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Comparing Australians' and Americans' Abilities to Detect Deception across Cultures and Communication Media

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Abstract

The reach of global communication is expanding through the growing availability of smartphones. Smartphones are particularly popular for texting and voice/video calls, and their affordability means that more and more people around the world can now communicate with each other. Yet with the spread of global communication also comes increased exposure to deceptive communication. Can people in one culture accurately detect deception across cultures? And does the communication media they use play a role in their detection accuracy? We attempt to answer these two research questions in a study of Australian and US judges who were asked to detect deception in Australians and Americans, across four different media: full audiovisual, video only, audio only, and text. We found that both Australians and Americans could accurately detect deception at about the same rate across both cultures, and they were better at detection when exposed to full audiovisual stimuli compared to text.

Keywords: Computer mediated communication; deceptive communication; national culture

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1. Introduction

The Pew Research Center reports 81% of Americans owned smartphones in 2018 (Taylor & Silver, 2019), and the three most popular uses for them were text messaging, internet use, and voice/video calls (Smith, 2015). More than 5 billion people worldwide had mobile devices in 2018, and over half of these were smartphones. Further, while people in developed countries surveyed were more likely to have smartphones (76%), almost half of those in developing countries had them (45%) (Taylor & Silver, 2019). While internet use is ubiquitous in developed countries, its use is growing rapidly in emerging economies (ITUNews, 2018). In short, the world is becoming increasingly connected through smartphones, and aside from internet access, the primary purpose of smartphones is communication. Accordingly, people are able to communicate with each other all over the world, in real time and at relatively low cost.

Everyday normal communication includes a deceptive component (DePaulo, Kashy, Kirkendol, Wyer & Epstein, 1996), whether that communication takes place in face-to-face encounters or over the phone. While most deceptive communication research has been conducted in North America, there is no reason to believe international cross-cultural communication will be any less deceptive. While it is widely recognized that on average people are able to successfully detect deception only about 54% of the time (Bond & DePaulo, 2006), not as much is known about how well people are able to detect deception in cultural groups other than their own. Only five published studies have explicitly investigated deception detection across cultures (Al-Simadi, 2000; Bond & Atoum, 2000; Bond, Omar, Mahmoud, & Bonser, 1990; Castillo, Tyson, & Mallard, 2014; George, Gupta, Giordano, Mills, Tennant & Lewis, 2018). Four of the five studies found that people could accurately detect deception in other cultural groups. These studies included seven national cultures, as defined by Hofstede (1980): Americans (USA), Australians, Colombians, Indians, Jordanians, Malaysians, and Spaniards.

Bond and colleagues (1990) argued that there were two ways to look at the question of culture and deception detection: a “universal cue hypothesis” and a “specific-discrimination hypothesis.” The former posits that, given the universal nature of deception, people should be able to detect it just as easily in other cultures as in their own. The latter argues that deception and its detection are both learned and hence depend heavily on the cultural context and language in which that learning takes place. Hence people should have a difficult time accurately detecting deception across cultures. The evidence to date supports the universal cue hypothesis, but the evidence is limited. Additional cultures and the deception detection abilities of their members need to be studied for a more complete understanding of the relationship between culture and deception detection. While it is impractical, and likely implausible, to compare all national cultures to each other, it is possible to compare a few. To date, all studies of deception detection across cultures have featured members of cultures that differ a great deal from each other. This study focuses on two national cultures that are very similar, people living in the US and people living in Australia. By establishing baselines, based on extreme differences and on extreme similarities, we will be able to make inferences about the how detecting deception across a host of cultures might compare.

As the statistics on smartphone and internet use show, this increasing interconnectedness of people of different cultures is a direct result of increased use of communication and information technologies. We know a great deal about deception and its detection in real-time face-to-face environments, we know less about the relationship between detection and the computer-mediated communication mode (e.g., skype, SMS texting, voice-over-IP, email) over which the deceptive communication takes place. While several studies have found media differences between face-to-face and computer-mediated communication (e.g., Dunbar, Jensen, Burgoon, Kelley, Harrison, Adame, & Bernard, 2015; Van Swol, Braun & Kolb, 2015), the evidence of a direct relationship between media and detection accuracy in computer-mediated modes is limited (Burgoon, Stoner, Bonito, & Dunbar, 2003; Burgoon, Blair, & Strom, 2008; Dunbar, Jensen, Tower, & Burgoon, 2014; George, Marett & Tilley, 2008; George, Tilley & Giordano, 2014; Hancock, Woodworth, & Goorha, 2010; McHaney, Gupta & George, 2018; Rockmann & Northcraft, 2008; Zhou & Zhang, 2007). However, given the differences between face-to-face communication and email or smartphone-based videoconferencing, it follows that the accuracy of deception detection would depend on the medium over which it is conveyed.

