:160). Though they

were built into the survey component as I received it from the authors, I also did not factor them

in. Some examples of prompts in the ARSAA II as it was sent to me (letter to author, February

3, 2014) include: (for Arab affinity) "I enjoy reading e.g., in Arabic" and "my thinking is done in

Arabic language," and, (for American affinity) "I enjoy English language movies" and "I like to

identify myself as an American."

The Jadalla and Lee (2012) study revealed that self-association with or attraction to

Western host culture is correlated with increased risk for drinking (by 155%) and decreased risk

of smoking, and that self-association with or attraction to Arabic culture (especially Islam) was

associated with decreased risk of drinking (by up to 98%) and increased risk of smoking (by

70%). Also, where "the bicultural mode of acculturation [is] (represented by the interaction term

AAC x AArC)" (Jadalle and Lee 2012:162),

> "The findings regarding the relationship between acculturation and physical health (PCS score) was interesting in terms of how better physical well-being was associated with acculturative modes that indicated moderate identification with both the ethnic (Arabic) and American cultures. Participants who had an acculturative mode that was characterized by strong identification with both cultures—indicating competing loyalties—suffered in terms of their physical well-being. […] Participants reported significantly lower scores on the MCS, indicating poorer mental health than that reported for the 1998 U.S. population. These findings are consistent with the acculturative stress theory proposed by Berry (2003) about immigrants' psychological state and its relationship to acculturation. The results also show that AAC […] appeared to be significantly associated with better mental health among the participants; even after all demographic variables were controlled." [Jadalle and Lee 2012:164]

For me, it was useful for discovering associations between these cultural affinities and

participants' psychological state as well as audio test component scores. I added questions 407B

through 407G, regarding musical affinities and performance experience, because they fit most

sensibly into this instrument of my survey. Aside from their use in augmenting the ARSAA II

instrument, positive responses to 407F and/or 407G were useful to describe a separate variable

for bivariate analysis with overall audio test scores. My hypothesis with this instrument was that

students with greater affinity for Arabic culture or strong bicultural affinity would have lower

audio test scores. The full instrument is located in Appendix A, as Table 4.1.

4.2.2.3 DASS 42 Instrument

This instrument is the full, 42 question version of the Depression Anxiety and Stress

Scale (Lovibond and Lovibond 1995). In it there are 14 questions each for the diagnoses of

depression, anxiety, and stress, in relation to memory of either feelings or situations within the

week before the survey. Its mechanism is described below.

> "In terms of traditional diagnostic classifications such as DSM-IV, the DASS Anxiety
> scale corresponds most closely to the symptom criteria for the various Anxiety Disorders,
> with the exception of Generalized Anxiety Disorder (GAD). The DASS Depression scale
> corresponds fairly closely to the Mood Disorders, although the diagnostic criteria for
> those disorders include many symptoms that were rejected during DASS development as
> not specific to depression (e.g., guilt, appetite change). [...] Psychometrically, the DASS
> is quite different from diagnostic instruments in that it reflects the underlying continuity
> of severity of symptoms in the population. DASS scale scores are dimensional rather
> than categorical." Also, "The Stress scale [...] measures a syndrome that is factorially
> distinct from depression and anxiety, characterised by nervous tension, difficulty relaxing
> and irritability. It is quite similar to the DSM-IV diagnosis of Generalized Anxiety
> Disorder (GAD). Although the stress scale can be distinguished from depression and
> anxiety in factor analysis, it is important to note that all three syndromes are moderately
> intercorrelated." [Psychology Foundation of Australia 2014]

The creators' rejection of various clinical diagnostic requirements for the disorders mentioned,

and recognition of overlap rather than sharp delineation between syndromes, brought me to

choose it over other state/emotional scales, in that DSM categorization is smartly argued against.

I have included this instrument not for the sake of diagnosis: it is in place for the sake of

understanding where psychosocial stress is possibly correlated to emotional tone recognition.

My methodology for understanding what such correlation means is an anthropological one, beginning with theme analysis of both participant observation sessions and audio test debriefing interviews, and ending with comparisons of the conclusions therefrom with those of my quantitative survey outcomes. Searches on EBSCO Host and Web of Science reveal a myriad of studies that have proven the DASS to be useful in various disciplines, and a few key articles on it can be found on the Psychology Foundation of Australia website itself.

Examples of the prompts include: (for depression) "I had nothing to look forward to" and "I felt I wasn't worth much as a person," (for anxiety) "I was aware of dryness in my mouth" and "I found myself in situations that made me so anxious that I was most relieved when they ended," and (for stress) "I found myself getting upset by quite trivial things" and "I found it difficult to relax" (Australian Centre for Posttraumatic Mental Health 2014). DASS 42 scores are given numerically and weighed on a scale that ranges through *normal, mild, moderate, severe, and extremely severe*. For depression, these numbers (respective of those intervals) are: 0-9, 10-13, 14-20, 21-27, and 28+. For anxiety, they are: 0-7, 8-9, 10-14, 15-19, and 20+. For stress, they are: 0-14, 15-18, 19-25, 26-33, and 34+. I am using the DASS 42 not to diagnose the non-Western students with Western psychiatric ails, but to discover if whatever they are feeling in relation to such Western diagnoses is connected to how well they can understand emotional tone in the English language. Confidence intervals and means comparisons for responses from each student group will offer insight into their experience.

I have placed the DASS 42 component after the ARSAA II and music exposure section, and before the audio test survey and debriefing interviews. This was done for the sake of avoiding possible psychological priming of DASS 42 responses from whatever feelings might arise out of act of being both respondent and informant in the audio test debriefing interview. It

seemed likely that the complexity of the multi-step semi-structured audio test interview would distract them from the fact that they took such a sensitive survey beforehand. With this component, my hypothesis was that students with higher depression and anxiety scores specifically, but also higher stress higher stress scores, would do less well on the audio test survey/interview component. The survey itself is displayed in Appendix B as Table 4.2.

4.2.2.4 Audio Test Survey

In amateur mimicry of the methods used for prosodic recognition testing, already mentioned in this thesis, I sought out an actor and an actress as suitable representatives of consensus English emotional tone. Soliciting the CSU Music Department, I received few replies but did acquire one actor. For an actress, I waited on my actor for multiple weeks because he guaranteed me an actress he knew who said she would participate, but she never met me at the appointed time and was then completely out of reach, with even the actor unsure of why she was unreachable. I did not have any success whatsoever in finding another female actor who would volunteer their time, during that waiting period or afterwards, so I resorted to interviewing females in my own department to see, subjectively, how accurate their emotional expressions were to a sort of theatrical mean (using the actor's already-recorded samples as a reference for tones and intervals used). It did not take long for me to find a female who had a fair repertoire.

The following regards the presentation I chose for emotionally loaded sound samples. Unlike the Pell et al. (2009) and Thomas and Balkwill (2006) studies which used unaltered samples of each language; unlike the Scherer, Banse, and Walbott (2001) study which used linguist-crafted pseudo-sentences (for the sake of reducing effects of presupposition of word meaning); and unlike the Pell et al. (2009b) study using consensus-deemed nonsense statements

given by speakers of each language group the subjects were part of, my actor and actress each performed six standardized speech samples (one for each basic emotion) using emotionally dramatized English sentences that were then filtered with software to remove as much morphological content as possible. I did this to completely avoid content bias, so that only prosody is heard, therefore rendering the samples as muffled and unintelligible as statements heard through a thick wall or through a public din. This also reduced the possibility of evoked potentials, such as startle, from consonant punctuations and rhythm.

The actor and actress both verified a high degree of emotion representation in the six emotionally evocative statements of the script, so we moved on to recording. The audio samples were recorded on my MacBook Pro 2011 with the software program Audacity, using the 24-bit quality setting and a wide-range Audio Technica stereo field microphone (model AT822) to capture as many resonant vocal tones as possible. I also used Audacity to cut out silences and attenuate amplitude where needed. I then used the phonetic analysis software Praat to filter out speech content with 2 to 3 steps customized to each sound sample's fundamental/center frequency and tonal emphases: (1) with a de-emphasis sound filter from 50Hz upward, and (2) with a single-formant 200Hz-bandwidth filter and/or (3) with a 100-to-200Hz-bandwidth grammatone filter. I tested the effectiveness of my alterations by sending the sound samples to five fellow students (3 males and 2 females) in the CSU Anthropology Department, and none of them could understand the statements spoken therein.

The audio test itself was very simple in format and on paper. The order in which samples of a particular emotion were played was randomized, also taking into consideration the gender of the actor. This way there was no pattern by which to inform them how to easily answer the test questions. If a participant needed to hear a sample more than once, I would play it for them each

time asked. If the volume was not right, I would adjust it for them. Their task was to check off which of the six basic emotions each sample sounded most like, immediately after hearing it, and then circle a number, from 0 to 5, representing their confidence in that answer.

4.2.3 Audio Test Debriefing Interviews

Entailing the audio test survey instrument component were short, recorded, semi-structured debriefing interviews after each written response. Questions asked elicited perceived situations or phrases in each sample, type of mood represented (including both temporary and personality type), ideas about possible mixed/alternate emotions in each sample and/or better names (and therefore implication) for each emotion in Arabic than English, and possible archetypes/themes or social rather than personal situations that such tones represent. The purpose of these interviews was to differentiate between personal (respondent) and cultural (informant) themes, in order to make the quantitative data analysis robust and to offer more direction to potential future research.

I asked particular questions in hopes to derive fuller or even different sorts of explanations for, as well as opinions regarding, response choices. "What does it sound like?" as well as "what is being said?" was the first one – a two-pronged question made to be useful for eliciting situational or even metaphorical descriptions of each emotional tone. With the first part, the answer might be as simple as a word for the emotion itself. The second part was asking for a more explicit recognition of the muffled statement, and can provide insight into the participant's own relevant experiences either at home or abroad. The next question I would ask was "if this tone represented a mood that the speaker was in, what would their behavior be like at home?," followed by "... at work?," and then "...at school?." This question was designed to elicit notions

of decorum, integrity, place, power, and political correctness. Using grounded theory (Bernard 2011:435), I noticed two matching responses to this, early on in the interview process, regarding "personality type" as an alternative to "mood;" so, I augmented the question for later interviews.

The follow-up question was "is there an English or Arabic term that describes the emotion better for you?," together with "what does it mean?," and then "what sorts of things cause that kind of mood?." I added this three-pronged question to address the possibility that the theoretical basic emotions are not quite so adequate to describe the way emotions come across tonally, in that, i.e., speech segments carry so much more nuanced information than a momentary gesture, or a singular or static facial expression. The "alternate English term" aspect was added to this question after recognizing various "no" responses to the initial "alternate Arabic-only" question. Because the answers to these questions were assumed to be explained with one generic or certain individual as a model, I expanded by asking the question "is there something in a larger social situation, like a scene or event, that this tone reminds you of?." My goal with this expansion was to discover contrast between emotions that are appropriate in certain large-scale and small-scale social situations. Again, grounded theory helped direct this last question, as it started out difficultly deep, including "elements in nature" and "places in the environment or society" the tones reminded participants of.

4.3 Analytical Methods

4.3.1 Quantitative Data Analysis

The following steps were performed for the data acquired from my survey instruments. Using Excel, I tested for outliers in the variable sets for both sample populations (upper quartile or lower quartile +/- 1.5 * IQR). I removed all of these outliers and then calculated means,

standard deviations, and 95% confidence intervals for all variables. For comparisons of means, I first needed to reveal what degree of skewness each outlier-excluded variable distribution had in both population samples. I used the appropriate Pearson's Skewness Coefficient for each distribution – the *First* for mode skewness ($3*(\mu - Md) / \sigma$) or the *Second* for median skewness ($\mu - Mo / \sigma$). I then compared skewness between samples. This informed me of whether I should use a *t* test (for symmetrical distributions with low skewness at +/-1) or a two-tailed Wilcoxon Rank-Sum Test (for distribution skewness exceeding +/-1) for means comparisons. For each of those that required *t* tests, I applied Welch/Satterthwaite Two Sample (heteroscedastic) *t* tests due to mismatched sample sizes and the fact that visual inspection of the data revealed mostly non-normal distributions. I used the program R Studio to perform these tasks.

With the data provided, I sought to discover correlations. My hypotheses were that (1) there is a significant difference in audio test scores between American and Arabic students, with Arabic students scoring lower; that (2) a greater number of years speaking English would be related to higher prosodic recognition scores; that (3) this would also be the case with Romance Language experience; (4) having >/= 2 siblings of opposite gender (to the participant's gender) would increase prosodic recognition of emotion in opposite-gender voice actor samples, that (5) there would be a coincidence between prosodic miscomprehension and ARSAA II scores of high AArC, low AAC, and high BA; that (6) these scores would be coincident with problematic mental health scores on the DASS 42; that (7) there is correlation between negative mental health scores and more numerous negative emotion responses (sadness, anger, fear, and possibly disgust), whether correct or incorrect, and finally that (8) there is a correlation between higher

prosodic recognition scores and responses to ARSAA II prompts relative to both higher

performance experience with and higher affinity for instrumental and/or lyrical Western music.

4.3.2 Qualitative Data Analysis: Themes

To extract personally and culturally informative meaning from the participant observation

data and audio test debriefing interview responses, I performed theme analysis using the

qualitative data analysis program MAXQDA. I performed concordance analyses – a time-tested

system for linking repeated, explicit or metaphorical themes in qualitative data (Bernard

2011:431) – between the interview transcripts for the more definitive responses to my debriefing

questions in order to realize and code for common categories. These *categories*, according to

Corbin and Strauss (2008), are the highest concept levels of *phenomena* that link entities/nouns

(people, places, things, ideas) with emotional descriptors, *subcategories* describing them further,

and with *properties* being their characteristics (perhaps best delineated by what they are not)

where *dimensions* are the range of variation in those properties.

For interview data, the themes I discovered to be most useful for my initial coding

involved types of explanatory models (either expression properties, personal experience

accounts, and/or explicit or implicit roles and situations), which specific actors were involved

(either self or a named other), which culture pertains to the model (Arabic, American, or other),

social setting (anywhere, close relation, school, public, work, or family/home), if the example

represents either a character trait or state, if the actor's gender is misperceived, and opinions on

the emotion choices (with combined emotions, alternate English terms, alternate Arabic terms,

and directly translated Arabic).

To explore the common themes in Arabic students' audio test interview responses, I used the coding query tool in MAXQDA, i.e., selecting one of the core codes of a particular *emotion* and either the *correct* or *incorrect* code, and then linked realizations from both my theme coding and my memos to the participants in the queried groups. By analyzing the incorrect responses for the two audio samples of each emotion, as well as where the emotion in question has been incorrectly answered for other emotional tone samples, I was able to organize themes by (1) listing which emotions are predominantly chosen in each individual audio sample, (2) which other emotions are thought to be more like the one in question, and (3) which emotions are least or not at all thought to exist in each sample. This organization helps to reveal consensus. Where stark contrasts exist between American and Arabic students' consensus (of what an audio sample is most or not at all perceived to be like), I provide similarly nuanced ethnographic data from the six American student controls that I interviewed. Similar to Glaser and Strauss' (1967:101-16) *constant comparison method*, I sought out both comparative and contrasting response data to formulate themes during cursory analysis, and then found throughout all transcripts where those themes existed, or didn't exist, in order to delineate concepts. Bogdan and Taylor (1975) spoke of analyzing data to see what is being hidden or stepped around, and Spradley (1979:57-58) suggested intuiting those ideas that are taken as *givens* and are therefore left out. I applied these notions as fully as possible, whether or not they provided only hypothetical data.

I set an analysis threshold whereby only those correct or incorrect audio sample test response groupings of 20% or more of the total number of American students, or 25% or more of the total number of Arabic students, were analyzed as being representative of significant consensus perception or opinion. Rounded to whole numbers, this equates to 3 Arabic responses and 4 American responses. So, i.e., if 2 of the 12 Arabic students answered *fear* to a *happy* audio

sample and 5 of them answered *anger* to that same sample, only the transcript segments for the *anger* group would be analyzed. This made sense in that response groupings amounting to less than these thresholds had far less chances of revealing common themes, and even if they did, they also had far less chances of revealing contrasts with other students and between genders.

Chapter 5 – Analysis and Results I: Quantitative Data

5.1 Introduction

This chapter first presents the raw data on emotional tone recognition scores for both correct and incorrect responses. Provided thereafter are means and confidence interval data for all survey instrument variables, as well as relative means comparisons. Following this is a discussion that synthesizes this data and attempts to draw correlations between it all. There were too few reports of siblings and Romance Language experience for me to include those variables in my analysis.

5.2 Statistical Analyses

Tables 5.1 and 5.2 below reveal the raw numbers that the consensus data was drawn from. They show the number of correct responses to each emotion listed in rows (column labeled: #), the percentage of students that number represents (column labeled: %), incorrect emotion choices by amount for those emotions listed in rows, and the percentages of students responding for those audio samples, which the latter numbers represent.

Table 5.1 Emotion Recognition Scores of American Students

Emotions	#	%	anger	%	disgust	%	happy	%	sad	%	surprise	%	fear	%
#1: male anger	16	84.21		0	0	0	1	5.26	0	0	1	5.26	1	5.26
#9: female anger	3	15.79		0	1	5.26	12	63.16	0	0	2	10.53	1	5.26
#11: male disgust	8	42.11	2	10.53		0	6	31.58	1	5.26	2	10.53	0	0
#2: female disgust	4	21.05	1	5.26		0	7	36.84	4	21.05	3	15.79	0	0
#3: male happy	0	0	4	21.05	2	10.53		0	4	21.05	1	5.26	8	42.11
#7: female happy	0	0	2	10.53	0	0		0	12	63.16	0	0	5	26.32
#8: male sad	9	47.37	2	10.53	2	10.53	3	15.79		0	0	0	3	15.79
#4: female sad	13	68.42	0	0	1	5.26	0	0		0	0	0	5	26.32
#12: male surprise	9	47.37	2	10.53	2	10.53	3	15.79	2	10.53		0	1	5.26
#5: female surprise	6	31.58	0	0	4	21.05	6	31.58	3	15.79		0	0	0
#6: male fear	12	63.16	3	15.79	1	5.26	2	10.53	0	0	1	5.26		0
#10: female fear	10	52.63	5	26.32	1	5.26	0	0	0	0	3	15.79		0
Total Correct	90													
Correct Male	54													
Correct Female	36													
# of Incorrect Hits			21		14		40		26		13		24	
% of Poss. (19x12)		39.47		9.21		6.14		17.54		11.4		5.70		10.53

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Table 5.2 Emotion Recognition Scores of Arabic Students

Emotions	#	%	anger	%	disgust	%	happy	%	sad	%	surprise	%	fear	%
#1: male anger	9	75		0	0	0	1	8.33	1	8.33	1	8.33	0	0
#9: female anger	3	25		0	0	0	6	50	1	8.33	2	16.67	0	0
#11: male disgust	1	8.33	5	41.67		0	2	16.67	1	8.33	3	25	0	0
#2: female disgust	3	25	0	0		0	2	16.67	3	25	1	8.33	3	25
#3: male happy	0	0	1	8.33	1	8.33		0	2	16.67	2	16.67	6	50
#7: female happy	1	8.33	1	8.33	0	0		0	9	75	0	0	1	8.33
#8: male sad	5	41.67	4	33.33	1	8.33	0	0		0	0	0	2	16.67
#4: female sad	6	50	0	0	2	16.67	2	16.67		0	1	8.33	1	8.33
#12: male surprise	4	33.33	2	16.67	3	25	4	33.33	0	0		0	0	0
#5: female surprise	1	8.33	2	16.67	3	25	5	41.67	1	8.33		0	0	
#6: male fear	4	33.33	2	16.67	2	16.67	2	16.67	1	8.33	1	8.33		0
#10: female fear	2	16.67	2	16.67	0	0	1	8.33	5	41.67	1	8.33		0
Total Correct	38													
Correct Male	23													
Correct Female	15													
# of Incorrect Hits			19		12		25		24		12		13		
% of Poss. (12x12)		26.3		13.19		8.33		17.36		16.67		8.33		9.03	

Using Excel, I tested for outliers in the survey instrument variable sets for both sample populations (upper quartile or lower quartile +/- 1.5 * IQR). The following regards the American students. There was one outlier in the DASS 42 Depression variable (upper bound +4.375), one in the DASS 42 Anxiety variable (upper bound +1.875), one in the ARSAA II American Culture Affinity variable (lower bound -7), one in the ARSAA II Bicultural Affinity variable (upper bound +18.5), and two in the Arabic Music Performance Experience variable (upper bound +2 and +3; the only scores higher than 2) – this latter finding being quite a surprise. For gross numbers of incorrect emotion choices by student on the audio samples: there was one for *sadness* (upper bound +0.5), one for *surprise* (upper bound +0.5), and three for *anger* (lower bound -0.25). For numbers of correct choices by gender of voice actor: for the actor, there were four below the lower bound (two at -1 and one at -3) and three above the upper bound (+1 each), and for the actress, there were none.

The following regards the Arabic students. There was one outlier in the Arabic Music Performance Experience variable (upper bound +2.375), five in the Arabic Music Affinity variable (lower bound -1.625 and -5.625; and upper bound +0.375, +0.375, and +6.375), and, one student alone marked one in the ARSAA II Arabic Culture Affinity variable (upper bound +0.875) and also one in the ARSAA II Bicultural Affinity variable (upper bound +1134). For gross numbers of incorrect emotion choices by student on the audio samples: there were two below the lower bound for the emotion of *sadness* (both at -0.375) and two above the upper bound (+0.625 and +1.625), there was one for *fear* (+1), and one for *surprise* (+0.875). For numbers of correct choices by gender of voice actor, there were no outliers. I removed all of the outliers from both cultural groups and then calculated means, standard deviations, and 95%

confidence intervals for all variables. The outcomes for both cultural groups are shown on

Tables 5.3 and 5.4

Table 5.3 American Student Descriptive Statistics

Variables	N	Poss. Resp. Range	Outlier Bounds	Response Min., Max.	*M*	σ	95% CI
Audio Test Scores	19	1-12	-0.5, 9.5	2-8	4.74	1.73	3.96-5.52
American Male Scores	10	1-12	-0.5, 9.5	2, 8	4.8	1.87	3.96-5.64
American Female Scores	9	1-12	2.5, 6.5	2, 7	4.67	1.66	3.73-5.60
Incorrect: happy	19	NA	-0.75, 5.25	0, 4	2.11	0.99	1.66-2.55
Incorrect: sadness	18	NA	-0.5, 3.5	0, 2	1.28	0.57	1.02-1.54
Incorrect: fear	19	NA	-0.5, 3.5	0, 3	1.26	0.81	0.9-1.63
Incorrect: disgusted	18	NA	-1.5, 2.5	0, 2	0.61	0.61	0.34-0.88
Incorrect: surprised	18	NA	-1.5, 2.5	0, 2	0.56	0.62	0.29-0.83
Incorrect: anger	16	NA	0.25, 2.25	1, 2	1.31	1	1.1-1.53
Correct Actor Hits	13	NA	3, 3	3, 3	3	0	3-3
Correct Actress Hits	19	NA	-2, 6	0, 4	1.89	1.29	1.32-2.47
American Culture Affinity	16	15-75	58, 82	62, 77	69.72	4.69	67.43-72.02
Bicultural Affinity	18	256-5625	704.5, 2756.5	1156, 2701	1748.72	430.43	1555.18-1942.27
Arabic Culture Affinity	19	16-80	6.5, 42.5	17, 38	25.95	6.75	22.91-28.98
Western Music Perf. Exp.	19	1-10	-2, 14	2, 10	6.21	2.9	4.91-7.51
Western Music Affinity	19	1-20	5.75, 23.75	9, 20	15.11	3.38	13.58-16.63
Arabic Music Perf. Exp.	17	1-10	2, 2	2, 2	2	0	2
Arabic Music Affinity	19	1-20	0, 16	4, 12	7.84	2.24	6.83-8.85
Years Speaking English	19	-	9.75, 35.75	15, 34	23.47	5.65	20.93-26.01
DASS 42: Depression	17	0-42	-9.38, 21.63	0, 18	6.35	5.43	3.84-8.86
DASS 42: Anxiety	17	0-42	-4.875, 14.125	0, 13	4.59	3.47	2.99-6.19
DASS 42: Stress	18	0-42	-7.875, 33.125	0, 25	12.17	7.04	9-15.33

Table 5.4 Arabic Student Descriptive Statistics

Variables	N	Poss. Resp. Range	Outlier Bounds	Response Min., Max.	*M*	σ	95% CI
Audio Test Scores	12	1-12	-1, 7	1, 6	3.17	1.48	2.33-4
Arabic Male Scores	6	1-12	-1.4, 8.5	3, 6	3.67	1.63	2.93-4.4
Arabic Female Scores	6	1-12	0.5, 4.5	1, 5	2.2	0.84	1.72-2.67
Incorrect: happy	12	NA	-2, 6	0, 3	2.08	10.8	1.47-2.7
Incorrect: sadness	7	NA	1.38, 2.38	2, 2	2	0	2
Incorrect: fear	12	NA	-0.5, 3.5	1, 2	1	0	1
Incorrect: disgust	12	NA	0, 2	0, 2	1	0.74	0.58-1.42
Incorrect: surprise	12	NA	-1.88, 3.13	0, 2	0.73	1.21	0.04, 1.41
Incorrect: anger	12	NA	-0.5, 3.5	0, 3	1.58	1	1.02-2.15
Correct Actor Hits	12	NA	-0.88, 4.13	0, 3	1.75	1.06	1.15-2.38
Correct Actress Hits	12	NA	-1.13, 3.88	0, 3	1.33	1.07	0.73-1.94
American Culture Affinity	12	17-85	36.88, 65.88	43, 62	52.33	6.91	48.43-56.24
Bicultural Affinity	11	256-6400	2463, 4391	2688, 4092	3347.27	453.78	3090.53-3604.02
Arabic Culture Affinity	11	17-85	49.13, 84.13	56, 77	65.45	5.94	61.94-68.96
Western Music Perf. Exp.	12	1-10	-1, 7	2, 6	3.08	1.56	2.2-3.97
Western Music Affinity	12	1-20	3.88, 16.88	4, 16	10.33	3.55	8.32-12.34
Arabic Music Perf. Exp.	11	1-10	-1.375, 7.625	2, 6	3.18	1.47	2.31-4.05
Arabic Music Affinity	7	1-20	10.63, 13.63	11, 12	11.5	1.07	10.9-12.1
Years Speaking English	12	-	-10.13, 26.88	3, 19	8.75	5.91	5.41-12.09
DASS 42: Depression	12	0-42	-8.75, 29.25	1, 21	10.17	6.35	6.57-13.76
DASS 42: Anxiety	12	0-42	-14.75, 35.25	0, 31	10.75	8.94	5.69-15.81
DASS 42: Stress	12	0-42	-8.75, 33.25	4, 22	13.08	6.33	9.5-16.67

For comparisons of means, I first needed to reveal what degree of skewness each outlier-excluded variable distribution had in both population samples. I used the appropriate Pearson's Skewness Coefficient for each distribution – the *First* for mode skewness $(3*(\mu - Md) / \sigma)$ or the *Second* for median skewness $(\mu - Mo / \sigma)$. I then compared skewness between samples. This informed me of whether I should use a *t* test (for symmetrical distributions with low skewness at +/-1) or a two-tailed Wilcoxon Rank-Sum Test (for distribution skewness exceeding +/-1) for variable means comparisons. For each of those that required *t* tests, I utilized the Welch/Satterthwaite Two Sample *t* test because my samples were heteroscedastic, at least due to mismatched sample population numbers if not also because of response variances from cultural differences. I then proceeded in R Studio to apply each appropriate two-tailed test to each variable. Below are the outcomes.