To further investigate the issues of culture, media and deception detection, we created a stimulus set that mixed honesty and dishonesty, as well as media, using individuals from Australia. We had already created such a stimulus set for US English. Altogether, we have created and tested five such stimulus sets as part of a multi-year program of study. (The other three are Indian English, Spanish, and Hindi.) We then exposed Australian and American judges to the Australian and US English stimulus sets. This comparison of American and Australian stimulus sets is novel, as this is the first

cross-cultural study dealing with deception detection that we are aware of that compares two similar national cultures. Our research questions are: 1) Can individuals of one culture accurately detect deception in individuals from a similar but different culture? and 2) Is there a relationship between deception detection and media? The rest of the paper is organized as follows: First we review the literature on deception, media and culture. We then present our research methods, our findings, and a discussion of the implications of our results.

2. Literature Review

We define deception as “a message knowingly transmitted by a sender to foster a false belief or conclusion by the receiver” (Buller & Burgoon, 1996, p. 205). In general, people are not very good at detecting deception, with an accuracy rate of around 54%, barely better than chance (Bond & DePaulo, 2006). While deceptive communication has been studied for decades, much of what we know has been learned in a North American context, based on dyadic real time communication. Until recently, neither communication media nor national culture were key aspects of the study of deception and its detection. In the next sections, we review the relevant literature on deception and culture and on deception and media. But first we present a brief primer on culture and its dimensions.

2.1 Culture

National culture is defined as “the collective programming of the mind which distinguishes the members of one human group from another” (Hofstede, 1980). Hofstede (1980) was one of the first to study national culture and to determine its specific dimensions. There are currently six dimensions (Hofstede, 2016): 1) power distance, 2) individualism vs collectivism, 3) masculinity vs femininity, 4) uncertainty avoidance, 5) long-term vs. short-term orientation, and 6) indulgence vs restraint. Power distance is a measure of how tolerant people are of the unequal distribution of power in a society. Individualism vs collectivism reflects the extent to which a society is tightly- or loosely-knit. Masculinity vs femininity has less to do with gender than it does with whether a society is based on competition and assertiveness or cooperation and nurturing. Uncertainty avoidance, as the name suggests, is the extent to which members of a society can tolerate uncertainty. Long- vs. short-term orientation is a measure of the extent to which societies prepare for the future. Finally, indulgence, the newest dimension, reflects the allowance of free gratification of human drives, focusing on enjoying life and having fun, while restraint leads to the suppression of such gratification. Hofstede’s original studies (Hofstede, 1980) were conducted between 1967 and 1973 and resulted in the definition of the original four dimensions.

2.2 Differences in Deception across Culture

Several studies have reported differences in how deception is viewed across cultures. Although most of these studies have focused on differences between Western and Eastern cultures (especially East Asian cultures), cultures from all over the world have been investigated. Table 1 provides a sampling of this work.

Table 1. A sampling of study results related to differences in deception across cultures.

Study	Countries	Select Findings
Triandis et al 2001	Multiple national cultures	In business negotiations, members of collectivist cultures are more dishonest than members of individualistic cultures
Seiter & Bruschke 2007	China & US	Americans experienced more guilt over lying than Chinese participants.
Fu et al. 2011	China & US	Chinese participants perceived lying more favorably than Americans for modest behavior
Bessarabova 2014	Russia & US	Russians lied more often than Americans to help the underperforming in-group members.
Hamilton & Kirwan 2013	Ireland & US	Online dating profiles of Irish males were found more deceptive than American profiles.
Banai et al. 2014	Israel & Kyrgyzstan	Kyrgyzstanis more likely to endorse ethically questionable negotiation tactics (i.e., pretending, deceiving, & lying) than Israelis.

The research shows that what some see as deceptive, and hence inappropriate, others might see as a perfectly acceptable practice. These findings imply that accurate detection of deception across cultures might be difficult. Accurate detection becomes more complicated if there is a lack of agreement on what constitutes deception in the first place.

2.3 The Universal Cue Hypothesis

Only five published studies have explicitly investigated the relationship between deception detection and culture (Al-Simadi, 2000; Bond & Atoum, 2000; Bond, et al., 1990; Castillo, et al., 2014; George et al, 2018). The first study (Bond, et al., 1990) found that people were not able to accurately detect deception in other cultural groups. The authors argued their findings implied support for the “specific-discrimination hypothesis,” whereby deception and its detection were dependent on cultural and language-based behaviors that people learned as they learned to communicate. Such a conclusion would have been expected in light of differing cultural definitions of deception, as illustrated by Table 1. The other studies all found that people could indeed accurately detect deception across other cultures, supporting the universal cue hypothesis, that everyone regardless of culture engages in similar behaviors during deception. These behaviors would be universally regarded as indicative of deception. Further, three studies (Al-Simadi, 2000; Castillo, et al., 2014; George et al, 2018) found that in some cases, people were even better at detecting deception in other cultural groups than in their own. The cultural comparisons conducted in these four studies are shown in Table 2.

Table 2. Cultural comparisons across four studies that found evidence of the ability to successfully detect deception across cultures.

	USA	Australia	Spain	India	Jordan	Malaysia	Colombia
USA	-----			x [1]			
Australia	x [current]	-----					x [3]
Spain	x [4]		-----				
India	x [4]			-----	x [1]		
Jordan	x [1]				-----		
Malaysia					x [2]	-----	
Colombia							-----

Studies: [1] Bond & Atoum, 2000; [2] Al-Simadi, 2000; [3] Castillo et al 2014; [4] George et al 2018

Across the available empirical evidence from these studies, we see three patterns (Table 3). Some groups of judges have been better at detecting deception in their own group than in others; some have been better with members of other cultures; and for one group, all three sets of judges were equally accurate. In general, based on the findings from these studies, the universal cue hypothesis seems to hold – people can accurately detect deception in their own group, and in other cultures, apparently using similar indicators of deception. Given these findings, we would expect that the answer to our first research question -- Can individuals of one culture accurately detect deception in individuals from another culture? -- would be affirmative. That leads to our first hypothesis:

Hypothesis 1: Members of a national culture will be able to accurately detect deception among members of their own culture and in members of other cultures.

Table 3. Patterns of comparative deception detection success across cultures in four studies.

Better in own group (compared to other groups)	Better with other group (compared to their own group)	No differences
Americans (judging Americans & Jordanians) (Bond & Atoum, 2000)	Jordanians (judging Jordanians & Malaysians) (Al-Simadi, 2000)	Indians, Americans & Jordanians (judging Indians) (Bond & Atoum, 2000)
Jordanians (judging Americans & Jordanians) (Bond & Atoum, 2000)	Malaysians (judging Jordanians & Malaysians) (Al-Simadi, 2000)	
Spaniards (judging Spaniards & Americans) (George et al, 2018)	Australians (judging Australians & Colombians) (Castillo et al, 2014)	
Indians (judging Indians & Americans) (George et al, 2018)	Americans (judging Americans, Spaniards & Indians) (George et al, 2018)	

But the findings reveal some interesting comparative outcomes. In the case of members of two particular cultures, Americans and Jordanians, individuals sometimes did better with their own culture, and sometimes they did better with other cultures. Why is that the case? It could be due to different stimulus materials across studies, or it could be due to differences in the cultures that were compared. For example, American judges did better with their own group when compared to Jordanians (Bond & Atoum, 2000), and they did better with the other groups when compared to Spaniards and Indians (George et al, 2018). Based on Hofstede’s measures, the seven national cultures that have been studied in this context differ dramatically from each other on some cultural dimensions but not on others (Table 4). For example, Colombia and Australia differ widely on power distance, individualism/collectivism, and uncertainty avoidance, but their scores are very similar for femininity/masculinity (both are masculine) and short/long-term orientation (both tend towards short-term). Jordanian culture tolerates a more unequal distribution of power in society than does Spanish culture, and Jordanians are more collectivist, more tolerant of uncertainty, and more short-term oriented than Spaniards.