Table 5.5: Test Type Indicators and Comparison of Means Outcomes

Variables	Pearson's Skewness Coefficient-American	Pearson's Skewness Coefficient-Arabic	Wilcoxon Rank-Sum Test	t test
Audio Test Scores	-0.46	1.7	W=171.5, **p=0.02**	n/a
American Student Gender	-0.32	-0.60		p=0.87, t=0.16, df=16
Arabic Student Gender	0.31	0.37		p=0.28, t=1.15, df=9.7
Incorrect: happy	0.32	-1.15	W=111.5, p=0.93	
Incorrect: sad	1.45	0	W=21, **p=0.004**	
Incorrect: fear	0.98	0.87	n/a	p=0.10, t=1.77, df=11
Incorrect: disgust	-1.92	0	W=93.5, p=0.37	
Incorrect: surprise	-2.17	0	W=80, p=0.36	
Incorrect: anger	1.96	-1.25	W=76, p=0.32	
Correct Actor Hits	0	-0.71		**p=0.002**, t=4.10, df=11
Correct Actress Hits	-0.25	0.93	W=143.5, p=0.23	
American Culture Affinity	-0.18	0.36	n/a	**p=5.13e-7**, t=7.43, df=18.9
Bicultural Affinity	0.64	-0.40	n/a	**p=1.8e-8**, t= -9.1, df=19.6
Arabic Culture Affinity	-0.02	-0.28	n/a	**p=1.13e-12**, t= -15, df=20.93
Western Music Perf. Exp.	0.22	2.08	W=183.5, **p=0.004**	n/a
Western Music Affinity	-0.79	-0.14	n/a	**p=0.0005**, t=4.15, df=20.06
Arabic Music Perf. Exp.	0	2.41	W=68, **p=0.04**	n/a
Arabic Music Affinity	-0.21	-0.47	n/a	**p=9.16e-6**, t= -7.27, df=12.15
Years Speaking English	0.78	0.89	n/a	**p=1.16e-6**, t=6.63, df=21.99
DASS 42: Depression	0.75	0.079	n/a	p=0.12, t= -1.65, df=19.72
DASS 42: Anxiety	0.51	0.76	n/a	**p=0.015**, t= -2.81, df=12.95
DASS 42: Stress	0.28	-0.67	n/a	p=0.52, t= -0.65, df=20.36

Note: In this table, the Pearson's Skewness Coefficients for the student gender variables are: "American" = male, "Arabic" = female

Audio Test Recognition Scores

The following regards the raw data from the audio sample recognition tests. The American group achieved a 39.47% correct response rate, and the Arabic group achieved 26.3% (a ratio of approximately 4:2.5). This reveals that the Americans had a 50.08% higher rate of

correct responses. This is reflected by a significant difference in means (p=0.02) for audio test scores between student groups, where, rounding to the nearest whole numbers, the Arabic students had a mean of 3 correct responses at a 95% confidence interval of 2-4 (rounded), and the American students had a mean of 5 correct responses at a 95% confidence interval of 4-6.

For the American group, top-down ranked percentages of correct responses by sample size are as follows: male anger (84.21%), female sadness (68.42%), male fear (63.16%), female fear (52.63%), male sadness and male surprise (both 47.37%), male disgust (42.11%), female surprise (31.58%), female disgust (21.05%), and female anger (15.79%). There were no correct responses to the two *happiness* samples. For the Arabic group, top-down ranked percentages of correct responses by sample size are as follows: male anger (75%), female sadness (50%), male sadness (41.67%), male fear and male surprise (both 33.33%), female anger and female disgust (25%), female fear (16.67%), and the three samples of male disgust, female happiness, and female surprise (all at 8.33%). The emotion of male *happiness* received no correct hits; the details of this will be discussed in the qualitative results chapter.

The following regards the individual prevalence for each group's incorrectly chosen emotions. There were only significantly different means between groups for one incorrectly chosen emotion: *sadness* (p=0.004). Rounding to the nearest whole numbers, Arabic students' responses had a mean of 2 with a 95% confidence interval of 2, and the American students' responses had a mean of 1 with a 95% confidence interval of 1-2. Trending much more than the other emotions, but not significant, was the emotion of *fear* (p=0.10); Arabic students had a mean of 1 and a 95% confidence interval of 1, while Americans had a mean of 1 with a 95% confidence interval of 1-2. Arabic students, then, perceived *sadness* as more representative and *fear* as less representative of the audio samples overall, inversely to those perceptions of the

American students. With nowhere near the significance of these two, American students' 95% confidence interval for *disgust* was 0-1, while that for the Arabic students was 1, revealing that Arabic students perceive *disgust* in the audio samples more so than the American students do.

The following regards differences between students' responses by their genders and by differences in the correct hits between the male and female voice actors. First, there were barely any differences between correct response means and confidence intervals between the American males and females, and no significance in the *t* test between them (p=0.87). There was also no statistical significance between the Arabic males and females' response rates (p=0.28), however, their confidence intervals only *meet* (they do *not* overlap): Arabic males are likely to score between 3-4 total, whereas Arabic females are likely to score 2-3 apiece. Regarding voice actor sample hits, Americans correctly responded to 47.37% of male voice actor samples and 31.58% of female voice actor samples (a ratio of nearly 5:3), and Arabic students achieved respective percentages of 30.56% and 20.83% (3:2 – a slightly better overall recognition of female audio samples). There was a statistically significant difference (p=0.002) between the cultural groups' means of correct hit amounts on the male voice actor's audio samples, as the 95% confidence intervals for correct responses are roughly 1-2 by Arabic students and 3 by the American students, whereas, for the female actor it was 1-2 for both American and Arabic students. A connection might be intuited between (1) low overall Arabic test scores and low Arabic female test scores, and (2) low actor recognition scores, altogether implying that Arabic females could not understand the male expressions well; but, further inspection reveals otherwise. The American participant gender ratio for correct voice actor sample responses was 30:24 (5:4), male to female, and it was 11:10 for Arabic students; so, it would seem that although males of both

groups recognize the male tonalities better, there is not a great gender divide in the Arabic case. In as much, it would appear that there are simply cross-culturally shared and equally recognized elements of the actress' expressions but not as many for the males' expressions.

The following is too complex to be put in a table, so can only be referenced here. For the American group, ratios of male to female respondents in the correct response groupings, from even to imbalanced, are as follows: male *fear* was 6:6 (1:1); female *fear* was 5:5 (1:1); female *sadness* was 6:7; male *surprise* was 4:5; male *anger* had a ratio of 9:7; male *disgust* was 5:3; male *sadness* was 6:3 (2:1); female *surprise* was 4:2 (2:1); female *anger* was 2:1; and female *disgust* was 1:3. There were a total of 54 out of 114 possible correct responses for the male versions of the emotions (47.37%), and 36 out of 114 for the female versions (31.58%). For the Arabic group, ratios of male to female respondents in the correct response groupings, from even to imbalanced, are as follows: female *sadness* was 3:3; male *fear* was 2:2; female *fear* was 1:1; male *angry* was 4:5; female *anger* was 2:1; male *surprise* was 3:1; female *disgust* was 1:2; male *sadness* was 4:1; and, each emotion of female *surprise*, female *happiness*, and male *disgust* received one correct hit. There were a total of 22 out of 72 possible correct responses for the male versions of all emotions (30.56%), and 15 out of 72 for all female versions (20.83%).

Half of the emotions in the audio test received similar incorrect response consensuses between cultural groups, with shared misperceptions about *both* actors' expressions, no less, revealing that while there are differential perceptions about particular emotional tones, the shared perceptions also share recognition of the speakers' gender – an interesting fact considering gender socialization differences between American and Arabic cultures. Two of those emotions that were shared were the perfect dichotomy: anger (an emotion with a majority of correct hits),

and happiness (the one completely miscomprehended emotion). Surprise, a middle-ground emotion in regards to recognition scores, was also one of these three.

For female *anger* (sample #9), Arabic students had a 50% consensus of *happiness* with a participant gender ratio of 3:3, and the emotion of *surprise* was trending (1:1); and, for Americans, there was a 68.42% consensus of *happiness* (5:7) and a slight trend towards *surprise* (2:0). For male *happiness* (sample #3), Arabic students had a 50% consensus of fear (3:3), with *surprise* trending (2:0) as well as *sadness* (1:1); and the Americans also had a consensus of *fear* (42.11%, 3:5), with *sadness* and *anger* consensus (21.05% and 2:2 each). For female *happiness* (sample #7), Arabic students had a consensus of *sadness* (75%, 3:6); and, the Americans had a similar *sadness* consensus (63.16%, 6:6), and also one of *fear* (26.32%, 3:2). For sample #5 (female *surprise*), Arabic students had a consensus of *happiness* (41.67%, 2:3), and one of *disgust* (25%, 1:2), with *anger* trending (2:0); and, the American students had a consensus of *happiness* (31.58%, 4:2), one of *disgust* (21.05%, 2:2), with *sadness* trending (1:2). The emotions of *happiness, fear, and sadness* were chosen most often by both consensus groups, with those of *anger* and *disgust* being differential to the Arab and American groups respectively. With exception of the consensus responses of *happiness* for sample #5 (female *surprise*), and *fear* for sample #7 (female *happiness*), American females tended to outweigh American males in their groupings. With the Arabic students, this was reversed: on the same audio samples, females were only the majority in response groups of *happiness* for sample #5 and *sadness* for sample #7.

DASS 42 Results

The following regards the descriptive statistics and means comparisons performed on the data acquired with the DASS 42 instrument. As noted in the methods chapter, DASS 42 scores are given numerically and weighed on a scale that ranges through *normal, mild, moderate, severe, and extremely severe*. For depression, these numbers (respective of those intervals) are: 0-9, 10-13, 14-20, 21-27, and 28+. For anxiety, they are: 0-7, 8-9, 10-14, 15-19, and 20+. For stress, they are: 0-14, 15-18, 19-25, 26-33, and 34+. Significance values for means comparisons in these three categories differ. Only the differences in means for anxiety are significant ($p=0.02$), with those for depression following ($p=0.12$), and then those for stress ($p=0.52$).

With these values in mind, the survey data reveal that (1) American students overall have normal levels of behaviors and perceptions relative to markers associated to depression, anxiety, and stress, and that the general American student population would score that way as well, that (2) Arabic students overall have slightly mild levels of those associated to depression, moderate levels of those associated to anxiety, and normal levels of those associated to stress, and that the general Arabic student population is likely to report the same way but with some students experiencing symptoms relative to slightly severe rather than moderate anxiety.

ARSAA II Results

The following regards the descriptive statistics and means comparisons performed on the data acquired with the ARSAA II instrument, in order of most to least significant. For results of responses to Affinity to Arabic Culture (AArC) prompts, rounded to whole numbers, the American student responses had a mean of 25.95 with a 95% confidence interval of 23-29, and the Arabic student responses had a mean of 65.45 with a 95% confidence interval of 62-69; there

is a hugely significant difference of means between these groups ($p=1.13e^{-12}$). For results of responses to Bicultural Affinity (BA) prompts, rounded to whole numbers, the American student responses had a mean of 1749 with a 95% confidence interval of 1555-1942, and the Arabic student responses had a mean of 3347 with a 95% confidence interval of 3091-3604; and, there is a greatly significant difference of means between the groups ($p=1.8e^{-8}$). For results of responses to Affinity to American Culture (AAC) prompts, rounded to whole numbers, the American student responses had a mean of 70 with a 95% confidence interval of 67-72, and the Arabic student responses had a mean of 52 with a confidence interval of 48-56; there is a slightly less great significant difference of means between these groups ($p=5.13e^{-7}$).

Jadalla and Lee (2012), the creators of this research instrument, discovered that there were associations between both low AAC scores and high BA scores, and decreased mental health, in Arabic immigrants. Data acquired from the DASS 42 instrument in my study, cross-analyzed with the ARSAA II data, may corroborate this. However, even if the outcomes from this instrument and from the DASS 42 do not correspond with incorrect emotion responses on the audio test, they may yet relate to the overall *correct* responses given. This possible relationship is much stronger than that between years of experience speaking English and correct audio test scores: using rounded numbers, even though the American students had a mean of 23 years' experience with a 95% confidence interval of 21-26 years, and the Arabic students had a mean of 9 years' experience with a 95% confidence interval of 5-12 years, the difference between the means of each group was lower in significance ($p=1.16e^{-6}$) than that of all three ARSAA II variables, and especially AArC.

Music Affinity and Performance Results

For Arabic Music Affinity, the Arabic students presented a mean of 12 with a 95% confidence interval of 11-12, and the American students presented a mean of 8 with a 95% confidence interval of 7-9; and, the comparison of means revealed great significance (p=9.16e^{-6}). For Western Music Affinity, the Arabic students presented a mean of 10 with a 95% confidence interval of 8-12, and the American students presented a mean of 15 with a 95% confidence interval of 14-17; and, the comparison of means revealed very high significance between groups (p=0.0005). For Western Music Performance Experience, the Arabic students presented a mean of 3 with a 95% confidence interval of 2-4, and the American students presented a mean of 6 with a 95% confidence interval of 5-8; and, the comparison of means revealed a high significance (p=0.004). For Arabic Music Performance Experience, the Arabic students presented a mean of 3 with a 95% confidence interval of 2-4, and the American students presented a mean of 2 with a 95% confidence interval of 2; and, the comparison of means revealed a significant difference between groups (p=0.04).

5.3 Discussion

Americans scored better overall than Arabs did on the audio test. However, if the hit percentages for both voice actors on each emotion are tabulated together for an overall score on each particular emotion as a whole (e.g., 33% for male and 66% for female would be 99% of the 200% of both samples combined - or, rather 0.50 of the total / 50%, i.e.), the following applies. For the Arabic group, scores by rank are: anger at 50%, sadness at 45.84%, fear at 25%, surprise at 20.83%, and disgust at 16.67%. For the American group, scores by rank are: sadness at 57.9%, fear at 57.9%, anger at 50%, surprise at 39.48%, and disgust at 31.58%. Results for the

Arabic group are very similar to those found by the myriad of other researchers before me in this field of inquiry (e.g.: Banse and Scherer 1996; Johnstone and Scherer 2000; Juslin and Laukka 2003; Pittam and Scherer 1993; Scherer, Banse, and Walbott 2011; Thompson, Forde, and Balkwill 2006) whereby ranking of response amounts for a myriad of cultures usually follows the order of anger and sadness, with fear thereafter, and then joy and the other emotions. In that the American response group of my study was listening to emotional tones of their *own* language, and that there were disparities between the recognition rates by actor gender, their results intuitively accord somewhere in between the universalizing data just mentioned, and the results of the Pell et al. (2009b) study in which the ranking showed anger, sadness, and fear all in proximity, with the other emotions thereafter.

The following considers the gender element of the audio sample test. Both participant genders from the Arabic group and the American group gave similar numbers of correct responses to the actress' voice samples; but, both male and female American students recognized the male actor's emotions significantly better than the Arabic students. Female *sadness* has a gender-balanced recognition between both language groups, whereas male *sadness* was recognized substantially more by American and Arabic males than females. Male *disgust* was recognized far more by Americans than Arabs, and almost twice as much by males than females; and female *disgust* thrice and twice as much for American and Arabic females, respectively. Female *surprise* was recognized far more by Americans than Arabs, and twice as much by males than females; and male *surprise* was recognized far more by Americans than Arabs, and at close to 1:1 (males to females) for Americans and 2:1 (males to females) for Arabs. Female *anger* was recognized by both groups at a ratio of 2:1, males to females; and male *anger* was chosen by

a near balance of respondent genders between groups. Although male *fear* was recognized three times as much by Americans than Arabs, each group was balanced by respondent genders; and, the result was similar with female *fear* as well, where five times as many American respondents recognized the emotion, but the participant genders were even again.

This would seem to indicate a cross-cultural in-group tonal expression of *sadness* with males (perhaps indicative of the culturally shared obscuration of male sensitivity), and of *disgust* with females (perhaps indicative of a culturally shared submissive expression for detest or objection) – though it is curious that female *anger* does not appear to be a similarly potential in-group expression; it is in fact best recognized not only by males, but by those of both cultures. A similar interaction is revealed by a better comprehension of female *surprise* by American male listeners. Male *disgust*, however, seems exceptional in potentially being a gendered *and* cultural in-group expression, as it is far more recognized by American males. In total, this data points out that the responses of male and female participants, and tonalities of male and female voice actors, should not be simply aggregated or considered uniform, respectively. It would behoove the researchers of future studies on emotional tone recognition to parse out their results by participant gender and voice actor gender in addition to the usual averaging of data, to avoid misleading their readership into thinking there is an ultimate uniformity outside of different scores to particular emotions.

The implication for the significance values between the ARSAA II, English speaking experience, and Arabic as well as American music affinity variable results, are that no matter how many years an Arabic international student in America has been speaking English or if they highly prefer Arabic music to Western music, they may likely not recognize English emotional

tonality as well as Americans do if, by order of impact, they (1) have a very high affinity to Arabic culture, (2) have strong rather than moderate affinities to both Arabic and American cultures simultaneously, and/or (3) have very little affinity for American culture. This is not to say that the p-values for the non-ARSAA II instruments were not hugely significant. By order of significance, correlations can be drawn between amounts of correct audio test scores and (1) Arabic Music Affinity, (2) Western Music Affinity, (3) Western Music Performance Experience, and (4) Arabic Music Performance Experience. In as much, every factor in the music influence variable of my study was significant, with genre affinity having the largest effect and performance experience following.

In regards to the DASS 42 instrument, with significant means differences between groups but not nearly as much as those from the prior instruments: given the literature on Social Anxiety Disorder (SAD) symptoms being relative to misperceptions of vocally expressed positive emotions as being negative, the high significance of Arabic students' DASS 42 anxiety scores would seem to predict higher incorrect responses with negative emotions. However, as noted at the start of this subchapter section, the percentages of their *incorrect* audio test responses for negative emotions – the means of which only *sadness* significantly differs from the American students – are lower overall than those for the American students. So, it would appear that the psychological state of Arabic international students is not a predictor for their miscomprehension of emotional tones (as being more negative) such as psychological state can be predictive as such for Western subjects. This casts such diagnostic revelations in an ethnocentric light. It does not, however, mean that such high DASS 42 scores are not associated with their lower amount of *correct* audio test scores.

5.4 Conclusion

With the removal of romance language experience and sibling influence variables, it would appear that approximately 5 of my 8 originally proposed hypotheses cannot be rejected, though multivariate regression analyses – beyond the scope of my study given the amount of work I had to complete already, and the small sample sizes at hand – should be used in the future to elucidate more concrete explanations of the data. The hypotheses that were not rejected were that (1) there is a significant difference in audio test scores between American and Arabic students; that (2) there is (intuitively) a significant difference in means between groups for number of years' experience speaking English, with Arabs scoring lower on that variable; that (3) prosodic miscomprehension might be strongly associated with high AArC, low AAC, and high BA on the ARSAA II module; that (4) these score levels were concurrent with more negative DASS 42 scores; and that (5) there is a correlation between higher prosodic recognition scores and responses to ARSAA II prompts relative to both higher performance experience with and higher affinity for instrumental and/or lyrical Western music. The three rejected hypotheses were in regards to (1) sibling influence, and (2) Romance Language experience, already explained as having been obviated from my statistical analyses, and then (3) there is correlation between negative mental health scores and more numerous negative emotion responses (sadness, anger, fear, and possibly disgust), whether correct or incorrect.

Chapter 6 – Analysis and Results I: Qualitative Data

6.1 Introduction

Though the quantitative survey component was outlined in the methods chapter before participant observation and the audio test debriefing interviews, this was only done because explanation of the audio test was required before delving into the following debriefing interview process and it belonged in the same section as participant observation. I have analyzed the qualitative data second to the quantitative data in order to provide contextual nuances to the statistical outcomes from the survey data, which is an anthropological way to fill the knowledge gaps outlined in the introduction to this thesis.

For the participant observation and debriefing interview data, I have applied theme analysis with the social science software MAXQDA. Different codes were used for these independent study methods, as in vivo coding took place more with participant observation than the interview transcripts, because the latter could be intuitively associated to particular codes from the outset in that the data there from would be correlated with the quantitative analyses. Whereas the participant observation results are presented as compressed realizations categorized by codes, the interview data is categorized by audio sample emotion and arranged therein by American students and Arabic students' consensus responses.

For the interview data, I begin by analyzing those audio samples that were responded to correctly, but this is done only by the numbers rather than elaborated upon because the following incorrect response consensuses are more revealing of cultural perceptions. The incorrectly answered audio test responses I have chosen to explore for themes in are those that received similar answers at or above the threshold I set in the Methods chapter (25% for Arabs and 20% for Americans, of 12 potential correct responses) for the identification of perceptual consensuses

both major and minor. My conclusion subchapter tentatively describes aspects of Arabic culture that can be extrapolated from the themes discovered, with more confidence given to major consensuses.

6.2 Theme Analysis: Participant Observation

I performed theme analysis on my participant observation fieldnotes much the same way that I did for the audio test debriefing interview transcripts, but I used completely different coding due to the lack of quantitative data being related to it all. Through in vivo coding, I eventually filtered down the number of various themes into a total of 11. These are demographics, mental health, future plans, gender perspectives, integration issues, prosody, affinities, music exposure, American relationships, ESL, and linguistic advantage. *Demographics* is a category with very few but helpful notes. Situations where a student revealed their mental state or that of others was coded with *mental health*. *Future plans* was coded for when a student revealed what they would do with their degree. *Gender perspectives* was linked to explicit or implicit information regarding differences in gender, culturally and linguistically. *Integration issues* was a code used for themes where a situation being described is either potentially causal to or directly stated to be damaging or stunting to relationships with Americans and the American culture. *Prosody* was coded for when information about vocal tone was described or implied. *Affinities* was a code used when a student revealed their pride or attraction to one culture or another. *Music exposure* was coded for when preferences for music of a particular culture were revealed. *American relationships* was coded for when students described their ties to American people. *ESL* was coded for when it was either implied or explicitly stated that something helped or hindered the ESL learning process. *Linguistic advantage* was used

when some sort of exposure to languages other than Arabic may have helped them in language acquisition generally. I will now offer a compressed version of my fieldnotes categorized by codes.

Demographics

When I attended the open house event at the Fort Collins Islamic Center, the introductory speaker provided some information about Muslims in the city. From my notes:

> "Of the many things he said, I took these items with me: 60% of the Muslim community in FoCo are Arabs and 70% of attendees to the mosque are students! […] There is a growing Chinese Muslim population, many taking political asylum, and increasing groups of Mexicans and Latinos as well."

If I had exact numbers of self-proclaimed Muslims in Fort Collins, as well as numbers of attendees to the mosque, by ethnicity, I would be much more informed; however, I can at least extrapolate from this that the Muslim student community is strong and, perhaps, that those Arabic students who engage with other ethnicities become more sensitive to vocal tonality differences between cultures. From my attendance at this event, I learned from the main speaker (a white male Muslim of accomplished religious study with a Middle Eastern wife) that observant Muslims are instructed to spend time only with others "who believe in God." The identification of "God" was not elaborated upon, which is a curious omission since the Christian holy trinity is not only false but heretical to Muslims. This is, as I was informed by multiple informants (at the MSA meeting), because the only physical manifestation of God (e.g., Jesus in the "end days") will be an illusion, in that "he" will be what Christians might call the antichrist, but who is rather a form of trickery from Allah himself to test his adherents' unrelenting faith even in absence of him from reality. So I have to wonder just how much they trust ex-Christians of American, Mexican, and Latino backgrounds, *let alone* what they think of atheists. Such trust

can possibly have implications for the truthfulness of the Arabic students' responses in my research.

Mental Health

M3 (from Saudi Arabia) let me know, upon my asking about his experiences around people with mental disorders and speech problems, that he has never known of such a thing (not even retardation). This is in juxtaposition to what F1 (from Egypt) knows, in that her own sister has a mental disorder and needs special care. These points are solitary in regards to congenital or psychosocial mental disorders.

I took note of situations that might lend stress, depression, and/or anxiety to my participants' lives. My female Greeley informant let me know about female travel permissions, conferred only by men, that allow them to move between borders. She was emotionally struggling because her ex-husband would not give her such permission, so she and her daughter had no way of going home for holidays or for a return to Saudi life. This directly relates to my codes of *integration* and *gender perspectives,* as it may be especially difficult for a woman without such freedom to feel comfortable in a foreign place. Speaking of the Bedouin (elite) class in Saudi Arabia, she told me that her education has brought her to realize that women are oppressed because it is feared that if they have freedom, total societal control (via enforcement of dependence) would be very difficult to accomplish. F3 explained that a woman must be "sold" into a career by her father's status; women can't get work without men, and for this reason she felt as though she would not return home. In the same setting, her female friend also voiced, in contestation of her husband's view that Arab culture is "the easiest to live by," that life is very hard for women in the Arab world.

When visiting the Islamic Center, I learned that it was currently the month of *hajj*, the pilgrimage to Mecca. Although the hajj gathering itself lasts for only a matter of days, the pilgrimage, the time leading up to it, and the reflection afterwards, are all spiritually important times for Muslim pilgrims as well as relatives of them. It could very well be that the DASS 42 scores would turn out differently because of this, at least in part, during any other season.

Future Plans

The following students are listed by affinity from that of Arabia to America. My female Greeley informant is "stuck" without her travel permission, and she had wanted to return home for further academic advances. My male informant from CSU Arabic Club ("Arabic Club member #1"), M2, and M3 all were looking forward to finding prestigious jobs in Saudi Arabia. M2 and M3 were both on a contract with Aramco (the biggest oil company in the Middle East) where their education is paid for as long as they work at least 5 years with the company. Arabic Club member #1 wished for this position or an academic role at any prestigious Middle Eastern college, but was not accepted to any he applied for, and, perhaps relative to his proclaimed love for Colorado landscapes and people, as well as American music (a tie to the *affinity* theme), he felt that he would only work in the states for 5 years or so to get experience credentials and then go back to Saudi Arabia "to better things there." As noted, F3 has plans to stay in America (and teach children letter differentiation in words through her skills with Computer Information Systems from her masters education), and these plans are perhaps strengthened by her marriage to an American citizen, though he is learning Arabic and wants to start taking part in her home relations. Somewhat similarly, my original key female informant desires to stay in America to be with her husband who teaches here, though did not reveal any affinity for her home. F1 has a

rebellious spirit, and a knack for investigative journalism. She wanted to continue her career back in Egypt, doing unbiased reporting to shape a progressive future for the home she loves, but because things are so dangerous there she must stay in the states (where she has decided to do social work). M5 prefers America outright to Morocco, because he wants to distance himself from the Sultanate-like political corruption there.