Table 4. Cultural Dimension Scores from geert-hofstede.com/dimensions.html (sorted by scores on Individualism/Collectivism, from most individualist to most collectivist).

Cultural Dimension	USA	Australia	Spain	India	Jordan	Malaysia	Colombia
Power Distance (PD)	40	36	57	77	70	100	67
Individualism/Collectivism (IC)	91	90	51	48	30	26	13
Masculinity/Femininity (MF)	62	61	42	56	45	50	64
Uncertainty Avoidance (UA)	46	51	86	40	65	36	80
Long Term Orientation (LT)	26	21	48	51	16	41	13

To chart the differences across these cultures, we devised a simple (and somewhat crude) measure, which we call the Hofstede score difference index. In comparing two cultures, we subtract the Hofstede scores for one culture from the other for each dimension, and we sum the absolute values of those differences. The results, for past cultural comparisons, plus the difference in Australian and US cultures, are shown in Table 5 and Figure 1.

Table 5. Hofstede score difference index for cultural comparisons (possible range: 5 – 500).

USA-AUS	Malaysia-Jordan	India-Jordan	USA-Jordan	USA-Spain	USA-India	AUS-Colombia
16	93	96	117	137	139	148

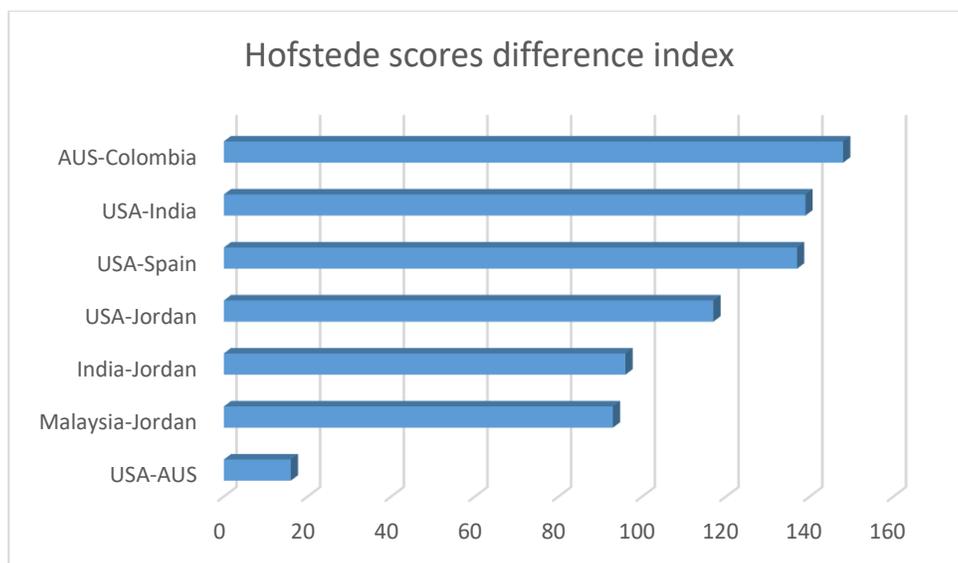


Figure 1. Hofstede score difference index for cultural comparisons

Out of this set of national cultures, the two cultures that are most different are Australians and Columbians. However, no two are more similar than Australia and the U.S. Both are low power distance, highly individualistic, masculine, short-term orientation countries, and both have mid-level scores for uncertainty avoidance. Whether the specific-discrimination or universal cue hypothesis holds, due to the close similarity of their cultures, Australians and Americans should be equally able of accurately detecting deception both within and across their cultures. Thus, we hypothesize:

Hypothesis 2: Australian and US judges will be able to detect deception equally well both within and across their cultures.