Gender Perspectives

My key female informant let me know that eye contact in Arabic culture is a sensitive thing between men and women, involving both respect and sexual connotations. Having lived in the states for some time now, she is more comfortable with direct eye contact and feels it really lets her communicate much better. There may be some issues for female Arabic international students in regards to the American habit of casual cursing: F1 let me know that girls and women are never allowed to curse, nor are they exposed to cursing (as much as can be controlled), and, M2 explained that curses are even unrecognizable nonsense words in their technical structure and sound, but will be understood as curses in that they are usually spoken in conjunction with a rude or angry statement. I learned something curious in likely relation to such male-only language permutations, from a minor informant when I was at the MSA da'wa (tabling) event: there are myriad language rules to how a word is given male gender in Arabic whereas there is only one sound attachment to a word for it to be feminine; and as such, that since Allah is represented as a perfect being outside of everything but omnipresent in every entity too, it would only make sense that "he" be called by a male term since there could be so many permutations of his description. So it would seem that women are not equated with holiness. In that the main speaker at the Islamic Center open house proclaimed that Islam translates to "submission," and

every adherent should strive for that, it might be assumed that, in light of this prior information, males are expected to submit to Allah and females are expected to submit to males, both in their places for receiving proper guidance in life.

Relatively, the female friend of F3 confirmed from her experience that such gender separations – in religion-sanctioned, gendered speech networks, let alone the structure of Arabic language and its implied ideology (via linguistic relativity) – might cause differences between male and female Arabic students responses to my audio tests. However, it may be that the females who have more affinity for American culture have violated Islamic speech network laws and other Islamic laws as well. M5 informed me that, at the extreme of such violations, when young women "sleep around," they are considered "bitches," and, that it is considered good to marry a virgin. This may tie directly into the *integration issues* theme, as a female student may wish to have more social freedoms when in America but also remain tied to their home land, and it may be likely that their chastity and observance of Islamic law become suspect in due course.

Integration Issues

Both F1 and the female friend of F3 let me know that many Arabs are at home with "edan," which is actually a term that means "community prayer event" but is seemingly used lovingly to describe the Muslim way of prayer-driven life. America is not this way at all, even if Islamic Centers exist, because the call-to-prayer (from the minarets of mosques on nearly every block) happens multiple times throughout every day and offers every Muslim a religious break from activity and peace of mind. American school and work cultures do not permit such breaks to interrupt their busy schedules, so this may create a disconnect, a longing for home, and a feeling of being a bad Muslim. Also, "Arabic Schools," created mostly by Saudi organizations

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to help with heritage, and attended in supplement to standard Western schools, used to exist throughout Europe and America but were phased out by the governments some time during my participants' younger years. These places allowed young Arabs from different cultures to commingle and learn about their lifeways, language, and unique education system. My key female informant and F3's female friend informed me that without them much tension has been created between Arabic adults and their children because every aspect of their home culture is not nearly as easily transmitted or retained anymore.

F3's female friend told me that she and her friends feel strongly that Americans exaggerate things in conversation, giving me an example where some American friends went "crazy" over a cake that another friend made, where they gave simple compliments and then remained quiet, "per their respects." It may indeed be thought by Arabic people that there is an element of dishonesty or a histrionic undercurrent in American expressions. F3's friend let me know, e.g., that brand names are not worn about in Saudi Arabia like they are in America, though everyone dresses nicely there – she feels that people at home do not try to attract attention to their statuses. M3 explained that a crucial element of Americans' communication that detracts Arabs from speaking with them is their style of "silly joking" and noise-mimicry. He says that at home, such things are frowned upon and scoffed at. Excitement in the Arabic language is more reflected in their volume levels than in tonal fluctuations or mocking behaviors, confirmed by M2, M3, and M5 (but curiously no females); M3 described the difference as between "high" and "low" rather than loud and soft, in relation to either high or low levels of emotion. This is elaborated upon in some of the themes from the audio test interviews. All of this is relative enough to the way that some of my respondents began speaking English better when they grew more affinity to small talk and American culture. M5 told me that Arabs

"don't reveal when they misunderstand something, disagree with something, or are apprehensive about something (which he later added to by telling me that many will say yes to my research and then never call or show up, because they don't want to show their confusion or actual dislike, and/or because they don't want to appear unfriendly "like terrorists")."

Again, the prayer-driven life may play a part here. The main speaker at the Islamic Center open house event explained that

"Mohammed said that to stop evil from taking place, to fulfill his ideals of proper worship (by doing so with total faith and not out of greed for reward from him), one must use intention from the heart to physically enforce (lead by example), and if that is not possible to do so by voice and if that is not possible to at least have disdain in the heart which shows love of virtue and Allah's way."

So if an American is not interested in Islam – and perhaps such interest is reflected in their linguistic expressions – they may be disdained and unattractive to an Arab. But then, as M3 told me about American culture, it could just be that, like some of his friends, they "don't have the energy to grasp it all, because of a professed lack of interest."

There are some technical issues within the American school system and between the American and Arabic governments that can create undue stress for students. One of these is how the culture-bonding international studies program does not allow students such as F1 to test out of language classes for the culture of their focus (Arabic, in this case, which she would need 24 credits of). This is a detractor from professional humanitarian work, in place because of school bureaucracy. Also, F3's female friend and her husband informed me that a student may only keep their F1 visa (allowing them to stay in America after graduation) if they take more than 9 credits and are in good academic standing. Their visa is degraded to an F2 otherwise. Apparently, if a student in this situation is married to a person in the states (even if that person is another international student with an F1 visa), they cannot be deported. As my key female informant let me know, however, such a husband and wife must be living together as the female

must always have a male guardian. This creates hardship when both are students or engaged in careers that may take different paths. As such, there is tremendous pressure from the educational system of the host culture and the Islamic government of home. This can make any feelings of uncertainty in the course of a student's life much more stressful than they would otherwise be.

Prosody

Interestingly, F3's American husband has been learning Arabic but does not yet understand tonality usage in the language, and he also has no tolerance for Arabic music. The inability and the disinterest could both be connected, if affinity for Arabic music is associated with better grasp of Arabic language tonality much like Western music and English or romance language emotional tone. It doesn't help that Western media, e.g. Hollywood movies, is translated into Arabic but with Western tonal imitation (the head of the Arabic Club informed me that the voice actors are "some of the best that could have been chosen"). So students looking to familiar Western media for help with learning Arabic might find themselves tonally inept. M5 explained that movies with true Arabic intonation are those made, e.g., in Iraq, Syria, or Palestine. He was unsure as to why globally popular movies are without proper Arabic tone, but my own assumption, informed by the literature, is that much of emotional tone is tied to culturally based experiences and so can be lost or confused in translation between languages belonging to cultures that are not proximal. However, and conversely to an American's experience watching such a movie, an Arab who is learning English might find the embedded Western tonality useful to augment English subtitles so they may develop a knack for recognizing what certain vocal tones are mean in different situations. Even so, their reproduction of tonality might be weak because, as Arabic Club member #1 told me, "they just don't know the

feeling." M3 confirmed that an American in this situation, attempting to use Arabic tones but in ways that don't mesh with their words or body language, might be thought of as "confused" or new to the culture.

M5 also informed me that "some countries speak English better than others," UAE and Kuwait especially. He said that Saudi Arabia and Egypt follow their own dialectal punctuations, affecting it with various desired changes, and that in this way he can identify where another Arab is from by the way they speak English. Perhaps corroboratively, F3 as well my key female informant and my female Greeley informant are all from Saudi Arabia and have expressed difficulty in learning American prosody. Converse to what the males told me about emotional expression in Arabic being relative to speech volume levels, F1 said that in Egypt "there is no such thing as a monotone conversation" and that "in Lybia they sing, with high pitched melodious voices." My female Greeley informant also confirmed that there are differences in Arabic tonality as spoken between the elite (Bedouin) and 2nd class citizens (ethnically diverse) of Saudi Arabia, as well as between them and Africans and Indonesians. So it does appear that regional influences play a large part in Arabic tonality and also in Arab-spoken English tonality. Interestingly, M2 let me know that, for Saudi Arabians, learning and then either forgetting or neglecting to use the English language is cast in a negative light. In as much, it would seem that a Saudi would always strive to be more proficient at English once it is learned.

Affinities

As noted earlier, F3 is majoring in TOEFL education. This reveals an apparent affinity for Western culture. She let me know that she recently had traveled to Utah, Arizona, and California, and loved each state. Her dress style was also descriptive of her affinities to Western

culture, as she was wearing tight and somewhat revealing Western clothing, elaborate but nicely accentuating makeup, strong perfume, and also attractively styled hair. This all says much about her self-image, and also must have taken some time. Her friend, at the same meeting, had a nearly polar opposite type of dress style, with the conservative hajib and full dress combination, very light makeup, and no perfume that I could smell; however, the colors of her clothing items were vivid and complimentary. F1, in our one-on-one meeting, was dressed in a moderate style between these two: she wore a denim jacket over a tight white shirt, a colorful Western patterned long skirt, and a hajib. It seemed to be a cross-cultural statement, whether or not it was meant to.

Like M5 (every time I saw him), Arabic Club member #1 wore tasteful but casual Western clothing when we met. He had a broadly-striped dark colored shirt, jeans, and a white-and-black speckled scarf. His hair looked as though it had been styled and air dried in a short and wavy fashion. He tended to reveal his emotions readily when we spoke, with shifts in his body posture as well as facial expressions. It was the case, though, that his vocal tone remained relaxed and mostly unwavering (though not unemotional), showing a lack of "high" emotion. M2 and M3 were both very casually dressed, wearing jeans, t-shirts, and sneakers, but both had stylish leather jackets on (the former wearing something of an American styled "bomber" jacket). So it would seem that unlike what F3's female friend told me about Arabs always dressing up, some of the males, at least, also dress casually.

M5, as mentioned, isn't happy about politics in Morocco and prefers the politics of America. On that note, he is even strongly opposed to Muslims voting in America because of their exclusivity or lack of participation in American culture. No less, pay grades for academics are nearly twice as high in America, another reality that leads him to stay here. He is also a big fan of certain American comedians, George Carlin being a prime example, even with his

rudeness and crudeness. He takes interest in the use of language and finds humor in the way that Americans curse, and especially the polysemic use of the word "fuck," as comically explained in a video of Osho that he showed me. He enjoys the American style of coffee more than Turkish (Arabic) coffee, being sweet and not too strong (strong meaning espresso-like with coffee grounds still in). The program he chose at CSU was Religion and Politics, which to him is more of a philosophical ideology program, and it is attractive to him because, "like Habermaas," he feels that religions simply fulfill a niche role in society. Also, he says that there is no singular "Arab culture," as Americans believe, because no two Arab groups or nations agree or cooperate with one another "in such a way as to responsibly and logically make universal decisions together." One might say the same about American states, but we are all still Americans; so, his statement says much about how he views political cohesion as a basis for culture.

As noted, Arabic Club member #1 thoroughly enjoys American people (except perhaps for Mormons), land, and music, and wishes to "make things better" when he finally returns to Saudi Arabia. He told me that Spain was once an Arab country, and seemed quite proud about it, but also has interests in big revolutionary icons such as Nelson Mandela and Ghandi, and even non-Islamic religions.

American Relationships

F3 has been influenced by her American husband in the way of English language acquisition through watching comedy shows (especially Adam Corolla). This fact is co-coded with *linguistic advantage,* but I chose to place it here because it is his insistence and the bond of their relationship that brought her to watch said shows. Being close to American people is likely an important factor for other Arabs when it comes to learning English. Arabic Club member #1,

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for example, feels confident about his speech (rightly so, in my view) and has many relationships with Americans and also family to keep him grounded in Colorado. My key female informant also told me that she has more American friends than Arabic friends and that life is "lovely" in Fort Collins compared to places that are busier where people don't have time to communicate – she is pleased by speaking with Americans, and is fairly good with her English tonality. I would say that my female Greeley informant may be an outlier here, in that she is not as accomplished with her tonality and is equally unconfident about it, but she does apparently have at least one American friend; however, she explained to me that she enjoys just lounging at home in her free time, which tells me that she does not lead an outgoing social life that could help her communication style.

ESL

Learning any foreign language can be hard, but there may be some that are harder than others. A few of my respondents hinted that English is one of those. F3 told me, for example, that the Qoran immortalized the old Arabic and so the language used in it is revered but has been falling off in terms of everyday parlance. The language is becoming more of a "living language" like English, or ever changing and ever losing sensibility, as she told me. She feels that because of English's dramatic changes through history, it has so many odd rules and stipulations that it is probably one of the hardest languages to master. Her female friend also had troubles. She told me that it is very difficult to articulate thoughts when writing in English, and that she witnesses this difficulty being experienced by many Arabs. My key female informant also said that lots of students really suffer with thinking in both English and Arabic languages because it causes their minds to waver and be frustrated at having to find translations. In that some of the males I had

spent time with felt quite the opposite about their capacity for English language, there could be some sort of gender differential taking place.

Music Exposure

Out of 4 Arabic students (M2, F1, F3, and Arabic Club member #1) who mentioned country music or who I asked about it, all but one of them, F1, loves it. Arabic Club member #1 even said it makes him reminiscent about "old times, like in old cars." He also has affinity for electronic dance music (EDM), "soft" music, and modern pop, cannot stand listening to Arabic music anymore, and also proclaims that listening to American music has helped his English accent and speaking speed. F3 shares the affinity for pop, and enjoys groups like Bastille, Bombay Sound System, and FUN, but she disdains EDM. F1 disdains country, rock, and "screamy music," but seems to have a taste for hip hop, which she agrees has a generally "minor" mode or "sad" sound to it. M2 plays piano but loves drums and guitar, and also enjoys Japanese music. M3 may have some affinity for Western scales, in that he really enjoys the music of Abadi Al Jawoher, or "The Octopus," which is played on a double-stringed oud and therefore sounds more like Spanish guitar than Arabic music. My female Greeley informant also enjoys the Spanish guitar sound, as she shared one of her favorite classical guitar songs with me (with classical music being her second favorite to Arabic music), and, she disdains pop and lyrical music generally. The former is proud of his English proficiency whereas the latter is unconfident about it. In my subjective view, they are right to feel as such (even if M3 had a mostly unwavering voice much like Arabic Club member #1). I unfortunately did not find out if M3 had any affinity for lyrical Western music, a fact that could have helped describe their difference, being that Arabic Club member #1 and F1, fans of pop music, both claim to feel the

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emotion of Western music and also that they use and understand and replicate English emotional tone well (which I would agree with).

Linguistic Advantage

On an informant level, M5 told me that Moroccans watch more English television than Americans, and especially movies, which Moroccans "thankfully" can obtain pirated version of "two weeks after they are in the box office." Also, he claims that Egyptian television is mainly Egyptian while Moroccan television comes through in many languages, inclusive of world news. He earned his English Studies undergraduate degree in Morocco. Moroccan Arabic is also inclusive of French and Spanish elements, further increasing their exposure to Western (Romance) languages; and, as priorly mentioned, M5 is learning these languages, but he is also learning German. F1's father earned his doctorate at CSU when F1 was very young, so she was exposed to English at a young age and learned it alongside Arabic at the same rate. M2 had exposure to English at a young age when his father took his family traveling so he could earn his master's degree in America and then his doctorate in the U.K. M2 has also been exposed, via his mother's linguistic aptitudes, to Uzbeki, Farsi, and Urdu or Pakistani (he can't remember). No less, his interest in Japanese music has piqued his interest enough to where he has begun to learn the Japanese language. He and M5 may be the most linguistically capable Arabic participants, yet F3 may be the most capable in Arabic dialects as she speaks in Saudi, Egyptian, and Lebanese vernaculars.

6.3 Theme Analysis: Audio Test Debriefing Interviews

The following student interview data follow the threshold rule I set out in my methods chapter: to be considered a consensus worth review, an audio sample must have 3 or more similar responses (25% of the students) for the Arabic group, and 4 or more similar responses (20% of students) for the American group. I have listed theme information regarding correct audio sample responses first, and then incorrect responses to each particular emotion sample couplet (2 samples per emotion – male and female) as well as when that same emotion is the answer that was incorrectly given for other audio samples. Sections are categorized by emotion. Not as many themes for American students as Arabic students could be examined due to the fact that only six of them were available for debriefing interviews. Full interview theme analysis with student quotations can be found in Appendix C.

Fear

Arabic Students

With the Arabic group, there were 6 correct responses out of a possible 24 (25%) for the emotion *fear*. F2, M4, F5, and M6 correctly answered #6 (male *fear*), and M3 and F5 correctly answered #10 (female *fear*). These were both gender balanced response groups. The male-to-female voice actor recognition ratio for *fear* was 2:1, with one third of the Arabic students recognizing male *fear* and one sixth recognizing female *fear*. F5 was the only student who answered both correctly. The only non-Saudi student in these groups was F4. Correct responses for sample #6 were analyzed, as they met the threshold criteria for consensus. Two of the students offered an Arabic term in their female and male pronunciations of it: khayef and khoef, respectively. This term describes the feeling of fear that relates with speaking very quickly and

being nervous or frantic. Another described it as a warning to a friend of something dangerous, which seems to relate to the prior. The last student said it involved elements of guilt and sadness because the speaker had done something wrong and was defensive about it.

There were 18 total incorrect responses to the two *fear* audio samples (#6 and #10) within the Arabic group. For sample #6, *angry* was answered by F6 and M1, *disgusted* by M3 and M5, *happy* by F3 and M2, *surprised* by M1, and *sad* by F4. For sample #10, *sad* was chosen by F1, F2, M1, M4, and M5 – 3 males and 1 female (and 41.67% of students); *angry* by F4, F6, and M2 – 1 male and 2 females (33.33% of the students); *happy* by F3; and *surprised* by F6. All three non-Saudi Arabic students were included in this incorrect response group, where F1 from Egypt and M5 from Morocco were included in the major consensus *sad* response group, and F4 from Libya was in the minor consensus *angry* response group.

Out of all instances, the *sad* and *angry* responses for sample #10 were the ones that met or surpassed the consensus threshold (with almost half of the population answering *sad* and one fourth answering *angry*). Sadness may have been chosen for female *fear* because of "rising and falling" pitch, as M1 described. Tragedy, despair, failure, complaint, and childishness (since "the problem inside her is that she thinks it's so insane, it's so bad, but you know, it's nothing") were all descriptions given by this response group. The students who responded with *angry* also implied complaint and upset, on a common theme that depicts women as normally expressing their anger in this manner.

For the American group there was a greater number of correct hits for the emotional audio samples of *fear*: 22 out of 38 possible (57.9%). The 12 students who correctly answered sample #6 (male fear) were E1, E2, E4, E6, E7, E8, E9, E10, E13, E14, E15, and E19; this grouping was evenly balanced by 6 males and 6 females. Those 10 students who correctly answered sample #10 (female fear) were E3, E5, E6, E7, E9, E11, E12, E13, E14, and E19; this grouping was also balanced by 5 males and 5 females. The male-to-female gendered emotion recognition ratio for *fear* is therefore quite close to 1:1 (6:5), and, correctness was achieved by nearly 63.16% of the students for male *fear* and 52.63% of them for female fear. Those who answered correctly both of the *fear* samples were E6, E7, E9, E13, E14, and E19; again, a balance (of 3 males and 3 females). They comprise 31.58% of the American student group. All six of the American students available for interview were in the correct response grouping for sample #6, and only one was in the sample #10 grouping.

An element of serious, even fatal, impending threat was in the descriptions of student. One gave an example of someone being anxious and focused and building up to loudly instructing people to take cover during a natural catastrophe. Two of them got both the context and the phrasing of the audio sample correct, and one other got the context. One of the first two said it could alternatively be people shouting about impending threat during a riot, and the other said it could be nervousness or edginess from a big life event or from the bustle of busy teamwork. The last one, who got both audio samples correct, said it was a personal confrontation threat and that she could tell what it was because of the sound patterning (rather than tone per se).

There were 15 total incorrect responses to the two *fear* audio samples within the

American group. For incorrect responses on sample #6 (male fear): E3, E11, and E16 each

answered *angry*, while E5 and E17 answered *happy*, E18 answered *disgusted*, and E12 answered

surprised. For sample #10 (female fear): E1, E2, E8, E16, and E17 each answered *angry* – 3

males and 2 females; while E10, E15, and E18 answered *surprised*, and E4 answered *disgusted*.

Those who answered incorrectly for both were E16, E17, and E18 – one female and two males.

In that the number of *angry* responses to sample #10 constitutes a consensus of 4 or above

(26.32% of the students), they were explored (except for E16 and E17 who did not interview).

Three students from this group were available for interviewing. A theme of fighting emerged,

where one student said it was a superficial "cat fight between two girls," while another said it

was woman yelling at her boyfriend to leave, and the last said it was panicked but accusatory.

Summary

Whereas the Arabic group achieved a ratio of 2:1 for male to female voice actor emotion

recognition, the American group achieved nearly 1:1 (6:5). And, where one third and then one

sixth of the Arabic students answered correctly for the male and female samples, respectively, it

was slightly under two thirds (63.16%) and slightly over one half (52.63%) for the American

group. Only one Arabic student responded correctly to both samples compared to the nearly one

third of American students who did (a gender balanced subset). For both participant groups,

there was an even balance of male and female students who responded correctly to each audio

sample. Altogether, this seems to reveal that Arabic students recognize the Western tonal

expression of male *fear* more readily than female *fear* while American students recognize female

fear very nearly as well as male *fear*, and, that overall, American students recognize the Western

tonal expression of *fear* over twice as well as the Arabic students. Descriptions of nervousness, franticness, and reaction to impending threat were common between both cultural groups for correct responses to the *fear* audio samples.

There were somewhat different descriptions in the incorrect responses of *anger* for sample #10 (female *fear*), given by 33.33% of the Arab students and 26.32% of the Americans, where *anger* was perceived in combination with other feelings: those of perceived complaint and upset by the Arabic students, and others of panic and accusation or of demand, by the American students. Both involved personal interaction. This seems to reveal a cross-cultural behavior/expression inversion with gender roles, which is intuitive given female submission in Islamic culture and female empowerment in modern American culture. For the Arabic students in the consensus response group of *sadness* for sample #10 (41.67% of them), the descriptions of complaint and childishness have some commonality with those of the correct *fear* responses, but in relation to weakness or despair instead of upset. It could be that sadness was chosen due to "rising and falling" pitch, as M1 described, and, it should be noted that only Saudis were in this group, so there might be a more common perception of *fear* than *sadness* in this tonality between Arabic dialects.

Anger

Arabic Students

There were 12 total correct responses out of a possible 24 (50%) for the emotion *anger* with the Arabic student group. F1 through F5, and M1, M2, M5, and M6 (five females and four males) responded correctly to audio sample #1 (male anger), with F3, M1, and M3 (one female and two males) responding correctly for sample #9 (female anger). Only two of the participants

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(F3 and M3) answered both the male and female *angry* audio samples correctly. This is a voice actor emotion recognition ratio of 3:1, male to female, with three quarters (75%) of the Arabic group answering correctly for male *anger* and only one quarter (25%) for female *anger*. The three non-Saudi students were amongst the correct response group for sample #1. Both response groups numbered at or above the threshold for consensus and therefore their response descriptions were analyzed for themes.

With the Arabic group, there was a common description of a dictator speaking in sample #1 (male *anger*). The Arabic term *ghadban* was offered by one student who said this and by another student who said he is "serious and loudly." Some others said that if someone spoke this way in public it would be inappropriate for their culture, making the person weak and lacking etiquette (but perhaps not so if that person was a dictator). In the latter cases, the terms *disappointed, instructional,* and *disgusted* were offered, and the Arabic term *m'aseb* was offered by those students. With sample #9, the two male students were unsure of their response and one of them said it must have been a serious teacher or a woman being angry at home, while the one female student gave the female version of *m'aseb – m'asbah –* which she said was the "highest madness." The consensus of *angry* for the female *fear* audio sample in the prior section revealed that complaint is perceived as a usual element of female anger, so I would assume these two male students heard that element here as well. This may be why only the female of the three students felt she was extremely angry (she has more empathy for other females).

There were a total of 12 incorrect responses to the two audio samples of *anger*. For sample #1 (male *anger*) F6 answered *happy*, M3 answered *sad*, and M4 answered *surprise*. For sample #9 (female *anger*), the emotion *happy* was chosen by F1, F4, F5, M2, M4, and M5 – a

gender balanced consensus of half of the Arabic student group. Also for sample #9, *surprise* was chosen by F6 and M6, and *sad* was chosen by F2. In contrast to their correct hits on sample #1, the three non-Saudi students each answered sample #9 incorrectly. The *happy* consensus grouping for sample #9 was analyzed for themes. Two males offered Arabic words: *farhan* and *muhteshya*. The prior was related to cheerfulness from a life event, and the latter to euphoria from a great experience. One female resonated with their responses, while another female described it in a totally different manner, as "bitchy gossip" and a tone taken when revenge or blackmail is plotted. One male described delight of another's misfortune stemming from jealousy, and offered the Arabic term *khliba,* which means talking behind someone else's back (a prohibited behavior).

American Students

For the American group, like the Arabic group, there was an even percentage of correct hits for the emotion audio samples of *anger*: 19 out of 38 possible (50%). The 16 students who correctly answered sample #1 (male *anger*) were E1-11, 14-16, 18, and 19; this group was fairly gender balanced with 9 males and 7 females. The three who correctly answered sample #9 (female *anger*) were E1, E3, and E13; two males and one female, each of whom answered both samples correctly. The voice actor emotion recognition ratio is 5.33:1, male to female, with 84.2% of the American group answering correctly for male *anger* and only 15.8% for female *anger*. Responses for sample #1 were analyzed for themes, in that they amounted beyond the threshold for consensus. Four of the six students who were available for interview were in this grouping. The three male students described situations on a theme of political speaking, with one saying he was in a room with others possibly hostile to his ideas, another offering the word

irate and describing Hitler, and another describing an *impassioned* rally speaker. The female offered a completely different situation of quick reaction rather than sustained emotion, such as yelling at a driver who doesn't see you in a crosswalk.

The following regards incorrect responses to the audio samples of *anger*. For sample #1 (male *anger*), E12 chose *fearful*, E13 chose *happy*, and E17 chose *surprised*. This response group was comprised of two females and one male, and was 15.79% of the American students. For sample #9 (female *anger*), E2, E4 through E12, E14, E16, and E18 all chose *happy*. This response group was comprised of 5 males and 7 females, and was 68.42% of the American students. E17 and E19 both chose *surprised*, and E15 chose *disgusted*. Theme analysis was performed for the consensus responses of *happy* that were chosen for sample #9. I analyzed themes in descriptions given by four American students from the six available for interview. The first three students I analyzed were females, and the last was a male. The first said she sounded *shocked* and *joyous* about good news, the second said it sounded like she was *upbeat* or part of an *excited* crowd anticipating an event, and the last said it sounded like *pride* at a ceremony of some kind or like *contentment* if it were from a lasting mood. The male said it sounded "clearly *happy*," like laughter in conversation between two people.

Summary

Whereas the Arabic group achieved a ratio of 3:1 for male to female voice actor emotion recognition, the American group achieved 5.33:1. And, whereas three quarters (75%) and then one quarter (25%) of the Arabic students answered correctly for the male and female samples, respectively, it was over three quarters (84.21%) and under one sixth (15.79%) for the American

group, respectively. One sixth (16.67%) of the Arabic students answered both audio samples correctly, and 15.79% of the American students did. Between cultural groups there was a difference in the ratio of males to females who responded correctly to each audio sample (4:5 and 1:2 for Arabs on the male and female samples respectively, and 9:7 and 2:1 for Americans likewise). This reveals overall that (1) there is an approximately 10% inverted difference in correct scores for male and female samples between cultures, and that (2) while male American students recognize the Western emotional tone of male *anger* better than the male Arabic students do, female Arabic students recognize the Western tonal expression of female *anger* better than female American students do. The prior theory may have more weight in significance than the latter due to the amount of students involved. Common themes were found in both correct and incorrect responses.

Sample #1 (male *anger*) was the only one of the two samples that received correct consensuses by both groups. With both, there were common descriptions of a dictator, serious instructor, or angry individual. Only in the Arabic group were the terms *disappointed* and *disgusted* also offered, as well as the idea that this tone would only be taken at home by a layperson.

Both cultural groups gave the incorrect response of *happy* for sample #9 (female *anger*). Themes of cheer, joy, excitement, and pride were common between them both. Only in the Arabic group were there descriptions of gossip, revenge, and jealous pleasure; these were given by one male and one female. It would seem that, with perceived context of both male and female versions of *anger*, between both student groups, there is mostly commonality but also themes specific to only Arabic culture. So, although both groups may recognize *happiness* in this tonality of female *anger* (with some perceptual differences between student genders), therefore

allowing for intercultural sympathy, the conceptions and behaviors tied to the feelings associated with the tonality are somewhat different, disallowing total empathy.

Happiness

Arabic Students

Only 1 of 24 responses were correct for the audio samples of *happiness*. The following regards incorrect responses to the two *happy* audio samples. Responses by mode are as follows: sample #3 (male *happiness*) was misinterpreted as *fear* by F1, F2, F3, M2, M3, and M5 – a balance of 3 males and 3 females (50% of students), with 2 non-Saudi students; *surprise* was chosen by M5 and M6; *sadness* was chosen by F5 and M4; and *disgusted* was chosen by M1. For sample #7 (female *happiness*), the emotion of *sadness* was incorrectly chosen by F1 through F6, M3, M5, and M6 – an imbalance of 3 males and 6 females (75% of students), with all non-Saudi students; *angry* was chosen by M2; and *fearful* was chosen by M4. Responses from the consensuses of *fear* to sample #3 and *sadness* to sample #7 were analyzed for themes.

The following regards the *fear* responses to sample #3 (male *happiness*). The terms *khayif* and *hayef* were given, the first by the Egyptian female and the second by a Saudi female. These describe nervousness or worry, but whereas the Egyptian said he was yelling in panic from imminent threat, the Saudi female said her loud and "up and down" voice indicated crying, but due to *fear* from repercussions of having done something bad. One male also said that he was complaining to his mother for fear of his father's punishment from having done something wrong. Two males (one of them Moroccan) also gave examples of imminent fatal threat, with one saying the actor was female and trying to (loudly) calm down the aggressor, and the other saying that he was begging for his life. For incorrect responses of *sadness* to sample #7 (female

happiness), one female said she sounded whiny about something petty (either *bitzim* as an action or *zenam* as a personality trait), and another said she was putting on a "drama act" to manipulate someone (for money, i.e.). One male gave a similar description as the latter but said that would be called *angry* rather than *sad* in Arabic culture, and he gave an alternative situation with sadness from relationship troubles. Three females said it was "clear" sadness (with no other emotions) with crying, and one said "sad and mad," which may resonate with the last male. Corroboratively, one male offered *upset* as a word that describes a higher degree of expression than *sadness*, and that it could be caused by a cheating husband. A male outlier said it was "20% fear" because "when a person cries he is full of fear."

American Students

For the American group, there were 0/38 correct responses to emotion *happiness* in samples #3 and #7. There were, however, common incorrect responses. For sample #3 (male *happiness*), the emotion of *fear* was incorrectly chosen by E2, E7 through E10, E13, E15, and E16) – an imbalance of 3 males and 5 females (42.11% of students); the incorrect emotion of *sadness* was chosen by E3, E5, E6, and E11 – a balance of two males and two females (21.05% of students); and the incorrect emotion of *anger* was chosen by E4, E12, E18, and E19 – another balance of two males and two females (21.05% of students). *Disgusted* was chosen twice (by males) and *surprise* once (by a male). Sample #7 (female *happiness*) received 12 responses of *sadness*, with in-group students being E1, E2, E4, E5, E8 through E12, E15, E16, and E19 – a balance of 6 males and 6 females (63.16% of students); and, it received 5 responses of *fear*, with in-group students being E3, E6, E13, E14, and E18 – a near balance of 3 males and 2 females (26.32% of students). One male and one female chose *angry*. The response groups of *fear* and

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anger for sample #3, and of *sadness* and *fear* for sample #7, had amounts of responders meeting the threshold for consensus. I performed theme analysis on response data from the students available for interview within these groupings.

The following regards incorrect responses of *fear* for sample #3 (male *happiness*). Four students were available to interview and provide explanations for these answers. One of the females described it as either a panic reaction to an out-of-control situation, the tone taken while in an agitated mood, or a reaction to a natural disaster. One male said that worry was indicated by the upward rise in tone and "manic" expression (perhaps speed of speaking). The two others provided examples of reaction to dangerous or fatal threat, and suggested possible combinations with either *disgusted* (from injustice) or *surprised* (so, panicked). The only other incorrect response I had interview data on for sample #3 was from E4, a female, with the choice of *anger* (there were no interview data available for the *sadness* response consensus). She said the actress was trying to justify herself from misdirected anger, and she offered the term *frustrated* in place of her perceived combination of *fear* and *anger*. This may resonate with the *disgustedly fearful* combination, but has a more confrontational than evasive context to it.

The following regards incorrect response to sample #7 (female *happiness*). For the response of *sadness* to sample #7 (female *happiness*), 5 of the 6 American students available for interview were in the grouping. Being hurt or crushed and distraught, by heavy news or betrayal, were common descriptions. Bawling, or talking through crying because of an untimely death, was one description. Another slightly resonated with that by describing a mix of "frustrated sad" with angry, and imagining a protest of injustice. None of the six students interviewed were in the grouping for the incorrect response of *fear* to this audio sample.

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Summary

Neither the Arabic nor American group achieved any correct response consensuses for the audio samples for the emotion *happiness*. Major consensuses of 6 of the 12 students in the Arabic group (50%) and 8 of the 19 in the American group (42.11%) chose *fear* for sample #3 (male *happiness*), and 9 of the 12 Arabic students (75%) as well as 12 of the 19 American students (63.16%) chose *sadness* for the sample #7 (female *happiness*). In both cases, more of the Arabic students than American student perceived the same incorrect emotion. The American students also had threshold consensuses (21.05%) of both *sadness* and *anger* for sample #3, and of *fear* for sample #7.

For sample #3, nervousness, panic, worry, and response to fatal personal threat are all similar descriptions between both student groups. An indicator of *fear* for one Arabic student was "up-and-down" intonation, and, for one American student, rising intonation at the end. Culturally unique descriptions for the choice of *fear* were: (1) by an Arabic student, childish complaint to avoid due parental punishment, (2) by two American students, possible emotional admixtures with either *disgusted* (by injustice) or *surprised* (panicked), and (1) by an American student, that of *agitated* mood. The latter description may resonate with that offered by a female who chose *angry* and picked the word *frustrated* in place of her perceived combination of *fear* and *anger*.

For sample #7, a few Arabic descriptions of "clear" sadness (pure emotion) and crying seemed to resonate with unwavering American descriptions of being "crushed," "hurt," and "distraught." Those of "upset" and "sad and mad" with the Arabic students, and those of "bawling" and "frustrated sad" with the American students, were terms given in association with similar contexts. One of petty whining, two of "drama act" manipulation (deemed *anger* rather

than *sadness* in Arabic culture – revealing that women feel they deserve what they desire when they behave this way), and one of "20% *fear*," were all uniquely Arabic in context; yet, this latter description seems to possibly reveal a conceptual aspect shared by those American students who gave the minor consensus of *fear*.

Sadness

Arabic Students

The Arabic group gave 9 of 24 possible correct responses (37.5%) to the emotional audio samples of *sadness*. Sample #4 (female *sadness*) received correct responses by F1, F5, F6, M1, M5, and M6 – a balance of 3 males and 3 females. Sample #8 (male *sadness*) received correct responses by F3, M1, M2, M4, and M6 – an imbalance of 4 males and 1 female. M1 and M6 answered both audio samples correctly – 1/6 of the Arabic students. The voice actor recognition ratio is 6:5, male to female, with 50% of the group answering correctly for male *anger* and 41.67% answering correctly for female *anger*. Responses for both samples were analyzed for themes, in that they amounted beyond the threshold for consensus.

For correct responses to sample #4, there were three common descriptions (Egyptian female included) of broken-hearted response to someone's death, with one saying *fear* is present and another saying *upset* is present. Two descriptions of character trait, as low self-esteem or persistent antisocial behavior from obstructive "overthinking," were presented between two males (Moroccan male included). The latter also offered a character state of being "grumpy" or complaining, with one female resonating with that by saying it is bad mood or reaction to pressure. For correct responses to sample #8, one male offered *concern* out of disappointment from unheeded warning, and, perhaps similarly, another male said it was an older sibling unable

to help his brothers. One male and one female offered the Arabic term *hazin* in reference to tempered crying from needing help or speaking intimately about relationship issues; another male resonated with the latter description and said *fear* was also present.

The following regards incorrect responses to the emotional audio samples of *sadness*. For sample #4 (female *sadness*), F2 and M2 both chose *disgusted*; M3 and M4 both chose *happy*; F3 chose *surprised*; and F4 chose *fearful*. For sample #8 (male *sadness*), F1, F2, M3, and M5 chose *angry* – a gender balanced group (33.33% of the students); F5 and F6 chose *fearful*; and F4 chose *disgusted*. In that the *angry* responses to sample #8 surpassed the threshold amount for consensus, they were analyzed for themes. There were common descriptions of *upset*, with that term used explicitly twice (by a Non Saudi male and a Non-Saudi female). It was controlled *anger*, or *seriousness*, from intervention or protest. Also, one student indicated that the loudness of the sample was diagnostic.

American Students

The American students gave 22 out of 38 (57.9%) possible correct responses for the emotional audio sample of *sadness*. Sample #4 (female *sadness*) received correct responses by E1, E2, E4 through E7, E9, E10, E12, E13, E14, E16, and E19 – a near balance of 6 males and 7 females. Sample #8 (male *sadness*) received correct responses by E3, E6, E7, E9, E11, E14, E15, E17, and E18 – an imbalance of 6 males and 3 females. E6, E7, E9, and E14 answered both samples correctly – a gender balanced group of 21.1% of the students. The voice actor recognition ratio is just over 4:3 (13:9), male to female, with 68.42% of the students answering correctly for male *sadness* and 47.37% of the students answering correctly for female *sadness*.

Responses for both samples were analyzed for themes, in that they amounted beyond the threshold for consensus.

Four of the six students available for interview were in the correct response group for sample #4 (female *sadness*). One male felt she was "at the end of her rope" but overly expressive like in a bad drama. He and one female both said it would be a privately expressed emotion, but the female said she was "choking up" while talking. Another female agreed, saying she was "talking through crying," but offered, like one of the males, that if it was publicly expressed, it would be at a funeral. That male offered that the "light rising" between clauses was diagnostic, and that this tone could also be from sadness due to "general issues." Two of the six students available for interview were in the correct response group for sample #8 (male *sadness*). The male offered that it was a controlled sadness where he is trying to ease others' suffering, and the female said that it was more *blue* than *sad,* "like not being actively upset about it" or just "commiserating" with others over a failed project, i.e.

The following regards incorrect responses for the emotional audio samples of *sadness*. For sample #4 (female *sadness*), the emotion *fear* was chosen by E3, E11, E15, E17, and E18 – 4 males and 1 female (26.32% of students); and E8 chose *disgusted*. For sample #8 (male *sadness*), the emotion *fear* was chosen by E1, E12, and E16 – 1 male and two females; the emotion *happy* was chosen by E4, E5, and E10 – one male and two females; the emotion *anger* by E8 and E13 – one male and one female; and the emotion *disgusted* was chosen by E2 and E19 – both males. In that incorrect responses of *fear* to sample #4 surpassed the threshold amount for consensus, they were analyzed for themes. Only one student (E15) out of the six available for interview was in this response grouping. He said "it's not like a life-or-death or disgusted fearful

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like the last one; it's more of like a... just... almost like afraid of failure or afraid of something that is less immediate. Yeah, so afraid of a new situation that they're unsure of, yeah, so uncertainty maybe… uncertainty or timidness." He said that the tonality was likely taken in a private situation like at home.

Summary

For the Arabic group, the voice actor recognition ratio is 6:5, male to female, with 50% of the group answering correctly for male *sadness* and 41.67% answering correctly for female *sadness*. For the American group, the voice actor recognition ratio is just over 4:3 (13:9), male to female, with 68.42% of the students answering correctly for male *sadness* and 47.37% of the students answering correctly for female *sadness*. One sixth (16.67%) of the Arabic students answered correctly for both samples, and 21.1% of the American students did as well. For the Arabic students, 1:1 and 4:1 were the ratios of males to females who responded correctly to female *sadness* and male *sadness*, respectively. For the American students, it was 6:7 and 2:1, respectively. So, while both groups have a similar gendered-emotion tone recognition ratio (male actor vs. female actor), the American students are approximately 18% better than Arabic students at recognizing male *sadness* and 6% better at recognizing female *sadness*. And, although males from both cultures recognize the Western tonality of female *sadness* almost equally well, Arabic males recognize the Western tonality of male *sadness* twice as well.

For correct responses to sample #4 (female *sadness*), both groups had similar themes of talking through crying or being sad at a funeral, but the Arabic group also had those involving character traits, with "overthinking" and low self-esteem, and those of character states such as complaint or grumpiness. An American description of sadness from "general issues" might

resonate with the latter. It should be noted that the character trait response of low self-esteem was given in misperception that the voice actor was male, and the other character trait response was given in reference to a general "they" rather than "he" or "she." Such answers may have been entirely different otherwise.

For correct responses to sample #8 (male *sadness*), it could be that this emotion was not so well understood by Arabic females because one of the contexts in which sadness seems to occur for Arabic males is tied to their unique gender status. For example, one Arabic male said it was disappointment from authority not being heeded, and another said it was sadness from not being legitimated as the commander of siblings. Females may not perceive males' tonal expressions during these situations as sadness; so, it may be that there is some aspect such as rhythm in the voice sample that reminds the males of such feelings. The other male descriptions were similar to the responses of the Arabic females. Unfortunately, it is not possible to make comparisons between the Arabic responses and the American responses due to a lack of interviewees from the latter group.

Sample #8 (male *sadness*) was deemed *angry* by 33.33% of the Arabic students, with common themes between their responses. This consensus was not shared with the American students. Sample #4 (female *sadness*) was deemed *fear* by 26.32% of the American students – a consensus not shared with the Arabic students. It is interesting that a disproportionate 4:1 ratio of male to female American students chose *fear* for this sample, but due to there being only one American student in this response grouping that was available for interview, I could unfortunately not discover any details that might indicate shared perceptions that explain this disparity.

Disgust

Arabic Students

The Arabic students gave 4 out of 24 (15.38%) possible correct responses for the emotional audio samples of *disgust*. Sample #2 (female *disgust*) received correct responses by F3, F4, and M5 – one male and two females. Only F3 responded correctly to sample #11 (male *disgust*), and she (8.3% of the Arabic students) answered both samples correctly. The voice actor recognition ratio is 3:1, male to female, with 25% of the students answering correctly for male *disgust* and only 8.3% answering correctly for female *disgust*. Responses for sample #2 were analyzed because their numbers met the threshold for consensus.

The following regards correct responses to sample #2 (female *disgusted*). A theme between descriptions given by one male and one female was a continuous reaction of detestation or disagreement, and both of them thought the voice actor was male. The other female felt *disgusted* herself, rather than perceiving the "boring" or "annoying" voice actor's to be as such.

The following regards incorrect responses for the emotional audio samples of *disgust*. For sample #2 (female *disgust*), the emotion *fear* was chosen by F6, M1, and M6 – two males and one female (25% of the students); the emotion *sadness* was chosen by F2, F5, and M2 – one male and two females (25% of the students); the emotion *happiness* was chosen by F1 and M3 – one male, one female; and *surprised* was chosen by M4. For sample #11 (male *disgust*), the emotion *anger* was chosen by F5, M3, M4, and M5 – 3 males and 1 female (33.33% of the students); the emotion *surprise* was chosen by F1, M1, and M6 – two males and one female (25% of the students); *happy* was chosen by F4 and F6; *sad* was chosen by M2; and *fear* was chosen by F2. The numbers of incorrect student responses of *fear* and *sadness* for sample #2,

and those of *anger* and *surprise* for sample #11, all met the threshold amount for consensus, so these responses were analyzed for themes.

For incorrect responses of *fear* to sample #2 (female *disgusted*), M1 described a defensive mood caused by a character trait where this *fear* coincided with personal weakness and could be described by something like an antonym for "unshakeable" (perhaps cowardly or incompetent). M6 said he was under stress or was *meh'tar* – not knowing what to do. F6 said it sounded somewhere between *fearful* and *sad* because she "didn't hear any ups or downs" and wasn't too loud (as with *fear*) or too quiet (as with *sadness*). The two males thought the voice actor was a male and the female used the neutral term "they." For incorrect responses of *sadness* to sample #2, F2 said it sounded *hazin* or "very sad" because of tragedy, while M2 said she was trying to control her *hurt* from another's actions (and offered the word "drama"), and F5 said she was *hurt* but not actively *sad*. F2 referred to the voice actress as "they," F5 said "she," and M2 gave two gendered contexts.

For the incorrect response of *anger* to sample #11, M2 said it was an intensely "serious" response to unheeded request, and M5 and F5 both agreed with this by providing situations where it was more a matter of *upset*. The prior implied it is something that is heard in public, and the latter said it is more "confrontational" ("calm" and "understanding") than *angry*. M4 said it was *frustration* from someone not understanding an explanation, which is a feeling that also seems to resonate with the rest. For the incorrect responses of *surprise* to sample #11, the two males said it sounded "normal" rather than emotional, though one said it could have been a "little" surprise from, e.g., seeing an old friend. Contrarily, the female (Egyptian) qualified *surprise* with the terms *shocked* and *confused*, as though a favorite sports team lost.

American Students

The American students gave 12 out of 38 (31.58%) possible correct responses for the emotional audio samples of *disgust*. Sample #2 (female *disgust*) received correct responses by E4, E7, E9, and E16 – one male and 3 females. Sample #11 (male *disgust*) received correct responses by E5, E9, E11, E13, E14, E16, E17 and E19 – 5 males and 3 females. The voice actor recognition ratio is 1:2, male to female, with 42.11% of the students answering correctly for male *disgust* and 21.1% of them answering correctly for female *disgust*. Two of the students (11%), a male and a female, answered both samples correctly. In that the number of responses for both audio samples met the threshold amount for consensus, they would both have been analyzed for themes, but only sample #2 had enough American interviewees to be analyzed.

Two of the six American students available for interview were in this grouping. The male offered that it sounded like disappointment and gave an example of them chastising, but alternatively that it could have been a teacher lecturing. The female said it could be "disgruntlement" where someone is jealously gossiping about another.

The following regards incorrect responses for the emotional audio samples of *disgust*. For sample #2 (female *disgust*), the emotion *happiness* was chosen by E1, E6, E10, E11, E14, E17, and E19 – 4 males and 3 females (36.84% of students); the emotion *sadness* was chosen by E8, E12, E13, and E15 – 1 male and 3 females (21.05% of students); the emotion *surprised* was chosen by E3, E5, and E18; and the emotion *angry* was chosen by E2. For sample #11 (male *disgust*), the emotion *happiness* was chosen by E2, E6, E7, E8, and E12 – 1 male and 4 females (26.32% of students); the emotion *angry* was chosen by E3 and E15 – both males; the emotion *surprised* was chosen by E1 and E4 – 1 male and 1 female; the emotion *sadness* was chosen by

E18. The number of incorrect responses of *happiness* and *sadness* for sample #2, and that of responses of *happiness* for sample #11, all met the threshold amount for consensus, so these responses were analyzed for themes.

Only one of the six students available for interview (E1) was in the *happiness* response grouping for sample #2. He offered the terms *neutral* and *conversational* and said that peaks in the highness of her voice indicated her comfort. Two of the six students available for interview were in the *sadness* response grouping for sample #2. The male said it was a "subdued" tone, and perhaps just a somber commiseration. The female offered the word "down" if it was a mood, and "disappointed" if a reaction. For incorrect responses of *happiness* to sample #11, two females said it sounded "content" and offered examples of happy conversation, and the male offered the word "pleased" and said that it was in the context of bragging or pride.

Summary

For the Arabic students, the voice actor recognition ratio was 1:3, male to female, with only 8.3% answering correctly for male *disgust*, and 25% of the students answering correctly for female *disgust*. For American students, the voice actor recognition ratio is 2:1, male to female, with 42.11% of the students answering correctly for male *disgust* and 21.1% of them answering correctly for female *disgust*. One of the Arabic students (8.3%), a female, answered correctly for both samples; and, two of the American students (11%), a male and a female, answered both samples correctly. For the Arabic students, 0:1 and 1:2 were the ratios of males to females who responded correctly to male *disgust* and female *disgust*, respectively. For the Americans, it was 5:3 and 1:3, respectively. The discrepancy between correctness scores and participant gender

ratios for male *disgust* is a very interesting one then, given the great lack of such difference in scores and ratios between groups for female *disgust*.

The responses of *anger* and *surprise* for sample #11 (male *disgust*) were unique to the Arabic group, at consensuses of 33.33% and 25% respectively, while the response of *happiness* was unique to the American students (26.32% of them). For the Arabic students, intense seriousness, or upset, and even frustrated explanation or being confrontational were threads in the *anger* responses, while for the *surprised* responses, two males said it was "normal" though one said "maybe a little" *surprised*, whereas in opposition the one female said it was *shocked* or *confused*, even. For the American students available for interview, two females said it sounded "content" and happily conversational, and the male said he was prideful or "pleased" while bragging about something. In that anger and surprise can easily be considered emotions that are shared with that of disgust, and perhaps more readily recognizable because of technical diagnostics such as loudness or punctuation, the lack Arabic students' comprehension of this tone may be due to culturally contextual contouring of the otherwise inter-emotionally shared tone intervals. It is still odd, however, due to the contrasting valence of emotions, that 2 Arabic students said it sounded "normal" (even though they chose *surprise*d) and a consensus of Americans chose *happy*. These sorts of detailed perceptual differences can help explain why recognizing the emotion of disgust is so challenging for many cultures.

For correct responses to sample #2 (female *disgust*), detestation was a unique description for two Arabic students, whereas chastising and jealous gossip were unique for two separate American students. The lecturer, "boring" and causing *disgust* in the *listener* (an Arabic student), while actually being a *disgusted* lecturer herself (as perceived by an American student), was a confusing theme.

Descriptions from the 25% of Arabic students in the incorrect *sadness* response grouping for sample #2 (female *disgust*) involved reaction from tragedy or *hurt* from another, and control of that reaction. One of two Americans available for interview, also sharing that response, offered "down" or "disappointed," and the other said it was a "subdued," somber commiseration. The only American student out of those available for interviewing, who was in the contrary incorrect response grouping of *happiness* for sample #2 (36.84% of the students), said it sounded *neutral* and *conversational*. The Arabic students who heard *fear* in the sample (25% of the group) described either a character trait of weakness, reaction to stress, or somewhere between *fearful* and *sad* because of a lack of "ups and downs" in the tone.

Surprise

Arabic Students

The Arabic students gave 5 out of 24 (20.83%) possible correct responses for the emotional audio sample of *surprise*. Sample #5 (female *surprise*) received one correct response by M5. Sample #12 (male *surprise*) received correct responses from F4, M1, M3, and M5 – three males and one female. In as much, M5 (from Morocco) answered both samples correctly. The voice actor recognition ratio is 4:1, male to female, with 33.33% of the students answering correctly for male *surprise* and 8.33% answering correctly for female *surprise*. The consensus response for sample #12 (male *surprise*) was analyzed for themes.

Correct responses given for sample #12 included mainly qualifying descriptions of the emotion *surprise,* and were split between positive and negative valence. The terms *pleasantly* and *disbelievingly* were offered for similar contexts provided by two students (a male and a female). For the two others (both males), one student described a situation of

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being suddenly bothered or annoyed ("angry surprised" or *mukhref*), and the other implied an expression of jealousy and disbelief (saying it sounded "sarcastic," which is the only legitimate response – the hiding of such emotions to not show sensitivity).

The following regards incorrect responses for the emotional audio samples of *surprise*. For sample #5 (female *surprise*), the emotion *happiness* was chosen by F1, F2, F4, M3, and M6 – 2 males and 3 females (41.67% of students); the emotion *disgust* was chosen by F5, F6, and M4 – 1 male and 2 females (25% of students); the emotion *anger* was chosen by M1 and M2 – 2 males; and the emotion *sadness* was chosen by F3. For sample #12 (male *surprise*), the emotion *happiness* was chosen by F3, M2, M4, and M6 – 3 males and 1 female (33.33% of students); the emotion *disgust* was chosen by F2 and F6 – 2 females; the emotion *anger* was chosen by F1 and F5 – 2 females; and the emotion *surprise* was chosen by F3. The number of incorrect responses of *happiness* and *disgust* for sample #5, and those of *happiness* and *disgust* for sample #12, all met the threshold amount for consensus, so these responses were analyzed for themes.

The following regards incorrect responses to sample #5 and #12. For those of *happiness* for sample #5 (female *surprise*), two of the students (a male and a female) offered that it sounded like satisfied humming. The female from that couple gave an alternate description of light-heartedly "mocking" that may have resonated somewhat with the context of "annoying playfulness" (my interpretation) given by another female. One other female described highly expressive glee, and one male said that it could be a celebratory exclamation. This male also offered that it could even be a reaction to a disgusting sight. For those incorrect responses of *disgust* for sample #5, two of one male and one female described reactions to something *gross*, with implications of *fear* of negative impacts on their health. The male from this couple also

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described a degree of detestation, just as another male did. For incorrect responses of *happiness*

for sample #12, one female and two males described very similar contexts where the speaker was

happily exclaiming about either their own or another's sudden good fortune. One other male

said he sounded sarcastic and laughing.

American Students

The American students gave 15 out of 38 (39.47%) possible correct responses for the

emotional audio sample of *surprise*. Sample #5 (female *surprise*) received correct responses by

E1, E5, E9, E11, E13, E14 – 4 males and 2 females (31.58% of the students). Sample #12 (male

surprise) received correct responses by E1, E2, E3, E7, E8, E10, E13, E16, and E17 – 4 males

and 5 females (47.37% of students). The voice actor recognition ratio is 3:2, male to female.

Only E1 and E13, 1 male and 1 female, answered both audio samples correctly. In that the

number of correct responses for both audio samples surpassed the threshold amount for

consensus, these groupings were analyzed for themes.

The following regards correct responses given for samples #5 and #12. The one

student who was available for interview on sample #5 gave the exact phrase of the audio

sample: "oh my god!," with comedic context. Four students were available for interview

regarding sample #12. One female offered that it was a positively revelational expression,

but that if it endured, it would sound like *inconfidence* or *uncomfortableness*. One male and

one female qualified *surprise* with *pleasantly*, and the female offered that it sounded that

way (instead of *shocked*) because of a rising voice contour (corroborating the cross-cultural

emotion recognition generality). She offered that if the tone endured, it would sound

manic. In partial agreement with her, one male said it could be an expression of excited

anticipation; however he also said it could be a startle response (perhaps an *uncomfortable* one, given the context described).

The following regards incorrect responses to the audio samples for the emotion *surprise*. For sample #5 (female *surprise*), the emotion of *happiness* was chosen by E2, E4, E8, E15, E16, and E18 – 4 males and 2 females (31.58% of students); the emotion of *disgust* was chosen by E3, E6, E10, and E19 – 2 males and 2 females (21.05% of students); and the emotion of *sadness* was chosen by E7, E12, and E17 – 1 male and 2 females. For sample #12 (male *surprise*), the emotion of *happiness* was chosen by E11, E14, and E15 – 2 males and 1 female; the emotion of *anger* was chosen by E5 and E9 – 2 males; the emotion of *sadness* was chosen by E6 and E12 – 2 females; the emotion of *disgust* was chosen by E4 and E19 – 1 male and 1 female; and the emotion of *fear* was chosen by E18 – a male. Although the emotion of *happiness* was chosen more than the others in both audio samples, the amount of responses with it only reached consensus for sample #5; and, that particular grouping, as well as responses of *disgust* for sample #5, were the only two that reached the threshold amount for consensus generally. These met the threshold amount for theme analysis.

The following regards incorrect responses to sample #5. Four American students from the six available for interview were in the grouping for the incorrect response consensus of *happiness*. Themes of a relaxed happiness, peacefulness, or contentedness were shared by one male and one female. Differently, one female offered that it sounded like *hyper* storytelling (*enthusiastic*, interpretively); and, one male said it sounded like "bubbly" *sarcasm* where someone was pretending to be happy. There were no student transcripts to analyze for the incorrect responses of *disgust* for this audio sample.

Summary

For the Arabic students, the voice actor recognition ratio is 4:1, male to female, with 33.33% of the students answering correctly for sample #12 (male *surprise*) and 8.33% answering correctly for sample #5 (female *surprise*). For American students, this ratio is 3:2, male to female, with 47.37% of them answering correctly for male *surprise* and 31.58% of them answering correctly for female *surprise*. One of the Arabic students (8.3%), a male, answered correctly for both samples; and, two of the American students (11%), male and female, did likewise. For the Arabic students, 1:0 and 3:1 were the ratios of males to females who responded correctly to female *surprise* and male *surprise*, respectively; for the Americans, these ratios were 2:1 (4:2) and 4:5, respectively. Correct responses for the audio sample of female *surprise*, then, were fairly similar in amount as well as participant gender ratio; however, there is a great difference between cultural groups' amount and gender ratio of responses for male *surprise*.

One shared theme between the Arabic and American groups, given by 2 males for correct responses to sample #12 (male *surprise*), was that of being bothered by an unexpected startling event. Contextually verified themes of being *pleasantly, disbelievingly,* or *revelationally surprised* were also shared between cultural groups (2 males with 2 female Americans, and 1 male with 1 female Arab). The outlier was the description of excited anticipation, given by the American male who priorly offered the "startled" description. In total, there doesn't seem to be any reason to believe that students from either group who correctly recognize this emotion do so with different cultural contexts in mind (which would imply incomplete empathy between them).

Significantly, the incorrect response consensuses of *happiness* and *disgust* were shared between cultural groups. For sample #5 (female *surprise*), these emotions were both

consensuses for both cultural groups. For the Arabic students, *happiness* was chosen by 41.67%

of students at a participant gender ratio of 2:3, and *disgust* was chosen by 25% at a ratio of 1:2;

and, for the American students, *happiness* was chosen by 31.58% of students at a participant

gender ratio of 4:2 (2:1), and *disgust* was chosen by 21.05% at a ratio of 2:2. For sample #12

(male *surprise*), only the Arabic students reached a 33.33% consensus incorrect response

(*happiness*), and at a ratio of 3:1 male to female, however, the American students were trending

with 3 students (15.79%) at a ratio of 2:1.

So, for sample #5 (female *surprise*), the Arabic students perceived *happiness* only 10%

more so than the Americans, though participant gender ratios were very different between groups

(Arabic females were more representative in their culture than American females in theirs);

however, numbers of respondents and gender ratios were similar between groups for the

response of *disgust* with the same sample. The response of *happiness* given by American

students for sample #12 (male *surprise*) is only 25% below threshold, and could possibly have

had an equal gender ratio with the Arabic group given that the threshold was met, indicating that,

along with the prior outcomes, the Western tonalities of both male and female *surprise* are

potentially perceived as *happiness* by equal and meaningful percentages of CSU students of both

Arabic and American culture.

The following theme analysis summary addresses only one of the disparities seen above

for sample #5; there were no American student transcripts available for the incorrect response of

disgust. Perceptions of satisfied humming were shared between a male and female Arabic

student, and these easily resonate with descriptions of happiness, peacefulness, and

contentedness shared by a male and female American student. One Arabic female said it

sounded like exuberant glee, and this may have resonated somewhat with one American female's

description of "enthusiastic" storytelling. There was one Arabic female who offered that it could be a sort of light-hearted mocking (the same one who also described humming), which seemed to accord with another Arabic female's description of annoying playfulness, as well as with one American male's description of sarcastic or pretend happiness.

6.4 Discussion

Participant Observation

60% of the Muslim community in Fort Collins is Arabic, and 70% of mosque attendees are students. In as much, perhaps nearly 40% of mosque attendees are Arabic. Given that (1) 9 of my participants are Saudi Arabian (and there are strict laws commanding Saudi citizens to be extremely conservative "Wahhabist" Muslims), (2) the one Egyptian student wears conservative dress, and (3) both other students have claimed to either attend mosque in town or miss Muslim life back home, it can be generalized that my survey and audio test participant group mostly represents conservative Muslim perceptions (an important discernment because of Islamic law on music and potentially vocalized emotional tones)

I only received two responses from participants in explicit regard to mental health, with one male saying he has never interacted with someone affected communicatively to a degree that he would feel they were impaired (with even autism and Asperger's being unknown to him), and one female contrarily telling me that her sister has a mental problem. However, it might be extrapolated from the enthusiastic explanations of a few female participants that the gender differences in Islamic life cause much strife for them. They may be more predisposed to stress, depression, and anxiety than the males. This does not appear to be seen with (1) depression scores in my quantitative data, as three females display "moderate" symptoms for depression

(18, 15, and 15 = 48) compared to two males with "mild" depression and one at "severe" levels (11, 13, and 21 = 45); or with (2) stress, where two females are "moderate" (19 and 22 = 41), yet three males are "severe," "moderate" and "mild" (20, 17, and 15 = 52); but, it might be with (3) anxiety levels, where two females are "severe" and one "extremely severe" (18, 16, and 31 = 65), whereas two males are "moderate" and one "severe" (10, 13, and 18 = 42). Non-Saudi students did not exhibit such increased levels. For the females, such indicators may be relative to the Islamic law that prohibits women from spending time with men other than their husbands or those in their family; not only am I such a stranger during the interviews (making eye contact which is also prohibited), but so are other males in American culture with whom they likely must speak alone sometimes.

One female informed me that such gender separations in Arabic culture, involving the sheltering of women from social interaction, may lead to women having more difficulty than men in understanding English emotional tone and perhaps also the tone of men in their own culture. Three males informed me that emotional tone might be less important than volume levels and speed of speech, as implicitly indicated by other participants. The enforced submission of women may prevent them from utilizing volume levels in their speech on par with those used by men, since they are "considered a threat." Corroborating the gender difference in regards to language use, three of my female participants said that there is a consensus amongst Arabs that the English language is hard to comprehend, even though some of the males felt the complete opposite and were prideful in their English use.

There are many issues that can cause integration issues for Arabic students or immigrants generally. A variety of my participants revealed that they are eager to return to the Arabic world, but thankful for their Western experience because it makes them want to do humanitarian work

of some sort of "better" Arabic culture by it. Such desire may make them less apt towards

motivation to learn English emotional tone even if they make comforting Western relationships.

Again in regards to mosque, many of my students miss "edan," the way of life involving the

multiple calls-to-prayer in society that bring people together for a common cause and feeling;

and, the mosque leader let me know that a command from Mohammed is that if one cannot

convert another to Islam, they are to be disdained in order to honor his will. Some feel that

Americans exaggerate or communicate in childish ways, and another informed me that many

Arabs will pretend friendliness with Americans because they just don't want to be seen as a

threat. This can tie back into the mental health considerations, most likely, in that such behavior,

if it becomes a habit, may perpetuate feelings of alienation of miscomprehension. There used to

be Arabic schools that helped Arabic families abroad (in the US and EU, i.e.) to keep their

transmission of culture alive and well; and, the various governments disbanded these when my

student participants were in primary school. They agree that this has caused problems and

sadness for Arabic families. Such a thing may make Arabic people less apt to respect and

integrate with Western culture. In regards to higher education, if an Arabic student is not

achieving particular grades, or married to an American citizen, they can be deported. This is

likely a huge factor in stress levels. Only two of my informants mentioned anything about

relationships with Americans, though they spoke of their closest friends as being Arabs.

One student's husband is an immigrated American who is learning Arabic yet does not

like Arabic music, and, interestingly, he cannot grasp Arabic emotional tone. This does not

accord with the findings (Pell et al. 2009a) that Westerners can comprehend Arabic emotional

tone well, but it is perhaps worth looking into especially because he is non-Native to a culture

which speaks a Germanic or Romance Language. One form of Western prosody exposure that

Arabs seem to get plenty of is that used in translated Hollywood movies. This "movie Arabic" is a curious thing, because, e.g., when a movie is voiced-over in English from another culture, English emotional tone is taken (rather than that of the original culture). Two informants who I spoke with about this did not quite understand why this is a media norm. I was informed that people from Saudi Arabia and Egypt (as opposed to Morocco and Lybia, i.e.) prefer their own emotional tone over that of other languages that they speak, so that they, in essence, use their own version of the foreign language when speaking it (with an in-group emotion code). Perhaps this is subconsciously done, however, three Saudi women I spoke with said that English emotional tone is very difficult to learn. The trouble, as I was informed by my Moroccan participant, is perhaps that they have not had romance language influence via cultural interactions over the millennia (such as Arabs in African countries have). There are also class differences, between the original families of a given country (e.g., the Bedouin of Saudi Arabia) and those descendants of immigrants from other lands throughout the centuries, that are apparently associated to emotional tone differentiation whether or not Arabic is the language spoken by all.

Audio Test Responses

The following regards differentially unique incorrect response consensuses between cultural groups. For sample #10 (female *fear*), the Arabic group had a large consensus (41.67%, 3:2) of *sadness*. The Americans did not share in this, and neither was it trending for them. For the Arabic students there were contexts of *fear* but with weakness or despair instead of "upset," leading them to choose *sadness* instead. This implies that for them, the tonal expression of female *fear* usually indicates a degree of anger. Indeed, both cultural groups shared in a lesser

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angry consensus, revealing that this latter regard exists for Americans too. Paradoxically,

however, the Arabic students who chose *angry* did not feel there were elements of *fear*; there

were elements of "complaint" and "upset" (meaning that this latter term is polysemic), which

were different from those of accusation and demand offered by Americans. The different

degrees of power implied between cultural groups reveals gender disparities between them.

Also, this seems to imply that *fear* can incorporate minor elements of either *sadness* or *anger,*

but that *anger* may not typically include minor degrees of *fear* as it does with *sadness*.

Responses to sample #4 (female *sadness*) may corroborate this, but only for the

perceptions of American males in that the Americans had a consensus for *fear* at 26.32% and a

gender ratio of 4:1, whereas the Arabic students were not even trending on a response of *fear*.

This seems to indicate an American male agreement that American female *sadness* includes an

element of *fear*, whereas American females either do not feel *fear* in when sad or are reticent to

claim that they do. It could also be a matter of some American males feeling that females are

weak (and therefore perhaps the opposite of courageous, e.g., fearful), in that there is a generality

that they express emotions more than males. Participant observation reveals that Arabic males

feel like guardians of women rather than captors, so, this sentiment may not be culturally shared

because Arabic males would not challenge women to be stronger than they are allowed to be. In

fact, although there were no consensuses with the Arabic students, the emotions of *disgust* (1:1)

and *happiness* (2:0) were trending in their group on this sample, neither of which are likely to be

associated with weakness of any kind. Curiously, though, sample #6 (female *fear*) also received

trending consensus responses of *disgust* (2:0) and *happiness* (1:1).

For sample #8 (male *sadness*), Arabic students had a major consensus of *angry* (33%,

2:2), and Americans were only trending towards consensuses of *fear* and *happiness* (both 1:2).

They agreed that male *sadness* sounded "upset," "very serious," or "in protest" to something. Loudness may have had something to do with this. Arabic students chose the same emotions that the Americans were trending on here, but for sample #2 (female *disgust*): the emotion *fear* was chosen at a consensus (25%, 2:1) and the emotion *happy* was trending (1:1). However, in their case, male participants were major contributors to consensuses. This is an interesting inversion of very differently contextualized emotions for the tonal expression of male *sadness*, with an obvious gender specificity component to it: it might be said that Arabic males somewhat consider female *disgust* to sound like *fear* and *happiness* while American females consider male *sadness* to sound like *fear* and *happiness* (the prior of which exactly corresponds to what American males feel about the female expression of *sadness*, mentioned earlier).

From this point forward, my analyses focus on similarities in incorrect responses given by both cultural groups. More over on said sample #2 (again, female *disgust*), Arabic students also had a consensus of *sadness* (25%, 1:2). Americans did, too (1:3), along with *happiness* (26.32%, 1:4), and a trend towards *surprise*. So there was somewhat of an intercultural agreement that the emotional tone had an element of *happiness* to it, and surely an agreement that it sounded *sad*. This point of *sadness* sharing aspects with *happiness* is a theme, seen before in my work here, and may be due to the fact that happiness can bring someone to tears of *joy* (an emotional term often used in other research on intercultural emotional tone recognition, but one that is obviously compounded). However, the one American student available for interview with that emotional grouping said it sounded "conversational." The shared consensuses of *sadness* were described in very similar ways between cultural groups with reaction to tragedy or feeling hurt, as well as being "down" or disappointed, as commonalities. Even the Arabic consensus

responses of *fear* was described once as having elements of *sadness*, due to the technicality of there being no fluctuation in tonality. The other two *fear* responses implicated weakness and reaction to stress.

For sample #3 (male *happiness*), both student groups presented a majorly recognized element of *fear* as males experience it (50% and 3:3 for Arabic students, and 42.11% and 3:5 for Americans), and there are similar contexts described by them, but there are also some unique descriptions given in regards to situations aside from emergencies. Descriptions of gossip, revenge, and jealous pleasure were unique to the Arabic group for the otherwise well-shared incorrect responses of *happy* to sample #9 (female *anger*), and both groups were trending towards consensuses for *surprise* as well. Sample #7 (female *happiness*) was recognized as *sadness* by both groups, and is for the most part associated to similar themes, but in the Arabic group there is also a particular element of gender disparity associated to it ("whining," "drama act," "fear," etc). The latter description accords with the major consensus of *fear* given by the Americans for this sample (26.32%, 3:2). For those responses of *anger* to sample #10 (female *fear*), there is again a similar reflection of power role differences between women in American culture and women in Arabic culture. Sample #5 (female *surprise*) received very similar descriptions of *happiness* and *disgust* by the Arabic students (41.67% and 2:3, 25% and 1:2, respectively) and the American students (31.58% and 4:2, 21.05% and 2:2, respectively). In as much that there were not any themes which stood out as specific to Arabic females (who responded more so than American females), there do not appear to be any trends which explain why they would perceive this audio sample as being *happy* any more so than American females do. This would seem to indicate that American females' perceptions of this tonality are informed more by subcultural or personal inclination than by cultural averages, especially given that they

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responded to the audio sample incorrectly with this emotion as much as they responded with the correct emotion (at the same gender ratio, even). Comparison could not be made between groups for the expression of *disgust* because no American students available for interview were in that grouping, but, Arabic students offered expected descriptions of detestation or reaction to something "gross."

6.5 Conclusion

There is a multitude of good reasons why Arabic peoples' integration with American or Western society is a difficult, disregarded, or potentially unpreferred endeavor. Because most of my participants are Saudi Arabian students, and the others revealed their Islamic faith in different ways, I have generalized that my study participants are conservative Muslims – an important point considering Islamic law on music as well as association with non-Muslims. In as much, integration issues may be strong with my study group, a point reflected in their overall cultural affinity scores. As noted regarding Saudi laws on foreign media, they are likely far less exposed to the "Hollywood Arabic" that is used in Arabic-translated Western cinema, which utilizes Arabic vernacular but Western emotional tone.

Only with the Saudi students was there was an increase of self-reported symptoms associated to diagnoses of stress, depression, and anxiety disorders, and the Saudi females tended to rate even higher than the Saudi males on the anxiety scale. Such a gender difference in scores may be caused by their lack of socialization with the world of males, and also by their interaction with me, a foreign, non-familial, and therefore questionable male in their presences. Some of the males said that emotional tone is not as important as volume level and speaking speed, and, whereas some females said that English is generally a very hard language to learn and others said

that the emotional tone alone was difficult, some of the males were quite prideful of their perceived ESL mastery.

With the audio test debriefing interviews, there were both differentially unique and also quite similar consensus response themes between cultural groups. For emotional tones such as female fear and both female and male sadness, i.e., incorrect consensus response themes were relative to cultural context and gender norms. For female disgust, male and female happiness, female anger, and female surprise, there were mostly shared response themes but with some particularities between cultural groups. As I hypothesized, there were terminologically explicit or narratively implied alternative preferences for describing the audio samples that were meant to express the original basic emotions. This resonates with Ekman's (1999) later suggestions to supplement them with those of, e.g., amusement, contempt, contentment, embarrassment, excitement, guilt, pride in achievement, relief, satisfaction, sensory pleasure, and shame. There was also at times the dimensions either valence and/or arousal in such terminological offerings. Again, these elements have been suggested by music and emotion researchers to be important modifiers for the original basic emotions (Eerola and Vuoskoski 2013:311-312; Ramos, Bueno, and Bigand 2011). Much of this was culturally contextual, in that the particularly nuanced terms used, and the reasons for feeling the emotions they described, were somewhat different between groups (with some of the Arabic terms having no English translations the students could think of). This would suggest that, for intercultural linguistic and musicological research, the utility of the basic emotions alone is very limited. Future research would benefit by giving participants more options on their surveys.

Chapter 7 – Study Conclusion and Limitations

The Arabic students' overall lower correct response scores to the audio test appear to be associated, in order of statistical significance, to (1) their largely differential cultural affinities showing preference for Arabic culture, (2) their much fewer years of experience speaking the English language, on par with their high affinity for Arabic music, (3) lower affinity for Western music, (4) their low level of Western music performance experience, (5) higher levels of Arabic music performance experience, and (6) high levels of anxiety. Cultural affinities are reflected in their audio test debriefing interview responses, not so much by way of pride but by way of differential contextual descriptions from Americans'. Even though the p-values are insignificant for means compared between Arabic male and female correct response amounts, this may be due to low sample sizes when the whole Arabic group is divided in half (n=6 for each). Their 95% confidence intervals meet but do not overlap, in fact, and Arabic females' scores are lower. So, lower response scores from the females do seem to be a slight factor for their cultural group's overall lower scores. Also regarding gender differences, Americans and Arabs scored equally well on the actress' audio samples, but Americans combined (without much difference between male and female hits) scored better on the actors' audio samples than the actress,' and also better on his samples than the Arabic students did combined (again, by both participant genders).

Importantly, my qualitative consensus analyses reveal that even as male and female Arabic students choose incorrect responses differentially (indicated by there being a tendency towards majority or minority in a consensus but not on level), they take equal part in consensus groups (31:30 involvement, male to female). So, where they did incorrectly respond, they did so mostly when in differential agreement with the males from their own culture. The participant observation and interview data imply that response differences are seemingly due to unique

exposures to, and expectations for males and females to use particular emotional tones, as informed by their gender subcultures; and this is not just relative to differences in their responses within their culture, but also compared to those of American females (with descriptions between them revealing contrasting degrees of social agency). The qualitative data also imply that general Arabic cultural contexts in which such emotional tones are expressed have some dissimilarity from those of American students as well. Between both cultural groups, there are revealing preferences for terms to describe the emotions perceived that accord with Ekman's (1998) suggested supplements to the original basic emotions and also go beyond the valence and arousal dimensionalities suggested for study use by other researchers; however, with the Arabic group, there were often preferred Arabic terms for the emotional tones that related not to feelings per se, but to events in very specific situations.

Sometimes, there were actually inverse relationships with the emotions chosen by each group across samples, and other times the exact opposite was true. Emotions were somewhat predictably perceived as having multiple elements, so therefore sharing in aspects with others. With statistical significance, Arabic student misperceive emotional tones as *sadness* more than Americans do, overall, while the opposite is true in regards to the emotion of *fear*. Near to significance, Arabic students perceive *disgust* in the audio samples more so than the American students do. Contrarily, and of particular interest is that not only are the emotional tones of *happiness, surprise, and anger* all in the same ranking between cultural groups for correct response ratios compared to other emotions; these three, one being the best recognized amongst various cultures, and the other two being the least, also received the same *incorrect* response consensuses by both cultural groups, with very similar contexts described. This seems to indicate that there is a shared expectation for the emotional tones in these audio samples to be

exhibited in relation to very different emotions that both cultures, likewise, feel are expressed by them. It would be curious to see if American students misperceive these emotions as spoken in Arabic the same way that Arabic students would misperceive them in their own language (a linguistically reversed homologue of the results herein explained). One key finding, but only reported by Saudi males, is that speed and volume of speech may be more indicative of emotion than intonation in the Arabic language. If this is a consensus view, or if it relates to both Standard Arabic and Dialectic Arabic, is something that should be seriously considered in future research.

There are major impacts from broad cultural integration issues that may share a place in the heart of Western emotional tone miscomprehension for Arabic international students. Through participant observation, I discovered some of these. One is the push to avoid Arabic-government enforced deportation, achieved by (1) taking so many classes, and receiving such high grades in them, that they are likely to not have enough time to be properly tutored in the English language (that so many deem overly difficult), and (2) being married to an American citizen, which may indeed become an unwanted status in a student's life. Another is a fairly new and international development: the government mandates of removing "Arabic School" institutions and their associated curricula, an action that has affected the well being of Arabic families abroad and the transmission of culture to their children. There is an element of faith, as well: a great many Arabic speaking people are Muslims, and some Islamic decrees create a span between Arabs and Westerners. One is that relationships should only be made with those who believe in Allah, and another is that the expression of emotion in particular patterns is a sin unto him. The latter has implications for personal infringement by a culture that is permeated with

emotional music, and for the subconscious aversion towards and/or disciplined unwillingness to recognize Western emotional prosody, which is highly shaped by the Western musical scale. Indeed, high affinities for Arabic music (mostly atonal poetry and barely intervallic, non-structured instrumentation) and low affinities for Western music, are greatly significant in their association to reduced Western emotional tone recognition. A confounder here is that many of the students in my research (Muslims, no less) told me during participant observation that they love Western music. Given, only some of these respondents took surveys and were interviewed, but, still, said students exemplify parts of the Arabic student population that feel freer about such sanctions, informing me that not all Muslims adhere to the Islamic decree of *tawhid*.

As research has shown that language issues can dramatically affect the well being of international students, and that tonal comprehension is decreased with increased indicators of anxiety (such as my Saudi subjects displayed), the implications for my research extend not just to the quality of life that Arabic international students experience in Western countries but also to their capacities to become cosmopolitan, and, in broader scope, to the realms of policy and structure in higher education and international diplomacy. If an Arabic international student cannot recognizably emote in English or recognize the emotional prosody of others, they are less likely to be comfortable in the host society, have the impetus to contribute to it, be successful in it, or give it high marks when communicating with people from other cultures. This can create a feedback loop where their already-high affinities for their culture of origin (associated to decreased tonal recognition) become amplified, and they have further trouble communicating. Having such higher affinities to begin with may just be an artifact of inexperience with foreign culture, as even when living in it one can remain in their comfort zone by engaging only with

their fellowship of other Arabic students (such as I've intuited from participant observation to often be the case), but alienation cannot be discounted as a causal factor.

My study corroborates Merriam's (1964) anthropological assertions that music plays a large part in the realm of culturally relative emotion, at least for American culture. If conservative Muslim authorities were informed of this, they may take the position of reducing stigma for their traveling students' engagements with Western music. In as much, there can at least be advances made in ESL education, whether or not it is an easy task to otherwise boost an international student's affinity for American culture – something that may simply require time for some. New curricula should incorporate sensitively optional, but promoted, supplemental elements of Western musical education and also frequent Western theater attendance assignments whereby a student can non-stigmatically analyze in objective depth how particular events and moods accord with vocal and musically thematic tonalities. As the literature has provided that some Arabic people may not recognize American facial expressions as well as others do, the latter can help in a variety of ways; and, even if theater can involve unusually strong expression, such educationally driven exposure can assist in the same way that musical education helps people understand subtle emotional tones better than non-musicians. College testing of Arabic international students' emotional tone recognition abilities can help them understand aspects of their social relations with people in their host culture that they might otherwise have not considered. They may be able to avoid unnecessary and possibly iatrogenic visits to mental health counselors who could misdiagnose them and potentially lead them down a path of psychological symptom looping to full-on indicators of Major Depression and Social Anxiety Disorder. And last, but certainly not least, such augmented education can (and should) become a requirement for entry into any kind of governmental or NGO career in international

diplomacy, as (again identified by the literature) mistranslation is a common and extensively problematic issue in that arena (Collin 2013).

Study Limitations

Although qualitative methods revealed important processes animating this study's experimental results, it is difficult to convincingly argue for the causal processes I have outlined, as this study lacks certain features of classic experimental research such as pre- and post-test measures and random assignment to a treatment or control group. Combining ethnographic interviews and participant observation with experimental data, as I have done in this study, does suggest that specific affinities to culture and music genres are causal to prosodic comprehension and anxiety scores, though my study is only suggestive on this matter, with more research needed.

Although the Arabic students achieved emotional tone recognition ratios that aligned with those seen by other cultures in similar studies, their overall hit scores were very low. This and the fact that the overall hit scores for the Americans was very low, compared to other studies where English speakers have judged emotional tone in their own language, signifies that my method of audio sample creation may not be on par with those seen in published studies. This is corroborated most easily in notice of the fact that the emotion of happiness was completely unrecognized by the American students, and almost completely so by the Arabic students. This may be due to tonal contouring that the voice actors felt was appropriate to the scripted situation. Studies have shown that "rising F0 contours may be associated with "active" emotions (e.g., happiness, anger, fear), whereas falling contours may be associated with less active emotions

(e.g., sadness, tenderness)" (Juslin and Laukka 2003:796). Indeed, one American student indicated that there was an overall rising tone towards the end of sample #3 (male *happiness*), and one Arabic student said this sample sounded "up and down" (perhaps *unsure* or non-directional, indicative of *fear*). The lack of technical diagnostic descriptions given by either group for #7 (female *happiness*), and especially the lack of American students available for interview who answered *fear* on that sample, make it difficult to theorize on the rising contour generality; however, it could be that the actress' tone was perceived as decreasing rather than increasing, persuading a response of *sad* rather than *fearful*. She was not a professional actor, no less, and confidence intervals for correct responses to her audio samples were 1-2 for Americans and 0-2 for Arabic speakers, compared to the male's samples with intervals of 3 for the Americans and 1-2 for the Arabic speakers.

Further, I would have ideally validated my study's emotional audio samples before implementation. For example, I could have field-tested actors' recorded emotional audio samples with a pool of American students to see how well the samples' imbued emotions were recognized by native speakers, adjusting the samples where necessary. Alternatively, I could have followed other studies' superior designs by using (1) emotive radio personalities as speakers, where the emotional pseudo-utterances they orate are created by linguistics specialists, or (2) gender-balanced groups of professional actors who co-create, co-validate, and selectively perform muffled emotional samples. Time constraints were a factor that rendered such pre-tests of my materials impractical. And of note, the emotional tone sequences representing each emotion, as vocalized by the voice actors featuring in this study, were probably mostly accurate for American prosody, as revealed by the fact that my American student participants achieved

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similar scores to those seen with the American subjects in the Pell et al. [2009b] prosody recognition study.

It must be noted that my qualitative research would have been more robust had more American participants been available for interview. Having twelve Arabic interviewees to work with is not unlike the luckiness of, or indicator of time available to, other social science students; however, having half as many control interviewees to work with was a setback. This is due to the fact that my research paradigm did not involve audio test debriefing interviews with the American student controls until late in the process. Grounded theory brought my advisor and me to the realization that such data would be useful as a comparison or contrast to the Arabic consensus responses, but I had already gone through the survey and audio test processes with the nineteen American students by that time and did not receive much correspondence or cooperation from them when I asked for their help again (some were simply unavailable and some were out of reach). Future research of this sort could benefit by having equal numbers of participants in the study group and control group.

There is also the fact that, in terms of predictive statistics, my consensus thresholds were arbitrarily set. For future research, there may be a more significant way to go about this framing, but in my database searches for what percentages constitute meaningful thresholds, the cultural consensus methodology literature (Weller 2007, i.e.) provides only information on how to acquire individual consonance percentages and not how to interpret when a percentage of hits on a particular response becomes a predictive statistical value. So even if, as mentioned, my approach obviates analysis of those response groupings that have far less chances of revealing common or contrasting themes or contrasts between genders, it is still perhaps a nascent method

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at the moment. However, if I had utilized the direction of standard predictive statistics, grouping sizes of even those chosen would have been conferred such low significance values as to be deemed meaningless. There were other reasons why it seemed reasonable to assume that if one quarter of each student pool chose a certain answer, it was meaningful. These are because (at least) the Arabic students represented a high percentage of their particular cultural population on campus, meaning that (1) the usual need for >30 subjects is an arguable requirement; (2) that the low percentage of sample population numbers compared to actual population numbers in predictive statistics is far surpassed in this way; and (3) the type of questions at hand addressed subjective perceptions rather than knowledge (which can be limited), involving interviews which helped them solidify their surety of response, therefore obviating the usual statistical necessity of factoring for guesses or random responses when, e.g., not asking plain demographic questions.

There was also sampling bias in my study in that most of my students were Saudi Arabian. To speak of the "Arabic language" is to speak of the ways it is used by people of various regions and with various faiths. It was difficult for a number of reasons for me to acquire a study sample that was balanced by students from various countries, including the fact that the majority of Arabic students on campus are Saudi Arabian. Notably, Saudis must fully embrace SA and conservative (Wahabbist) Islam to be Saudi civilians and to engage in international business or academia. As my study has shown, this combination means that both their dialect and tonality is unique. I tried to account for socioeconomic status (SES) between students, which my participant observation informed me can be the difference between what one can "get away with" both behaviorally and communicatively, at least in Saudi Arabia; however, I had to leave that variable out because many did not answer the relative survey question thus

creating a missing data problem. Variables such as nation of origin should be considered in future research, via the controlled incorporation of subjects from varying regional backgrounds and SES groups, and with various faiths. It would be quite an undertaking, but such a study could provide greater insight into the processes discussed in this thesis. As such, and to conclude, it is difficult to generalize my findings to anyone but Saudi Arabian international students - if that - let alone to all Arabic speaking people.

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Appendix A – DASS 42 and ARSAA II Survey Instruments

Table 4.1 – Survey Instrument: ARSAA II and Musical Exposure/Training

		Circle the number that best describes your response:	Very much or almost always	Much or very often	Moderately	Very little or not very often	Not at all
	401	I speak Arabic	5	4	3	2	1
	402	I speak English	5	4	3	2	1
	403	I enjoy speaking Arabic	5	4	3	2	1
	404	I associate with Americans	5	4	3	2	1
	405	I associate with Arabs or Arab Americans	5	4	3	2	1
	406	I enjoy listening to Arabic language music	5	4	3	2	1
	407	I enjoy listening to English language music	5	4	3	2	1
	407B	I enjoy listening to Arabic instrumental music	5	4	3	2	1
	407C	I enjoy listening to English instrumental music	5	4	3	2	1
	407D	I have experience performing traditional instrumental Arabic music	5	4	3	2	1
	407E	I have experience performing traditional lyrical Arabic music	5	4	3	2	1

			5	4	3	2	1
	407F	I have experience performing instrumental Western music	5	4	3	2	1
	407G	I have experience performing lyrical Western music	5	4	3	2	1
	408	I enjoy Arabic TV	5	4	3	2	1
	409	I enjoy English language TV (American TV)	5	4	3	2	1
	410	I enjoy English language movies (American movies)	5	4	3	2	1
	411	I enjoy Arabic language movies	5	4	3	2	1
	412	I enjoy reading books in Arabic	5	4	3	2	1
	413	I enjoy reading books in English	5	4	3	2	1
	414	I write (letters, notes, etc) in Arabic	5	4	3	2	1
	415	I write (letters, notes, etc) in English	5	4	3	2	1
	416	My thinking is done in English language	5	4	3	2	1
	417	My thinking is done in Arabic language	5	4	3	2	1
	418	My contact with my home country has been	5	4	3	2	1
	419	My contact with the USA has been	5	4	3	2	1
	420	My father identifies or identified himself as an Arab	5	4	3	2	1
	421	My mother identifies or identified herself as an Arab	5	4	3	2	1
	422	My friends, growing up, were of Arabic origin	5	4	3	2	1
	423	My friends, growing up, were of American origin	5	4	3	2	1
	424	In my family, we cook Arabic foods	5	4	3	2	1
	425	My friends now are of Anglo origin (Americans)	5	4	3	2	1
	426	My friends now are of Arabic origin (Arabs)	5	4	3	2	1

	427	I like to identify myself as a white American	5	4	3	2	1
	428	I like to identify myself as an Arab American	5	4	3	2	1
	429	I like to identify myself as an Arab	5	4	3	2	1
	430	I like to identify myself as an American	5	4	3	2	1

Table 4.2 – Survey Instrument: Depression Anxiety and Stress Scale (DASS) 42

		In the past week, how much have you experienced each of the following? *Don't spend too much time on any one answer.*	Very often or very much	Often or much	A little or some times	Not at all
	501	I found myself getting upset by quite trivial things	3	2	1	0
	502	I was aware of dryness of my mouth	3	2	1	0
	503	I couldn't seem to experience any positive feeling at all	3	2	1	0
	504	I experienced breathing difficulty (ie, excessively rapid breathing, breathlessness in the absence of physical exertion)	3	2	1	0
	505	I just couldn't seem to get going	3	2	1	0
	506	I tended to overreact to situations	3	2	1	0
	507	I had a feeling of shakiness (ie, like my legs were going to	3	2	1	0

		give way)				
	508	I found it difficult to relax	3	2	1	0
	509	I found myself in situations so anxious that I was most relieved when they ended	3	2	1	0
	510	I felt I had nothing to look forward to	3	2	1	0
	511	I felt myself get upset rather easily	3	2	1	0
	512	I felt that I was using a lot of nervous energy	3	2	1	0
	513	I felt sad and depressed	3	2	1	0
	514	I found myself getting impatient when I was delayed in any way (eg, lifts, traffic lights, being kept waiting)	3	2	1	0
	515	I had a feeling of faintness	3	2	1	0
	516	I felt that I had lost interest in just about everything	3	2	1	0
	517	I felt I wasn't worth much as a person	3	2	1	0
	518	I felt that I was rather touchy	3	2	1	0
	519	I perspired noticeably (eg, hands sweaty) in the absence of high temperatures or physical exertion	3	2	1	0
	520	I felt scared without any good reason	3	2	1	0
	521	I felt that life wasn't worthwhile	3	2	1	0
	522	I found it hard to wind down	3	2	1	0
	523	I had difficulty in swallowing	3	2	1	0
	524	I couldn't seem to get enjoyment out of things I did	3	2	1	0
	525	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increases, heart	3	2	1	0

		missing a beat)				
	526	I felt down-hearted and blue	3	2	1	0
	527	I found that I was very irritable	3	2	1	0
	528	I felt I was close to panic	3	2	1	0
	529	I found it hard to calm down after something upset me	3	2	1	0
	530	I feared that I would be "thrown" by some trivial or unfamiliar task	3	2	1	0
	531	I was unable to become enthusiastic about anything	3	2	1	0
	532	I found it difficult to tolerate interruptions to what I was doing	3	2	1	0
	533	I was in a state of nervous tension	3	2	1	0
	534	I felt I was pretty worthless	3	2	1	0
	535	I was intolerant of anything that kept me from getting on with what I was doing	3	2	1	0
	536	I felt terrified	3	2	1	0
	537	I could see nothing in the future to be hopeful about	3	2	1	0
	538	I felt that life was meaningless	3	2	1	0
	539	I found myself getting agitated	3	2	1	0
	540	I was worried about situations in which I might panic and make a fool of myself	3	2	1	0
	541	I experienced trembling (eg, in the hands)	3	2	1	0
	542	I found it difficult to work up the initiative to do things	3	2	1	0

Appendix B – Participant Observation Notes

With this chapter, I detail the most thesis-relative aspects of my participant observation experiences in chronological order, starting with my visitation of two Saudi club meetings that were originally just part of participant acquisition but ended up being informative on their own.

Saudi Club #1

My participant observation experiences were unstructured and therefore conducive to all topics of conversation. I learned about Arabic students' club participation habits, the most sought-after academic degrees, intentions of residency, Arabic formalities and gender rules, the different sorts of Arabic music depending on tribal affiliation let alone home country – including music in which very particular and culturally/geographically unique emotions are embedded, a sort of Arabic vernacular that purposely utilizes Western intonation for specific purposes, and more. I will now delve into the details of these findings.

My first participant observation experience was at a Saudi House meeting at the Aztlan Recreation Center in Fort Collins. The event started at 6pm on a Wednesday. The recreation center is a place where many adult locals go to play sports, work out with gym equipment, and learn health practices such as yoga. Large rooms, set away from the din of the ball courts and gym areas, can be rented out for entire days. This one was rented for the duration of the evening. More young men than I managed to count were already inside, chatting away while seated at large plastic dining tables.

The social atmosphere was peaceful. The president, whom I had never met, saw me upon arrival and ushered me excitedly to the podium at the front of the room where he got on the microphone and announced to the attendees that dinner would soon be served with activities

following, and that he was proud to present me. After receiving the microphone from him, I happily greeted curious (and perhaps timid or leery) faces and explained my intentions. Many smiled and clapped when I was through, and I invited people to visit with me while we ate, to which many responded by nodding or glancing at a neighbor as if seeking peer approval or being unconfident to visit me alone.

After getting dinner from the buffet line, and seeking out inviting faces but finding none, I requested a seat at a table with a few open spaces, and was granted one. The people there seemed disinterestedly bothered to small talk with me for a short while before I was approached by two young students who excitedly invited me to their sitting area on the floor with three others, one of whom seemed a good 10 years older than the rest. I happily joined them all. We had only 30-40 minutes to speak with one another before everyone left to play basketball, but I learned in that time that there really aren't a lot of venues for Arabic international people to mingle. After getting the contact information of four of them (the older one was put off), I later learned that a commonality between their behavior and American behavior is that politeness in person doesn't necessarily mean the beginning of acquaintanceship. For weeks I could not reach any of them, before moving onto others. In reflection, this may be partially due to the fact that I did not participate in sports with them (due to injuries), and so did not build up a sense of cooperation and playfulness with them (anything unrelated to business).

Saudi Club #2

My second participant observation experience was also with a group of Saudis, only this time it was at UNC Greeley. I received information on this one through a male friend of my key female Saudi informant. Again, this group was a male-only event, as it is a strict rule in Saudi

society that men and women do not socialize together (something I was told by multiple informants). The young man who helped me told me that I would have some time to speak in front of everyone so as to attract some attention, but this never did happen. He left the event before it got started, because, as he told me, he does not attend them himself. In as much, I had no "in" with the group, and did my best to start up conversation with the men (both traditional and non-traditional students) at the table I chose to sit at. They were very interested in my project, but before we were really able to converse, various presenters got going on the microphone at the front of the room, speaking only in Arabic. Nobody could translate for me because it was too much information.

After all speakers presented, dinnertime commenced. I attempted conversation but most attention was on the act of eating. Everyone, in his tight and exclusive circles, finally got coffee and left with it to go home. I would say that this event was also unproductive, as again the few men whose contact information I acquired never got back to me once contacted, however I did learn by ear during what was referred to as a poetry recital that Arabic poetry (at least the various examples I heard) is not focused at all on phonetic rhyming or morphemic patterning. I asked about this and it is apparently all about the way that ideas or metaphors abstractly relate to one another. A good find for the musical aspect of this study.

Arabic Club

My first visit to the Arabic Club was a surprising one. Only caucasian people filled the room. They were there to share in knowledge of the language and its dialects, I was told, which is the main purpose of the club. I stayed after being told that the second meeting of the season

would likely have some Arabic international students, and I got acquainted with some of the members.

My second visit was very informative and also conducive to gaining personal interaction time. I watched the Arabic language version of the Disney movie "Frozen" with everyone in attendance (of which 3 were Arabic speaking young men) and learned from my Moroccan participant "M5," after expressing my curiosity at the obvious, that for many mainstream movies or redone Hollywood films the Western musical scale still pervades the songs (they are not remade for an Arabic audience) and even the emotional tones of the *Arabic* voice actors. I was told by him that "to hear how Arabs really sound, you must watch an Iraqi, Palestinian, or Syrian movie." I thought this was fairly odd, considering how movies foreign to America and dubbed in *English* are usually done so by actors who sound very Western in their emotional tone (i.e., who do not use the original tone of the foreign language), to appeal to the target Western audience. Who might be the target audience of these translated films, I wondered. So, from the very start of my research, I learned something potentially confounding in my study, in that questions about cultural media affinities on the ARSAA II survey component do not differentiate between such films. I decided that it would be too complicated to elaborate upon this in my surveys, however, because revealing the extent to which Western emotional tones pervade either foreign or dubbed Arabic films would be a project on its own. Three members this night agreed to meet with me later for coffee and conversation.

M5

My first one-on-one interaction with a participant was with M5 at Morgan's Grind coffee shop on the CSU campus. As someone who majored in English studies, and as a Moroccan who,

like other Moroccans, "watches more English television than Americans – especially movies," his English emotional tone was very recognizable for me. He informed me that French is the lingua franca of the elite there, due to colonial history, but that English is on the rise for business and academia. He also exclaimed that "Egyptian English sucks," leading me to be curious about the audio test responses given by my female Egyptian participant ("F1"). He said that they will not acquiesce to other cultures' needs for communicative compromise – that they keep to their own emotional tones and punctuations and thereby ethnocentric understandings and contextualizations of things as they interpret them to mean, "using their dialects as a mold" (just like Saudi Arabians) in a way that makes them easily identifiable to other English-exposed Arabs. In his view, those of the United Arab Emirates and Kuwait speak the best English.

M5 is also very proud of those who speak the Arabic language well, and told me that, "like Mohammed said, if you want to know a people, learn their language." He highlights the use of *zeugma* (where a verb can be used to semantically connect unusually disparate words in a sentence) that, when used prolifically, exemplifies the best of Arabic poetry. This directly relates to what I learned about poetry at the Saudi Club meeting in Greeley. He also explained that "seven versions of the Koran, with different feelings, have been produced with only differences in *voweling,*" that is, using certain vowels between consonants for desired effects, "and yet they all end up telling the same story." He was not able to tell me if the evoked feelings are stirred via the "energy" of pitch/tone frequencies or via patterns in the vowels used, and he said that it may all be subjective. Something perhaps relative to inter-gender communication styles in the Arab world is that, as he explained, "women who sleep around before marriage are bitches" and "it is good to marry a virgin there." He explained that this is simply "due to their behavior around men." I wondered if an implicit aspect of that is how they become more

exposed to male communication styles than pious women do, and then use those styles themselves, in their roles as dangerously attractive no-ties sexual partners who may hold the power of envy over prospective and competitive courters.

Some other particularities of our conversation gave nuance to what would later be his survey responses. He says that a major attraction to American society is monetary gain after education, in that, at least for Morocco, salaries for even those with doctorates are about half as much as they are here. He feels this is an issue of kingship extravagances and greed. Also, he is a liberal thinker in a sort of philosophical ideology program with some detraction from religion generally. From my notes: "he is interested in the ideals of Habermaas, who he described as seeing religions simply fulfilling a niche role in society. He has learned of Americans who think that Muslims should not be allowed to vote because of their exclusivity – their lack of participation in American culture – and he actually agrees with this."

F1 & Muslim Student Association Da'wa (tabling/educating event)

It was at this Islamic education event in front of Lory Student Center on CSU campus that I got acquainted with F1, the female Egyptian leader of the MSA who invited me via email following my solicitations, and set up a later time to meet with her one-on-one. F1 let me know that since her Egyptian father moved here after getting his master's degree before she was born, she grew up in America learning both English and Arabic simultaneously as well as the cultures of both (she was in Arabic School until 5th grade). While she remained fairly busy, tending to onlookers, three other American-born Muslims (one caucasian and one first generation African American) were very helpful informants at this event.

Though the African American student told me that he would help with my surveys later and actually did not respond to my contact attempts until a semester later ("because of business"), he gave me some interesting information. He said: "Old Arabic is more eloquent a language than any I have been aware of" in its very implication of speech-as-poetry. This includes extreme concision, ubiquitous metaphor usage, simultaneous noun/verb utilization of any one word, and metre or rhythm as a rhyming mechanism. M5 explained this to me once, in a subjective way, where he said: "if old Arabic is spoken well enough it will bring me to tears."

When a bronze-framed picture standing on the table caught my eye, I asked F1 about this and she told me that it is a religious representation. I noticed two names within seperate, ornately and colorfully encompassed circles – Allah and Mohammed. These were within a bigger circle that had radians coming from the center. The names were printed small underneath very stylized and multi directional calligraphy. I asked if there is anything in the written language there that denotes orthopraxic tonality, and a Serbian-born American student of intermediate Arabic language proficiency (who attends Arabic Club) told me that there are As, Es, or Ws, and they are likely long vowels.

The African American student asked me various questions about my research and suggested that unless someone is dramatically expressing themselves with vocal tone, they are not necessarily expressing emotion or readable even if so. He said that all languages do this (even Mandarin Chinese, which I had to argue against considering it is a tone language). Contrary to this suggestion, the Serbian-born student told me that when he speaks another language, it changes how he feels about ideas, things, and people, and how he expresses his emotions even in subtle ways. A Caucasian American student, adept with the Arabic language and well versed in the Koran, and married to a woman in the Arab world, let me know that "in

English we have bold and italics and exclamation marks to denote emphases or excitement, but in Arabic the same sort of *intonation* would not be associated to such ideas but rather to a particular notion of swearing," which, according to him, has no negative connotations unless tied to the name of Allah. This is likely relative to what Albirini (2011:541) explained about Standard Arabic tonality, mentioned earlier in chapter 2.1.2 – these sorts of "energetic" stresses on words are taken when switching from casual conversation to seriousness, poetry, or piousness. As a teacher of Islamic beliefs, he invited me to the open house event at the local Islamic Center in two days, which I attended.

F3 and Friends

My key female Saudi informant introduced me to F3, who became so excited about my research that she eagerly scheduled in a meeting between us, as well as with two of her close friends. It turns out that she was born in Jordan, but lived in Oman as well as other countries in her youth, and earned higher education in Riyadh, Saudi Arabia; and, from her uncles' influences, she knows Egyptian as well as Lebanese dialects. This is certainly advantageous. Her degree program is in computer information systems and she is creating a program for disabled students to help with letter differentiation in words. She agreed with me in feeling that communication skills courses are not up to par: "they are about 50% of what they could be." Her emotional tonality seemed fairly good to me, and when I commented on this she was happy to hear it as she was honestly unsure. She let me know that her Norwegian American husband helps her by watching comedy shows with her (especially Adam Corolla). In retrospect, I don't think that such exposure can help someone recognize non-sarcastic emotional tone (or at least that without double entendre) in a single statement out of context. She told me that she loves

country, pop (i.e., Beyonce, Ricky Martin, etc), FUN, Bastille, Bombay Sound System, and other western music acts. Something very interesting to me was learning that although her husband hates Arabic music, he loves the language, and, that he is having a hard time getting down Arabic emotional tone! She was delightedly inspired when I suggested that she get her husband into Arabic techno, because that is his favorite type of music and may learn some emotional inflection from the lyrics therein.

She spoke of the "badia" or original bedouin tribal bloodline descendents who today comprise most of the Saudi government and conservatively (negatively, in her eyes) affect social policies, adding that if she moves back to the Arabic world, it will likely be to Jordan. Her more liberal take on life (like her fair English tonality) does not surprise me, given that she is well traveled (she has also been to Malaysia and Singapore), and not very conservative in her dress style (she was somewhat seductively dressed at our meeting, in fact). Assuming that she is more independent than many other Arabic women, I could only imagine M5 putting her in the category of "bitch."

F3 politely left for an appointment right when her female friend showed up. This similarly young lady was in England from age 5 through primary school, and learned about Arabic culture through her Saudi family and "Arabic School" (on Fridays, Saturdays, and Sundays), the latter of which was a short lived educational path because both European and American governments dissolved funding and accreditation for such programs – something that has created hardship for Arabic parents in Western countries, and is fragmenting their transmission of culture. *It turns out that younger and future generations may be more apt to understand emotional tone than the older ones (via Westernization), increasing the generation gap. She is especially aware of this, being a mother of two boys*. Her husband soon showed up.

After a comedic argument between them about gender roles and freedom in the Arabic world, she gave me a resounding "YES!" and explosively happy facial expression, when I asked her if cultural gender separations will affect how people respond to my audio tests. Her husband and she let me know that if a student does not take 9 credits, his "F1" visa can be reduced to an "F2" which means that if you do not do exceedingly well in that <9 credit status your visa can be revoked. In such situations, only marriage to a person with an F1 visa or a permanent American resident can keep you from being deported. *This can easily create increased reason for stress and anxiety in a student's life abroad.*

Islamic Center Open House

After having been invited to this open house by various people this last week, I decided to attend. Everyone was very friendly in greeting me, handshakes were not allowed with any attending women (non contact rule), and I had to remove my shoes to enter the mosque. A footbath area was on my left when walking down the hall to the men's meeting (talk) behind closed doors. A dark skinned man, perhaps African, was speaking at the head of a seated throng of attendees. Of the many things he said, I took these items with me: 60% of the Muslim community in Fort Collins are Arabs and 70% of attendees to the mosque are students. There is a growing Chinese Muslim population, many taking political asylum, and increasing groups of Mexicans and Latinos as well. *It may behoove future research to focus not solely on Arabic internationals but on people with Muslim upbringings, being that their beliefs are what shape the music they are exposed to, no matter their competence in a foreign language*

The Caucasian Islamic scholar (and Muslim) who was at the MSA da'wa event was the main presenter today. He was informative at times for my research focus. Apparently, prime

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Qoranic advice is to spend time only with "true and honest people," who believe in (one) God, pray and do good works, and love their parents. *This may say a lot about Arabic people feeling apprehensive about communicating with possibly atheist, polytheist, or pagan people.* He said that numerology is not important and should be disregarded, as it is only useful for measure and not for meaning. *This seems dubious or at least "pop knowledge," since Allah's face is not allowed to be symbolized (as he is not considered human but rather perfect and unfathomable), and is instead portrayed with beautiful geometrical artwork, much of it based on numerological and geometrical composition. I am curious if my interest in emotional tonality as a patterned device is seen as numerology and therefore a slippery slope.* "Islam" literally means submission. *Perhaps it is the goal of ultimate submission that leads legitimate Arabic "music" to have small intervals and no repeating patterns that officially represent certain emotions – otherwise it would be too self-glorifying, as an invention of man.*

F1

I met F1, the MSA president, in the behavioral science building lounge, where we had coffee together. She said that the last week had been incredibly stressful and I asked her why. She explained that her parents (whom she lives with here) went to Saudi Arabia for the hajj pilgrimage, that she is taking 5 classes, and that she is taking care of her older sister who has a mental disorder. No less, due to frustrating issues in the international studies program (for her and other Arabs as well), and also the dangers of doing journalism (her ultimate aim) in the Middle East, she unhappily switched to a social work program for both life and job security at home or in the US. *These things may have affected her responses on the DASS 42 and audio test survey/interview components. The ARSAA II may reflect her cross-cultural style as well: she*

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wore a Western looking skirt and tight white shirt with a denim jacket along with her traditional hajib head cover. Also, her mother works to help non-English speaking Arab families make Western transitions, and also as a translator.

I talked about sarcasm exemplifying culturally particularities of tone usage (at least in Western cultures where it is denoted by such things as reversed tonality in statements, giving them an opposite meaning/representation) and asked if it is similarly done in Arabic. She gave me some examples that confirmed Arabic tone reversal for sarcasm in similar (at least Egyptian dialect), and also explained that *for some populations, i.e., Lybians, speech is very melodious but emotion is mostly understood by its rhythm. She feels that moods are definitely affected by music after it is heard, and gave an example of hip hop putting a person in a particular "mood or attitude," even if it has no lyrics (!). She admitted to being naïve about musical scales, so I explained that the "mood" hip hop most often confers is done through a "minor mode" or "sad" scale, and she said resonated with the idea entirely.* When I asked what sorts of music she enjoys, she said "anything but country, rock, and screamy music," and she explained that country doesn't really represent "country living" but rather a pop culture that she doesn't like because of inherent ethnocentricity and racism in it. When she slurred a word and felt embarrassed about it, I suggested that it could be due to her being polyglottal, as even I do that more often since learning Spanish. *When she spoke of the difficulty of what she calls "vowel accents" in English, I intuited that these may be difficult for an Arabic person because there are no set vowels in Arabic words (being that their alphabet and lexicon has no vowels though some are practically used) whereas in English they are prescriptive. She agreed that this likely has more to do with her trouble than anything else.*

Key Saudi Informant

I was glad to finally spend some time, even if in a limited internet video call, with my key informant. She was integral in my search for respondents and even introduced me to two of them, which had a snowball effect thereafter. When we got to talking, I was reminded of how her English emotional tone is fairly good, like that of F1, F3, and M5. She explained that once she learned to "do" small talk, after reaching out for American friends (because she did not have many Saudi friends), she started to understand it better. *This seems to imply that small talk is not often done in the Arab world, or at least in Saudi Arabia (as the converse may be noted regarding F1's description of communication styles in Egypt).* When I spoke of emotional tone in sarcasm and double entendres, she said that it makes a lot of sense and that she had troubles when she was first learning English that caused her a lot of discomfort for a while. She also now makes watches facial expressions and makes much more eye contact than she used to, because when this is done in Saudi culture there are issues of respect between people and general sexual connotations between men and women, that makes it all a very careful situation. She says that she feels much more comfortable with communication since the change, being that those ideas are not so often applicable here. *This makes me curious as to how many Arabic females have communication troubles in comparison to Arabic males.*

M2

M2 and I met at Morgan's Grind coffee shop at CSU. He had very early exposure to English, as he lived in the UK until age 4 when he moved to Jeddah, Saudi Arabia. His father had lived in the US for some time before moving his family there. As far as he knows, his mom surely knows Uzbeki (to which his ethnicity is tied), and possibly knows Farsi and Urdu or

Pakistani. I asked him what sorts of music he enjoys, and it is moreso Western than Arabic, with even some Japanese music (!) which he knows *some* of the words to (an ability gleaned from watching tons of anime shows and films and really paying attention to sounds along with closed captioning). He is really into country music, piano music (which he is learning how to play via YouTube video training), and pop music with guitar and drums. *The latter of these is his favorite instrument, because he is best able to learn if cyclic patterns are involved (which tells me something about his adherence to Tawhid in Islam).* He said that he and friends have been known to joke sometimes by playing an emotionally appropriate song during a given situation. I asked if this is done with their phones, and he said that, yes, it is, but it is premeditated – they will either predict the emotion that will come from an interaction or they will manipulate the interaction to make the song they choose appropriate and therefore funny. *All of this exposure likely makes him more objective to prosodic tonality.*

I mentioned how I've heard that many Americans perceive Arabic excitement as anger, and wonder if this is due to musical scale influences in the emotional tone. He said that he is unsure about that, but that he certainly notices "heavy" and "light" tones of voice, where, i.e., he has a "heavy" voice when he is tired or when angry. I asked him about the opposite of this – if happiness is involved with "light" vocal tones – and he said that happiness is just louder rather than lighter. I lost further explanation of this because we laughed our way into the topic of cultural perceptions.

Greeley Informant

My key informant introduced me to an older Arabic student who is earning her PhD in the city of Greeley, where we met for coffee at Starbucks. She has a 5-year old daughter that

must be taken care of when she is busy. We got to the topic of musical exposure and she explained that her favorite music is Arabic, but that she long ago began enjoying Western classical music, and especially a particular song set in Andalucía (Rodrigo Adagio, composed by John Williams) that includes Spanish guitar. I suggested that perhaps the appeal is in the sound of the guitar in the Spanish classical scale, both of which are adapted from Arabic culture: the guitar from the Arabic qitara, and the scale from a mix of Arabic and Western modes. She explained that she wasn't aware of this, and that many other Arabs may not be, because much of the Arabic culture that existed in North Africa and Spain was wiped out during World War I.

She taught me some important details that relate to my perceptions regarding the seemingly tribal vs. globalizing Arabic culture struggle that appears evident in the dichotomy between Standard Arabic and Dialectal Arabic. This may be more profound in Saudi culture, because, as she stated, "*the 1ˢᵗ class people of Saudi Arabia are bedouin, and the 2ⁿᵈ class are migrants (mostly from a few hundred years ago) especially to places like Jeddah, Mecca, and so forth to the West.*" The Bedouin are perceived as poor ruralites that wander the city limits, but in fact have all the real estate leverage and military/borderland dictation as a product of this. She explained that many Arabs feel that Americans have true freedom and that, in regards to religion, *nowhere in Islam does it say that women should be treated the way they are) – that those who feel this way are uneducated about how the rules really come from bedouin 1ˢᵗ class opinions*. I asked if women are perceived as dangerous and she replied "*yeah!!*". She explained that it is effectively not just about women and government structure but about suppressing unity and upholding civilian dependence rather than allowing for independence, and that women with "big bedouin names" get away with breaking these rules. *I can imagine that those with resources enough to experience other countries are more apt to become liberal, like F3.*

Perhaps these are the "bitches" that M5 spoke of; perhaps another reason they are so rudely named is that they can demand more of a suitor.

When I asked if the Bedouin have more access to higher education, she let me know that in Saudi Arabia education is free through the PhD level, and that higher education is not about worldliness or contributing to knowledge, but about access to well-paid jobs and therefore a more material life. *I did not ask if men are less critical of this than women (since they must provide for their wives), the answer to which may indicate how acculturated they are to be more competitive with or envious of the Bedouin class. In regards to Arabic gender inequality, she told me that having a higher education just gets you into a teaching position unless you are a man (in which case government work may be a prospective future).* She let me know that tonality differences exist between bedouins, Africans, Indonesians, and others in Saudi Arabia, so I asked which ones are most different from bedouin Arabic. In her eyes, "even African Americans sound different from white Americans," and elaborating, she said that "nobody sounds more different from bedouins than any other group – they are all unique." *Also, nothing is really denoted about a person by the form of Arabic that they speak.*

Arabic Club Member #1

This fellow is, as I've named him, a member of the Arabic Club. The president introduced me to him and he agreed to meet for participant observation. The three times that I've seen him – once this day, once at the MSA tabling event, and once originally at Arabic Club – he has worn a mix of Western and Middle Eastern attire. In this case it is jeans with a broadly striped polo shirt and a black and white speckled scarf. He agreed to help me after this meeting,

with the audio test component of my research, but was unreachable all semester, despite our peaceful and light-hearted interaction.

In speaking with him, he uses much body language to denote his enthusiasm or emotion, however prosodically mellow he is. His English grammar and accent is fairly spot-on, and I learned that he has only been in the INTO program for a few months, and that he knows English pretty well from classes taken in Saudi Arabia. *He says that universities there require English*, which was not necessarily my assumption from information gleaned before this. He has many American friends and enjoys Colorado's small town culture as well as the scenery. I asked if he felt at home here because of cultural comforts such as coffee being so available, and he replied "yeah! I have everything except family here!" *Aside from missing the communally heard frequent calls-to-prayer resounding in the streets (a common nostalgia for my participants), I wonder if they all feel this comfortable.*

Another affinity he has is for Western music; he said he got tired of Arabic music before even moving here and now cannot stand listening to it when he is with friends, and that *listening to more American music helped him with his English accent and speaking speed.* Electronic Dance Music (EDM) is a favorite genre of his, and he is fairly excited about music festivals – *this seems an exemplary detail for noting his level of Islamic conservatism.* I asked if music changes his mood, to which he smiled and nodded, saying that "*especially with music about love – it changes feelings and emotions from sad to fun or fun to sad... music affects everyone's feelings*!." *I told him how I am confused about people who are shown to have no reaction to music when it is played, and he replied that "they must have a strong mood*!." I agreed, saying that this was an astute observation. I suggested that some internationals who are assumed to have "bad English" may have great grammar and

vocabulary and idiom understandings, but simply don't know the tone. He concurred

wholeheartedly, saying "they just don't know the feeling," to which I added "yes, the

sarcasm, empathy, emotion, etc." he nodded. *This is further evidence, to me, that the basic*

emotions are not so easily perceived in paralinguistic speech.

M3

After meeting M3 at Morgan's Grind coffee shop in the CSU library, we spoke for a

short while about his engineering focus and job prospects back in Saudi Arabia. Beyond that, on

the topic of music, he agreed that my research makes sense and told me that his favorite music

genre is rap and/or hip hop, his favorite artist being Eminem. *This is another example of music*

which is considered extremely taboo in Islam, perhaps indicating his degree of conservatism.

I asked about an intuition I had, when speaking with M2 some time ago, regarding the

way in which a person's displayed emotions in one sense may seem to bely them in another (he

had rigid facial expressions but exuberant speech). He said that in his culture, he would not

think that someone's vocal tone is "belying" their bodily expressed (seemingly true) emotions,

because Arabs generally would think that such a person is simply new to their linguistic culture

or just "confused." When I described to him that there are various disorders people can have that

cause this "confusion" for them even in their native language, such as autism, ADD, or

Asperger's Syndrome, he said it must be rare because he cannot remember every experiencing

that with anyone at home or in the USA. When I said that *if someone (with no such diagnosis)*

lived in a host country for 20 years but didn't get their communication methods down fluidly, it

must mean something. He offered that it must mean they don't like the culture. He described

some experiences with friends who just don't seem to have the energy to grasp it all, because of a professed lack of interest. Such a person may never tell this to someone from the host culture.

We spoke of how difficult it is to finally get down jokes in another culture, and he said that Saudi Arabia, at least, "silly jokes" are scoffed at – *perhaps an indicator of why it is hard to get down small talk* – whereas in America even adults do this quite often. This makes Arabs apprehensive about full-on conversation with Americans, especially with those who "act silly by mocking animals or making noises" and therefore "behave as fools," or as though in "intermediate school." *I brought up the apparently commonplace American perception that Arabs sound "angry" when they converse, and he laughed, saying that they may be thought of as sounding too "high," and recognized perceptively thereafter that this may an incomplete or wrong term to use. He says that Americans are hypocritical about this at times, as he has had to complain about his neighbors' volume levels as much as they have about his.* I gave the examples of sounding "heavy" or "light," as M2 described, and he said that such terms must have been his own because he had never heard of them before. *Interestingly, most structures in Saudi Arabia are concrete rather than wood or sheet rock, so the sound does not transmit as much. This may stem for intracultural acceptance of volume levels being high and actions to simply mitigate how it infringes upon personal space.*

Some contradictory items follow. He introduced me to a musician named Abadi al Jawoher, via Youtube on his phone, who could play the oud much like a Spanish guitar. This was to my amazement, and he says that Arabs are generally also amazed by it and call him "the octopus." It is also out of line with Islamic standards of music, but, as the literature suggests, it may simply be accepted because he has found a way to attract others to the culture. Unlike other participants, his experience with English is that speaking it is not allowed in high school (though

he took a simple grammar course), and after only an intensive English program in Saudi Arabia, and then 2 years of college at CSU, he feels, and is perceived as being, very proficient (with appropriate emotional tonality even matching his body language, etc). Perhaps the only one better with English tonality and accent was F1.

Appendix C – Audio Test Debriefing Interview Theme Analysis

Fear
> *Arabic Students*

The following regards correct responses to sample #6 (male *fear*). F2 said that he

sounded afraid "cuz he talk, you know, frequently. Yeah, frequently, I think umm nervous and

he talk very quickly and doesn't stop." She offered the Arabic word *khayef*. M4 offered the

Arabic word *khoef*, perhaps the male version of the prior, and he described the audio sample as

sounding like

> "kind of an emergency, kind of... he was trying to explain the whole situation really fast
> and quick, and that's why he was stopping a couple of times," "like the same as when
> you call 911 you know, it's an emergency, it's so crazy, like when you're trying to
> explain the whole situation you know, and you're missing parts, and you would just
> throw words."

In a similar light, M6 said "a friend of him or her catch something and he said "put it down, put

it down," so he is "being careful… taking care of his friend or her friend." F5 said "I think it

sounded like he's justifying why he did something? Umm... he's talking too fast, so...," "like he

knows he's guilty and knows the guilt? So.. yeah, maybe this is why he's defending himself."

She said that the emotion of guilt and fear that this tonality represents would also co-occur with

sadness.

Here I explore themes in the *sad* incorrect response group for audio sample #10 (female

fear). F1 had an initial and confused inclination towards "disgusted" here, but chose *sad* instead

and described the actress as sounding "bratty," a character trait. She also said that if this were a

vocal tone representative of a group emotion it would be "a bunch of kids sitting down and

complaining about their bad grades on tests," a character state. She offered the Arabic word

za'alana to better describe the emotion that she perceived. F2 did not provide description for her answer. M1 said it sounded like "sadness over tragedy that just happened recently" and he could tell by the way "his voice raised and fell down is like a person who was really sad or crying." In this description, it is evident that he mistook the actress' gender. He explained that there is a qualifier in Arabic for "really really sad" that would be a better word for this tonality. M4 described the tonality as "childishness" where "she's just being a kid" since "the problem inside her is that she thinks it's so insane, it's so bad, but you know, it's nothing," because "sadness is just a part of life" (perhaps a motto that he was defending because he experienced sadness for months until just days before this, since his mother was diagnosed with cancer and just had it removed). M5 explained that it sounded as if a woman was sad from her fiancé not going through with their planned wedding due to cold feet, or like "she lost something that is so precious, something… she can't get back later." He offered the words "despair," "hopelessness," "loss," and "failure." There were two shared themes within this group. F1 and M4 seem to feel that the actress' situation is a trivial one that she is dramatizing, or that she is not strong – perhaps relative to the high pitch of her voice as described by F2 in the correct response group. M1 and M5 both gave the dimensionality of deep meaning to the sadness they heard. These pairs both contained one Saudi and one non-Saudi student.

Here I explore the *angry* incorrect response group for audio sample #10 (female fear). F4 had some difficulty describing what she heard with this sample. For her, it was an emotional combination, like where "somebody's having a discussion with her husband or whatever (laughs), and then maybe he blamed her for something or took her car without asking her or whatever (laughs), and it just sounded like she was just kind of sad but also maybe kind of angry." She offered the word *sahnanah* but said it can be used interchangeably with *hozhana*,

"like she's crying about it, not really being mad… but I feel like the way I would use it would just be more like a sad part but a little angry as well," but then changed her mind and said it sounded more angry than sad (which agrees with her written response). It would seem that the implication here is that anger for Arabic women is more appropriately cried out then shouted. F6 confirmed this: "it's like crying because they're mad and angry… like they're really upset about something," which she said is particular for most Arabic women; and, no less, "it woldn't be as loud in public" and "it sounds like this person is talking to the same person that caused her to be upset and sad and angry." M3 said it sounded similar to sample #3 (male *happiness*) which he misinterpreted differently as *fear* instead, because in this one "she sounds angry and complaining," and as though she is an Indian woman "with the husband did something and the wife is complaining, like "deh deh deh" (mocking) (laughs) [both laugh]... when she's just complaining, like she's angry at him, and the guy's like... they're fighting about something, and just marriage quarrels or something like that." The fact that he laughingly mocked her vocal tonality when he apparently thought the husband was at fault for upsetting her is telling that he feels she should have just accepted what happened but was being bothersome instead.

American Student Controls

The following regards mostly correct responses to sample #6 (male fear), with one correct response to sample #10 (female *fear*). For sample #6, E15 said it sounded

> "afraid and helpless... like there's like a... like a tidal wave coming or something and there's nothing you can do about it, you just kind of like have to face it. Yeah, so it's not like it's unjust, it's just something that is happening and it's like... "shit, we've got to ride this out, it's gonna happen, and I'm afraid of it but it's gonna happen."

He offered that the beginning of the sample was kind of "anxious and like sort of very focused on whatever it was that they were afraid of," where the latter part was more like he was saying

"get down get down," like telling other people, directing other people, looking out for other people." E1 nailed the audio sample by saying it sounded like panicked fear from someone yelling "hit the brake, hit the brake" to a driver in order to avoid a car crash. He also said that if it were a tone taken by a group, it would be "a riot basically.. where the mental picture I'm putting forth is like police in riot gear coming towards you? And it's the protestors, their reaction to this, being like this kind of like impending fearful dread," or people in a zombie movie. E4 also got the context and phrasing of the audio sample correct. Alternatively, she offered that it could be someone's tone when feeling nervous or "on edge" before a big life event, or that it could even be someone trying to frantically order others around in a busy kitchen. E8 got the context of the impending accident, but not the phrasing exactly. She said that it could also be someone in a fire, or, less reactionary, someone in a generally worried mood. E2 said

> "it was like there was a little bit of panic in the voice, you know like "(imitating continually rising 3-word pairs)", like that? Umm... and it got, it was quick at a lot of points, it was fast, there were short bursts of saying something really quickly, and so to me what came to mind is somebody like, someone that you thought you knew pulled a knife on you, and you were like "whoa, what are you doing, what are you doing? Put it back put it back!"

E10 heard a *frustrated* "get away, get away" kind of vocalization that was tipped off more by the pattern of sounds than the tonality. She said she heard the same sort of thing for sample #10, which she also responded correctly to.

The following are examples of the incorrect response consensus for sample #10 (female *fear*), involving the only American students I was able to interview. E1 described the situation as "a cat fight between two girls," "like a very topical, surface level, nasty fight" that would sound this way, unsuppressed, no matter where it was taking place. Alternatively, he offered that it could be "the scene of a bar" with "people fighting, people drunk, that kind of thing." E2 came

close to getting this one right, in that he initially said it was angry and sad, but then rather angry and *fearful* (the correct response). He felt that way because "they repeat the same thing, and it's like they're yelling at someone like "go go!" or "get out of here, stop!," so it's like… a couple that's fighting and it's a bad fight and the girl is really upset and telling the guy to get out." E8 said it sounded "a little panicked or something, like they're sort of high-pitched, so maybe they're… angry at someone for putting them in danger or something." She said that if this were not a reaction but rather a mood that someone was in, a good term would be "accusatory," but that it still has the underlying elements of panic and *fear* (again, the correct response). Although these three students all described scenarios with fighting, E2 and E8 came closest to each others' situational descriptions in terms of emotional depth, and also to the correct response for the audio sample.

Anger

Arabic Students

The following regards themes found in the correct responses to the *anger* audio samples. Arabic terminology was given in relation to behavioral dimensions for correct responses to sample #1 (male *anger*). Two females, one Egyptian (F1) and one Saudi (F2) offered the Arabic term *ghad'ban* as a direct translation of *anger* as it is heard in sample #1 (male anger). F1 informed me: "Someone's like... upset you, I guess. Like you usually say like "this person is mad at..." like "ghadban at so and so," or like, yeah it's usually like mad at someone or something." She also said that "they may be moving their hands or something and angry looking" and that "it reminds me of like a dictator." F2 gave dimension to the term itself, by saying "it's like 'he is very angry.'" Whereas F1 said that their gestural and vocal expressions

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with this emotion would be the same in any situation, F2 explained that although people would "use sometimes the hands or the shoulder to show how much they are angry" in public, they would have more gestural restraint if they were at home (or with family) or at work, where they might just be "coming close, yeah, and the voice is like serious…and loudly," and also that anger is not to be expressed in a school environment because "students are very young so we cannot give them feeling like, we can maybe send message but without angry."

The following also regards sample #1 (male *anger*). M1, F3, M2, F5, and M6 all offered the term *m'aseb* to describe this emotional tone. M1 described it as sounding like either "a person who just don't listen to other people… umm... who likes to control," or an excerpt from an Arabic courtroom dispute, where people are raising their voices to gain ground because "it's not like well-behaved like here [America]." M2 felt similarly: "I guess that you would be like angry, screaming" and "I think he was proving a point or something," and also, like F1, he said it sounded like Hitler. F3 corroborated F2's qualifier but said it is more like "anger plus plus" and that *m'aseb* means the "very highest emotion" of anger. Unlike F2, F3 said they would behave without restraint anywhere and even "use something physical" like pounding a surface to iterate, and, like M1, also implied that this particular actor was out of control, however also "weak," because "based on my culture you have to control your emotions in certain places" like in public. She gave an implicit example of an upset female American teacher (perhaps contrary to F2's assertions), though this voice actor was male. F5 also said that a person would only sound like this at home or with family, but due more to etiquette; however, her interpretation of this tone and of *m'aseb* is "disappointment" rather than anger, even though she said that "he's giving instructions or something because he's *mad* at someone, because he was so loud" and "waving his hand" and "standing." M6 gave this example: "Um maybe his friends or his girlfriend or his

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wife did something that made him angry. He was surprised when he found out... and then he asked "why did he do that" or "why did she do that." F3 said simply that sample #9 was *m'aseb* in the same way as #1.

F4 gave a situation similar to those described by M2 and M1, saying "he's angry but at the same time he is taking one side and he is really into this side;" however, she used the term *mutasebh* to label this particularly situated feeling. M5 almost chose *disgusted*, which may tell of a possibly preferred alternate term. He said this sample sounded like "what the hell is *this?!,*" and explained that the loudness and pitch are indicators, but that there was an element of restraint because this tone would only be used at home. Relatively, in a statement given in an earlier *fear* response, regarding *anger* as situationally different, he said "when you're in public, you are a little less comfortable with people around you."

For sample #9 (female *anger*), M1 was very inconfident about his correct response. He said that he was fairly sure it was anger if the speaker was Arabic, but unsure if the speaker was American. He had been informed beforehand that the speakers were American, so this reveals that he believes there is a difference in how these emotions sound between cultures. M3 also felt unsure about his response. He described it as a teacher teaching class very seriously, or, and only possibly, a woman expressing anger at home. This is a recurrent theme of either teaching or instructing someone, while taking a serious rather than outraged tone when actually feeling upset or anger. It likely also explains why M1 was unsure about his response, in that he would expect the tone to be different given his imagining of the context in which the tone was taken. This somewhat coincides with my participant observation data about women sounding more sad than aggressive when angry. In total contrast, however, and from a student of the same gender as the

voice actress, F3 offered the Arabic term *masbah*, which is the female version of *maseb*, saying it sounded "like the highest madness."

The following regards incorrect responses of *happy* to sample #9 (female *anger*). M2 said that "she sounded just happy, like a good news happened to her, something like she got accepted to college or... she is getting married maybe... maybe something like that, she sounds so happy. She sounds cheerful... like she's giving the good news someone." He offered the Arabic word *farhan*. F4 said it "was like a teacher or whatever um giving a lecture, and the reason I said happy is that it sounds like she is positive about life (laughs) in general." M5 felt that it was like "a woman... who is like at a cafe restaurant with her female friends, she was talking to them about her boyfriend who took her on a romantic date and... umm... really impressed her." He offered the word ecstatic, and also the Arabic term *muhteshya,* which means euphoric, "like high, with drugs." F5 said she sounded excited, "like something really cool happened with her." The next two are very different in context from the prior examples. F1 said it sounded like "bitchy gossip" as though she was saying "oh my god did you see her…?", and that she sounds excited. She offered the term "revenge," and said it's like "she's ready to blackmail someone." M4's response was very similar. He said

> "I would say happy, but *bad* happy…she's laughing at someone, you know, one of the girls she knows... she umm, she's jealous from her, she doesn't hate her but she's jealous and that's why she was happy that something happened to her. So she was telling, I think, her mom or whatever you know. She was happy but it was because something bad happened to someone else. So she's fucked up."

He offered the Arabic word *khliba*, which means

> "basically talking about someone else when he's not around you and telling bad things about him even if it really happens. This is like you know, something really prohibited or something you know? You never say anything about anyone even if it's true about them to anyone else without him being present."

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For correct responses to sample #1 (male *anger*), E15 said the emotional tone sounded like a mix between *anger* and *surprise*, "like they saw someone didn't use a coaster or something, you know, something where they see something and they're like "Oh what the hell?"". An alternate situation he offered was where there is

> "a group debating something and he's like, the person saying whatever that was, is uh, like, very adamant about the point they're trying to make. Sort of like a political or some sort of touchy subject where he's making a point... uh on one side or another of some touchy subject [okay] to a room full of people that he knows may or may not be hostile to his idea, or sort of have an opposite idea."

E1 offered that *irate* is the best word for this emotion, where "he seems to be having a conversation, well.. he seems to be yelling at somebody umm... a fair amount of exasperation." He also said "the first thing that came to my head was actually like that cliche movie with pictures and videos of Hitler's speeches," which resonated some responses from the Arabic group. E2 said it was too extreme to be just a mood because "it was loud, there was pausing... umm in the statements. It's almost like someone was getting yelled at, I guess." However, he said that it was a lower form of anger than enfuriation because he would have heard a loss of control, and, that it could have been an *empassioned* rally speaker at a podium. E7, the only female in this grouping, said contrastingly that it was like a quick reaction rather than a sustained emotion, where "it sounded like when your'e in Old Town and like someone just cut somebody off or somebody's walking at some light and somebody's yelling at them."

Four of the six American students interviewed responded with the incorrect emotion *happy* for sample #9. The first three examples come from female students, and the last from a

male. E4 offered the terms *shocked* and *joyous*, saying they work as well as *happy* for this

tonality, and that the situation could be "like telling your friends about really good news you

have like "oh I just got engaged," and this is what you did, and it's so cool, or, yeah, something

like that." E7 offered the term *upbeat*, saying "like people who are upbeat I usually describe as

being excited about everything [mmm], like... they're just always finding something that they're

looking forward to," and that the situation could be "before an event, you know everybody's

kind of anticipating and excited about what they're about to do." E8 described "someone is like

proud of themselves and talking about an accomplishment that happened, that they achieved,"

giving a graduation ceremony as an example. She offered that if this tone related to a mood

someone was in it would be *contentment*. E2 offered that

> "It sounded like the person was sort of laughing, like near the end of it they were sort of
> chuckling while they were talking. Umm... so that's somebody talking... (long pause) the
> image in my mind is somebody talking to a friend, and it doesn't even matter what
> they're talking about. They could be talking about something funny, and like they could
> have seen something funny happen in the background and they're both sort of laughing as
> they're talking about something else, but that was somebody sort of sharing being happy
> with somebody else.

Happiness

Arabic Students

The following regards incorrect responses of *fear* to sample #3 (male *happiness*). F1

thought that the voice actor was Arabic here. She said "it's like an old movie and their talking in

like the formal Arabic and this guy is like a war… and this guy's like "let's go! Let's run away!"

you know, like "the guy's running after you, let's go!" you know, but the guy uses like very

formal Arabic." She offered the Arabic terms *mottarib* and *khayif* as a combination for this

feeling, where the former is similar to "scared" and the latter is like "nervous" or "worried." F2

offered "when people feel so fear, they have loudly voice but with special tone you know,"

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where the voice goes "up and down," indicating crying. She offered the word *hayef*, sounding very similar to *khayif* given by F1, saying "If I'm afraid of something I will ignore everyone to talk with me, so I will focus with this thing and think too much and be silent. I will not example for people," because "if we do something bad, or we cheating, …or take some money from others without their knowing – like that's so bad." F3 said "I feel like she's crying or something" and that

> "like maybe I feel like something really bother me and makes me not only scared, because you know there's difference between being scared of something or feeling like crying, you know? Something makes you cry. I feel like there is different. Maybe fear sometimes, like in highest level, it leads you to cry."

M2 said it sounded *angry, surprised, or fearful*. For him, she "had the loud voice and she was about to scream or something" because "someone is holding a knife at her and she's trying to, well she's scared but she's trying to like reason with him or something like that, so she's trying to calm herself down and be like "calm down" or something like that." M3 said he is "just like hiding and talking" or even crying. For him, the situation was that "someone got punished by his father and he's crying and complaining to his mother that he's not done something wrong to get that punishment. Maybe like it's his fault or something like that." M5 felt that it was "like in a back room, with two guys who you can't see their faces and they have guns, and he's like "Please I didn't do anything, take my money" or.. like that." He offered an Arabic term that my recorder did not pick up, with a meaning of *begging*.

The following regards incorrect responses of *sadness* to sample #7 (female *happiness*). F1 said that she sounded whiny about something petty, and offered the Arabic terms *bitzim* (action) and *zenam* (personality). F2 said that she sounds unrestrained in her sadness, "talking and crying," and contagious in its strength to bring sympathy to her. F3 said she is sad and crying, but with no element of disappointment she heard in another sample, and that she is

"maybe under pressure." F4 similarly said that the emotion is "clear" without other elements to it, and that she is *hozhana*, which means "sad and mad in some way," where tellingly, "it kind of has a culture into it… because I kind of feel like the situation I can think of would be like my friend for example getting bothered by somebody, and I feel like in a more American context it would translate into madness more than sadness? More furious reaction." M3 also said it was clearly someone crying, and offered two situations: "a wife is just had a fight with her husband and is crying and telling her one of her friends, one of her closest friends, that example would be a girl crying because she didn't get what she wants. Maybe she wanted to go out, like, to a mall or something or buy something and her father says no." In the latter situation, "like if she's crying because she didn't get what she wants," Arabic people would "say like she's angry…like she's not sad, you know, ... she's crying so she's sad, but we'd say she's angry." M5 said that "something's wrong" and that she is crying because she is "a tired person who is confused about their future... all they want to do is frown." He offered that *upset* might better describe this because with *sadness* she wouldn't be this expressive, and that such a feeling could be caused by unfair treatment or a cheating husband. F5 offered the Arabic word *mudhloam*, and said that she was blamed for something she didn't do and is crying because of it, perhaps being oppressed. M6 said she was "80% sad and 20% fearful," because "when a person cries he is full of fear." F6 also said it was crying and talking at once, but perhaps out of manipulation, "like if I asked my dad for money and he said no the first time," rather than sadness; for this she offered the term *drama act*. She suggested that the actress is not very good.

The following regards incorrect responses of *fear* for sample #3 (male *happiness*). Four students were available to interview and provide explanations for these answers. One of the females described it as either a panic reaction to an out-of-control situation, the tone taken while in an agitated mood, or a reaction to a natural disaster. One male said that worry was indicated by the upward rise in tone and "manic" expression (perhaps speed of speaking). The two others provided examples of reaction to dangerous or fatal threat, and suggested a possible combination with either *disgusted* or *surprised*. The only other incorrect response I had interview data on for sample #3 was from E4, a female, with the choice of *anger*. She said the actress was trying to justify herself from misdirected anger, and she offered the term *frustrated* in place of her perceived combination of *fear* and *anger*.

For incorrect response of *sadness* to sample #7 (female *happiness*), 5 of the 6 American students available for interview were in the grouping. E15 (a male) offered that it sounded like sadness from disbelief of personally affecting "heavy news," and that she would sound this way, "crushed or distraught," no matter what situation she was in (home, public, etc). E4 (a female) said she sounded "in the heat of the moment and like very upset about something," or alternatively, if it were a mood, "they just feel like constantly beaten down," "or just like not being able to see things on the bright side, really focusing on the bad things happening all the time." E8 (another female) said "it sounds a little like someone's being betrayed and they're reacting to that, maybe," offering the terms *hurt* and *distraught*, similarly to E15. She also said she could "imagine this tone being taken if like a factory or something, like a mine is closing down and like the workers feel like they put a lot into it and now they're just kind of being betrayed and left behind with... nothing." E2 (a male) said "they're trying to talk while they're

crying," using the word *bawling*. He said "this one could be a funeral, but like a very more emotional funeral, like someone younger that died probably or someone who was very important in a lot of peoples' lives where they weren't expecting him to be gone...". E1 (another male) gave what seemed to be a very dissimilar response. He offered, "the situation that this could be is an argument... I think that it is a highly charged emotional situation where you're not necessarily mourning or like just depressed, it's more of a frustrated sad but mixed with angry... the, that was all tone, the high high pitched um... yeah." He said the anger aspect was on the level of "outlier," in the range of *rage*, where it is "all-consuming" and "out of control." He said it could be someone in a protest of injustice, even. None of the six students interviewed were in the grouping for the incorrect response of *fear* to this audio sample.

Sadness

Arabic Students

The following regards correct responses to sample #4 (female *sadness*). F1 said she was "imagining a girl sitting on her bed and like crying and complaining to a friend of hers" because of "like any tragedy that happens, whether it's like a... a death or... someone's hurt or someone's like upset or scared or something like that." She offered the terms *za'alana* and *miday'a*, which she described as being synonymous with *upset*. M6 said that there was an element of *fear* in this sample, where, similarly, "something bad happened to him or to her... uh... maybe someone died" and "he or she is almost to cry." Again on this theme, F6 said it sounded like a "broken-hearted" woman who would only express this emotion at home, and that it might be due to a relative passing away. On the level of character trait rather than state, M1 offered the Arabic word *hab'n* and said it sounded like someone who is

"not really talkative person, they'd like more silent than, I'd say like more passive than active around people, umm... they can't get over things really easy, so.. I would say.. and they are emotional persons who feel that way. They thinks a lot uhh.. they think about things in the past a lot, so there's been a lot of time thinking, I mean overthinking about things that shouldn't be considered anymore."

Similarly, M5 gave the term *loser* and defined it as being an aloof or unconfrontational person with low self-esteem. On a more character state level this time, he also described the tone as possibly being from "a grumpy kid" who was "whining, complaining about something he didn't get" or "someone who lost." Ambiguously relative to the state/trait descriptions, F5 said "maybe like she's not feeling good about herself or... yeah I would say like "I'm not in a good mood today" or umm... maybe she's under stress or something."

The following regards correct responses to sample #8 (male *sadness*). In contrast to the character trait description for the prior sample, M1 gave the term *concerned* for this one, saying "he's just like sad about something that happens to a person he knows or... umm... he sounded like the person who cares a lot about people he loves," where possibly "somebody did a really bad thing that he previously told him not to do." F3 offered the Arabic word *hazin* and said that this sounded like crying, but not as "breathy" as the female she heard before (where she answered *sadness* incorrectly for female *happiness*). She said "they need help, they need assistance," and felt quite sympathetic. M2 said "like he is with his friend, he is sad, and he is telling him what made him sad: maybe he went through a breakup… or maybe he failed a test or maybe something like that." He also offered the word *hazin* (and permutations of it) for the emotion felt, and *yeshko'haznah* for the act of describing it to a friend. M4 said he is "the oldest in his family. And he's trying to give advices to his young umm... brothers" where "like he can't change anything, like I think his father has more power over everybody else and his father didn't give him the permission to take the lead when he's not there," so he is sad for not being able to

help. M6 described an emotion that is mostly *sadness* with some *fear*, where the actor is describing something to his friends; however, he admitted that he was mostly guessing at this.

The following regards responses of *anger* to sample #8 (male sadness). F1 said "he's like in the locker room and he's like in his football gear and he's like "man! He benched me again today!". She offered the Arabic term *miday'a*, which means *upset*, but said that the situation could also be a "a riot… or not a riot, but a peaceful, chanting demonstration." F2 said "he talking but is like is loudly but not too much, and different level you know? If we feel very angry, I will use my hands and my voice and my face expression but if I am not very angry I will just um use my voice or my expression, my face expression yeah." M3 described it as "the situation he's in, like makes him to not be like joking, and not to be showing like his laughing or like, he wants this to be serious or wants this to be done or something, you know," where "like if you're serious and like whatever you wanted to happen, he would absolutely be angry after that." M5 said that he is "talking to a friend about someone who made him angry" rather than the person who upset him, so "he doesn't have to shout to the good guy." He offered the word *upset* in contrast to his priorly perceived *anger* audio sample, which he described as *fearless*.

American Students

Four of the six students available for interview were in the correct response group for sample #4 (male *sadness*). E1 (a male) offered the term *misery*, and said that he was "picturing a woman in tears, um, kind of at the end of her rope… so frustrated and exacerbated and helpless that she breaks into tears," and that this would only be expressed at home or in private. He felt it was so expressive that it could have been "bad drama TV, like a soap opera!" E4 (a female) said

"it sounds like a lady is explaining something that happened to her and she's kind of like choking up as she's saying it," and that it is likely in private but could "feasibly happen in public situations." E7 said it sounded like someone "talking through crying," and offered the terms *sadness* if it was fleeting and *grief-stricken* if it was enduring, and that if the tone was public it would be at a funeral. E2 (a male) said the tone "wasn't extremely sad... it was somebody who was sad and in control of their sadness I think... but there was a... after each little pause in between their like clauses or whatever, there was a bit of light rising." He offered that "this one was like your boyfriend that you didn't really like that much broke up with you... and I'm saying that because it was a girl's voice, not because only a girl would cry about that... umm, it could also be like you were having umm... like just general issues I guess." He also said it could be at a subdued funeral.

Two of the six students available for interview were in the correct response group for sample #8 (female *sadness*). E15 (male) said he was unsure of his response because "It's not as strong of an emotion or strong of an expression, whatever emotion he's feeling." He offered that

> "he's dealing with something that's really sad but he's... he either is just a tough person or he's in a situation where he has to convey toughness or strength. He's in a room with people who are also sad, uhh... and he wants to convey that, he wants to make everyone, not add to the panic – the distraughtness."

E7 (female) said it is "someone sort of speaking a very low voice, which I usually associate with, if somebody's voice is lower than normal they might be sad and feeling down," and she offered the word *blue* instead of *sadness* because they are "maybe discussing a problem, like not being actively upset about it." She also offered that it is like when

> "you find out someone has a tumor but as of now you've no idea whether it's benign or malignant or if there's treatment... like right now you have information but you don't know if it's good information or how bad it will be, and you know with work I could see a group of colleagues sort of commiserating over you know, a failed project or not getting a grant or something like that."

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Disgust

Arabic Students

For correct responses to sample #2, F1 said she sounded like "annoying," like a teacher giving a boring lecture, and the reason she chose *disgusted* is because that's how she imagines the listener to be feeling at such a lecture. F3 offered that *he* was "seeing something that he's not familiar with or.. ehh.. seeing something against his uh or her emm uhh beliefs or .. uhh yeah. Seeing something abnormal I guess." She explained that, when disgusted about something, "we are, as Arab, make like big big big deal, it's like "oh my gosh," we just keep saying it like maybe for 10 hours, you know? Like we refuse that. We just try to emphasize that. It really bothers us to see something, to see this thing or I don't know, sometimes you hear something or feel like you know "that's disgusting," you know?". M5 felts similarly, where it sounded like "c'mon what the fuck is this, I don't like this, c'mon!" or "oh god, I can't believe you did this, c'mon!" because of "a hideous thing that someone else did." He said the reaction wouldn't be restrained in any social situation since "they can't help it because something really hideous must have happened." One male and one female thought the voice actor was male.

For the incorrect response of *fear* for sample #2 (female *disgust*), M1 said "they would be just like kind of waiting for another move from another person, so in a defensive mood, I'd say... so uhh... most of the time they think there's something very bad gonna happen so they just expect for the worse. Umm... they don't really have plan to deal with that so they try to make the other person feel merciful for them… he just expects the worse in that situation." He said that

there are a lot of words in Arabic, but perhaps those that combine *fear* and *weakness* would be appropriate, where "fear and weakness has a really strong relationship in Arabic, so I don't know if it's the same as fearful." He agreed when I offered that it would be an antonym for "unshakeable" (so, basically cowardly or incompetent). M6 said "he's talking to his friend and stuff like that, he's like "I tried to do something but I couldn't"… or "I tried to change my professor's opinion about something but I couldn't." He offered the Arabic word *meh'tar* and said it means "not knowing what to do" or perhaps *stressful*. F6 said "it's constant, like, I don't hear any ups and downs so… I'm not sure. It could be sad or fearful." She elaborated: "if they were fearful, they will be maybe confused and not focused on what they were saying, and their tone would be too loud because they're scared. But if they're sad their voice would be like... will be like even quieter." So, this latter responder sounds less confident, and she feels that the tone is not diagnostic of *fear* to the same degree that the males did. The two males thought the voice actor was a male and the female used the neutral term "they."

For the incorrect responses of *sadness* to sample #2 (female *disgust*), F2 offered the Arabic word *hazin* which means "very sad," and said that it involves crying from disbelief of personally affecting tragedy. Diagnostic of this,

> "their voice like is not loudly, is very clear, very weak, and um, they take like say something and stop and continue and stop and eh you can guess they are sad. Like the voice is not continue.. . like when people are angry, they talk loudly and everyone can hear them and they continue, like they didn't take a break. But sometimes if you feel sad you cannot continue to talking, so you stop."

At first, M2 offered that "he's talking normal, like casually, and I can't feel emotion in that," but then decided said

> "I'm guessing that uh she got sad because somebody that she cares about did something or something like that, and she doesn't want to show that she got sad about that particular person... that she got hurt or something like that, so... she's trying not to make anything worse, so she's trying to hide that (whispering), cuz she cares about that person."

He offered the term *drama* to describe this sort of behavior. F5 said "it sounded like she's telling a friend or someone about something that's going on with her, like she's... *disappointed* with her boyfriend, let's say, something like this. I mean it's not like she's sad, but she's... *hurt* maybe?" F2 used a gender-neutral "they" to describe the voice actor, F5 said "she," and M2 used both "he" and "she" in different segments where he described the male as speaking casually without emotion and the female trying to hide hurt feelings (with the latter description somewhat resonating with that of F2).

For incorrect responses of *anger* to sample #11 (male *disgust*), M3 said that the situation was like: "I told you yesterday to put my book over my bed when you finished doing my homework but you didn't do that," you know... it's like I'm serious, but basically I'm mad due to the stuff I said." So it is an intensely qualified seriousness. M4 said "his friend wouldn't get what the situation was that he explained so he was, he sees it like it's a big thing but his friend was like "no it's simple," but his friend doesn't actually know what happened you know, after like whatever, so he's like "are you kidding me? This.." "don't you understand, you know, it's something big?!". He also offered that the emotion could be combined with *fear*: "I get really uh, scared sometimes when the situation needs a lot of explanations to a person. Cuz no one listens." He also said that it is more expressive than *frustration* because loudness either helps or indicates the making of a point when *angry*. M5 said that this is less intense than anger, and rather *upset*, like how one would feel when missing the bus. He offered a scene where "I was in the next room, and like I heard this guy scream like this." F5 also qualified the *angry* descriptor with the term *confrontational*: "Because like most of the time when you're mad, you don't want to listen to the other person and try to understand why did this happen or why did they do this [hmm]... but in this situation I think he was calm, and I think he was willing to listen and

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understand because.... he knows like there is a reason why this happened." She offered the Arabic term *mutah'fahem* which means "to understand" and "calm" and "non-reactionary."

For incorrect responses of *surprise* to sample #11 (male *disgust*), F1 said that it sounded like an outburst of disappointment, like where at a sports game the opposite team "scored like 25 to 10!," and the speaker said "that sucked!". She offered that he was *confused* or even *shocked* by this (emotions that can also easily be elements of *disgust*, the correct response). M1 said he wasn't confident in his response because "this one was more normal than any of the feelings of the five feelings." However, he said that if it was *surprise*, the situation would be like "he was just talking and you show up, he hasn't seen for a while... maybe... he had hiccups maybe… cuz he wasn't like big surprised, he was like little one." M6 also offered that he sounded "normal," even after I played through a number of previous audio samples for him at his request (for comparison).

American Students

The following regards correct responses for sample #2 (female *disgust*). Two of the six American students available for interview were in this grouping. E4 said

> "I think maybe like disappointed would have been what I would have chosen if I didn't have to choose one of these six, but it sounded like... maybe someone was... trying to correct someone's action or like explain to them why they shouldn't do that," where "disappointed is more kind of understanding in how they could umm... misbehave, and they're just trying to communicate a better way to do things."

She also said she could perceive a teacher "lecturing to a classroom or something, just explaining a topic." E7 said that it could be a feeling of *disgruntlement*. She offered that *disgusted* might not be the best word, because it "kind of sounded like someone gossiping about someone else, like "can you believe that this is what they did?". She elaborated:

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"there's certain gossip that kind of comes with like sort of feeling jealous or petty, like where... you know, if someone gets something that you think you deserved, or, umm, and you're talking about how you don't think they deserved what they got [mmhmm].... there's also like a... which is more what I think I got more from this."

The following regards incorrect responses for sample #2 (female *disgust*). Only one of the six students available for interview (E1) was in the *happiness* response grouping. He actually sad it was between *happy* and *sad*, as well as "pretty neutral" and "conversational," perhaps even being a news interview. The indicator for him was that "there were some peaks in terms of the highness of her voice that clued me that, it felt to me that she was, that it was a comfortable situation." Two of the six students available for interview were in the *sadness* response grouping. E15 (male) said "I felt like it was kind of more of a subdued tone overall, and of the options, [*sadness*] seems like the most subdued emotion." He offered that "she's with a group of people, something bad has happened that affects all of them, some sort of event, and she is sort of uh, ... sort of like she knows that the audience also thinks it's sad and she's uh... sort of like... commiserating with them about how sad it was." E8 (female) offered the word *down* for if it were a mood someone were in, and *disappointed* for if it was, e.g., "somebody who's more working class who's like complaining about something in their job that they're not happy about."

The following regards incorrect responses of *happiness* for sample #11 (male *disgust*). Three of the six students available for interview were in this grouping. E7 (female) said that there "wasn't a whole lot of emotion coming through" but that it sounded "content," and that perhaps "someone was talking about, you know some good news or... I don't know. A conversation that they were glad to be engaged in, so just enjoying what they were talking about," like "things are going their way." Similarly, E8 (female) offered the term "content" and said that "they could be like telling a story but they could be like happy about who is around

them in their life." E2 (male) offered the word "pleased" and said that they were "bragging about something, someone who was very smug; they were like talking about something they did or that they saw or something that made them happy, and they were like showing it to someone or telling it to someone." He also offered that it could have been someone at a "group event that's like patting everyone on the back like "good job everybody," like "we raised our sales by 10%," it's like "yes yes yes good job"."

Surprise

Arabic Students

The following regards the correct responses given for sample #12. F4 offered that it sounded "more like startled than a disbelief surprised," "so is it like somebody saying something loud and, and kind of getting their attention." Alternatively: "like say for example somebody got into their house and they just found a cake or whatever, and they'd be like "oh! Who made it! That looks nice, but who made it?", you know, they'd be like surprised but.. might have an element of happiness in it as well." So in one hand we have a reaction that may not be emotional per se, and on the other we have some degree of pleasure. M3 said it sounds like someone saying "*really? Oh my god that's nice!*" and that it's "like disbelieving and believing." Alternatively, "you do something and people would be surprised and ask you "how did you do it?!". M5 said it was like the speaker came upon a female friend with another male and "it's the only legitimate question he can ask like "who is he?", and he can expect her to say "it's none of your business" [yeah].. like "who the fu... is he??"… and someone was confident about the relationship and stuff... you know it's like, some people like to be sarcastic, and use sarcasm, like "who is he?"... or for example we are talking, and then somebody tried to correct me about some

information and like "who is he?". In a somewhat similar light, M1 said that the tone sounded "angry surprised," "like, you'd been doing something and someone was trying to stop you, and so... you don't know and you ask your friend "what do you want?" I offered that it was like being interrupted while playing a game, and he agreed. It seems "bothered" would be a good term here, but he offered the Arabic word *mukhref*.

The following regards incorrect responses of *happiness* for sample #5 (female *surprise*). F2 said it sounded "soft and a little bit loudly," and offered the Arabic term *said'a* which means "super happy." She referenced a personal experience: "My father last year make my birthday in Jordan so all of my friends come there and I enjoy, was very happy cause they give me many gifts and oh my god different things that I needed! When I come to America I have everything you know? I don't want to buy anymore because they give uh enough is enough. Yeah, that's it. I was pretty happy and um, my behavior is like jumping, dancing, yeah." F4 offered the Arabic term *udenden* which means singing or humming. She said it had a positive sound to it, but also that it could be like "really complaining about something… But I'm making fun of it? Like I'm mad about it.. but I'm.. it's not changing my mood.. it's just like I'm not taking it really umm.. negative reaction to words.. I'm just mocking it or making fun of it." Similarly, M3 said it sounded like melodic "singing" and gave an example of humming (though had trouble finding the word for "humming" and called it "mumbling"). He said "it's just like that person is always mumbling. It's like the kind of person that would sing in the bathroom." F1 may have resonated with the "mocking" description given by F4, when she said that it sounded like when "you have a lot of energy and you just want to annoy someone but you want to annoy them in a friendly way." She offered the words *aube'it* and *'abeet*, saying that they mean "you're just being silly

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and weird and stupid and annoying." She opined that for hippies this is a normal way to behave.

M6 only guessed that this emotion was *happy*, because he was really unsure of the emotion

represented. His first inclination was *disgust* and said that it sounded as though "he saw

something or she saw something, for example, "what is that?". But, he also said it could be that

"he earned a good grade and was like "oh yeah!" or something like that." In that *disgust* and

happiness are the two consensus incorrect responses to this audio sample, he is a crossover.

The following regards incorrect responses of *disgust* for sample #5 (female *surprise*).

M4 said this is a combination of *disgust* and *fear* and that

> "the best way to explain is when you go to a restaurant you know, and you're just
> watching them make a sandwich and you see that you know, let's say the worker's hand
> is not clean: you would be disgusted, you know, at the same time some people would
> have some kind of stomach pain, some kind of fear, you know, like "I'm not gonna eat
> my sandwich right now," you know, "what if I eat then I," you know, the fear of being
> sick, it's weird but it's like a combination of both. I'd say. She was disgusted, then she
> got fear."

Similarly, F5 offered that "maybe it's like when you see something and you think like... umm,

like "why would someone do this?", so you don't agree...," and "they're not talking like to the

person, or to a group of people [responsible], they're like talking to someone else about

something." Again on this theme, F6 said "I don't think that there's anything being said… I

think it's just like a sound... that like expresses the emotion. Like if you are... excited or

something, you'll be like "wow!," and if you're disgusted about something you'd say like

"eeeeww.". She offered the term *grossness*, qualifying the term *disgust* (in a similar way that,

e.g., *detestation* or *disagreement* can).

The following regards incorrect responses of *happiness* for sample #12 (male *surprise*).

F3 said that because the sample was short, it was diagnostic of *happy* because "he says like

"yeah, I did it!", you know? Like […] he did something very good. He is, um, happy with his

progress in something." M4 offered that "this is kind of a response... for something good... that happened to the one he's talking to. Like you know, he told him something and he was like "oh yeah really? That's good!". M6 said that it was like "when someone congratulates someone, congratulates him or something, like... he succeeded at something, achieved something." She offered the Arabic term *mobsut*. M2 said "yeah he sounds sarcastic and laughing. So I would say happy" and "someone just say something that wouldn't make sense, and he's making fun of that guy by being sarcastic."

American Students

The following regards correct responses for sample #5 and sample #12. Only one of the American students (E1 – a male) was available for interview was in the correct response grouping for sample #5 (female *surprise*). He responded with the exact phrase given in the audio sample: "oh my God." He offered the word *flummoxed* and said that the situation could be a "comedic walk into a room and like somebody got caught doing something they shouldn't have or somebody walked in on somebody naked, like, that kind of like "oh my!".

Four of the American students who were available for interview were in the correct response grouping for sample #12 (male *surprise*). E1 (male) said "this is a happy one, this is a like you do laundry and you find a $100 bill in your pocket like "Huh! Okay! Cool!". He offered the qualifier *pleasantly* to the emotion *surprised*. E7 (female) said similarly: "it was sort of like "oh man" kind of like a really short vocalization that to me conveyed some sort of surprise [okay], uhh... and it didn't sound like "oh no", umm... like "oh yeah; great!" something like that." Corroborating the voice countour and emotion valence association in the literature, she also said she chose this qualifier instead of *shocked* (implying negativity) because "sounds that

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go up usually seem more positive, and when words usually go down at the end it sounds more negative to me." However, she said that if this tone represented an enduring mood, it would be *manic*. E8 (female) said "I see it as like a reaction, maybe to something that someone said to you so it's not like... a scare or anything fearful, in terms of the surprise, but maybe something umm... a little out of the ordinary that catches someone offguard." For her, it could be someone "experiencing art or something where it's not very surprising but where something jumps out at you that's maybe a little different or interesting, like maybe that experience." She offered that if this tone was used in an enduring mood, it would be *inconfidence* or *uncomfortableness*. E2 (male) initially said it was a mix of *disgusted* and *surprised* and

> "that person could have been saying "holy shit!"... or like "oh my god." Like if you see vomit on the floor and you're like "oh my god." Or like someone jumps out and scares you or something, and you're like "holy shit," so I'm gonna say surprised actually. And it's in the middle, so it's really more about the brevity of the statement and not the tone so much.

Alternatively, he offered that it could be a startle (but not *fear*) response, or even that "someone's like on a roller coaster or somebody's at some kind of event where you're supposed to sort of feel visceral and have this sort of on-edge feeling." He said that if it represented a mood, it would be *playful*, where "like neutrally you're experiencing something and like sharing that with other people."

The following regards incorrect responses (of *happiness* and *disgust*) for sample #5. E15 said "it seems like they'd almost be sinking back in their chair, just kind of like at ease. Like not an "oh my god yes!," but more of just like a "yeah, it's kind of nice," sort of thing. It's just a little bit of a, yeah, it's less of an excited happy and more of an at-peace happy." He also offered this more socially involved situation: "it could be like a group just did something

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together and they did it well and they're done, and it's time to enjoy the fact that they did something well." Similarly E8 offered the term *content*, saying that it wasn't necessarily a strong emotion, but "like something expressed at like a wedding or some kind of family like event or, something that people come together for." She also said it could be that "someone is happy to see someone else and that is kind of how they greet them." Differently, E4 offered that it sounded conversational, but not blandly so: they are "maybe like slightly hyper, cuz there was kind of like a sing-song tone to it," and they're "telling a story, just like being really into what [they're] saying." Perhaps as an outlier, E2 said at first, "I can see that one being angry, disgusted, or happy." He then offered "I'll go with bubbly. So it's like, that could be someone that's angry and they're being sarcastic like "well look who it is HERE," where "they're pretending to be happy." He continued: "what came to mind is someone like at a carnival saying like "step right up here," they're supposed to be happy and in a good mood like "come on up, come down everybody, throw this thing neh neh," or whatever.".