2.4 Deception & Media

The past decade has seen a dramatic increase in the number of studies investigating the relationship between media and deception detection. Most of these studies have investigated one medium at a time, with a particular focus on the development of an automated tool for detecting deception within a specific medium (see Zhou, Burgoon, Zhang, & Nunamaker, 2004). Another set of studies has investigated the direct relationship between media and detection by comparing multiple media in a single study. The findings from these studies have been mixed. While some have found direct effects (Burgoon, et al., 2003; Burgoon, et al., 2008; Dunbar, et al., 2014; Zhou & Zhang, 2007), others have found evidence of a mediated relationship (George et al, 2008; George et al, 2014; Hancock, et al., 2010; Rockmann & Northcraft, 2008).

There has also been evidence of media differences in the few studies that have investigated media and culture. In fact, the key difference between Bond's 1990 and 2000 studies was that the experimental stimuli had no sound in the former study, while those in the latter study did have sound. The availability of sound helps explain the differences in findings between the studies -- Bond concluded that people could not detect deception across cultures after the 1990 study, but he concluded the opposite after the 2000 study. George and colleagues (2018) also found evidence of media effects. Looking at the relationship between media and deception detection accuracy, they found that veracity judges were less successful at deception detection when judging video-only communication, compared to full audiovisual, audio-only, and text communication. Given this pattern of findings, even with the few studies that have been conducted, we would expect to find differences in detection accuracy, depending on media. But which media should be best for detecting deception?

Leakage theory asserts that deception is cognitively and emotionally complicated, making the process difficult to control, so deceivers often leak cues in the form of verbal and non-verbal behaviors (Ekman 1985; Ekman and Friesen, 1969). The leakage of cues is what allows deception to be detected at all. If those being deceived are observant to the verbal and non-verbal behaviors of others, deceivers stand a better chance of getting caught. According to such media theories as Media Synchronicity Theory (Dennis, Fuller & Valacich, 2008), different media have different capabilities. These capabilities include transmission velocity, symbol set variety, parallelism, rehearsability, and reprocessability. For example, face-to-face communication should be high in transmission velocity and symbol set variety and low in parallelism (the capability to send and receive messages across multiple channels simultaneously), rehearsability (the capability to carefully plan and edit a message before sending), and reprocessability (the capability to examine a message carefully as much as needed). Two-way SMS texting, at the other extreme, would be moderate in transmission velocity, low in symbol set variety and parallelism, and high in both rehearsability and reprocessability. Different media capability combinations should render some media able to transmit more cues to deception, compared to others. Compared to texting, face-to-face communication (or its electronic equivalent, videoconferencing) should provide more cues to deception, given that texting can transmit verbal communication only. Rao and Lim (2000) linked a medium's capability to transmit the maximum number of cues to more success in deception detection (Table 6). A medium's capability to transmit a variety of cues influences the accuracy of deception detection, such that the availability of more cues should be associated with more accurate deception detection.

As shown in Table 6, for the 14 cues to deception that are listed, all 14 can be detected in full audiovisual media, such as videoconferencing. Nine can be detected in audio; seven can be detected in written media; and five can be detected on video-only media. If detection accuracy is improved when more cues to deception are available, which leakage theory implies, then the use of full audiovisual media should result in the most accurate deception detection. Hence:

Hypothesis 3: Media that can transmit more cues to deception will be associated with more accurate deception detection, compared to media that transmit fewer cues.

Table 6. Cues to deception across various media (from Rao and Lim 2000)

Behavior	Audio video	Video Only	Audio Only	Written Media
Visual				
Pupil dilation	Detectable	Detectable		
Blinking	Detectable	Detectable		
Facial segmentation	Detectable	Detectable		
Adaptors	Detectable	Detectable		
Bodily segmentation	Detectable	Detectable		
Paralanguage				
Response length	Detectable		Detectable	Detectable
Speech errors	Detectable		Detectable	Detectable
Speech hesitations	Detectable		Detectable	
Pitch	Detectable		Detectable	
Verbal				
Negative statements	Detectable		Detectable	Detectable
Irrelevant information	Detectable		Detectable	Detectable
Immediacy	Detectable		Detectable	Detectable
Leveling	Detectable		Detectable	Detectable
General				
	Detectable		Partially detectable	Partially detectable
Discrepancy				

3. Research Methods

The study had two primary aspects, the creation of the stimulus materials and the experimental sessions in which judges were asked to determine the veracity of the stimulus materials. Both aspects are described below.

3.1 Stimulus Materials and Measures

The two stimulus sets used in this study were created in a similar fashion (Figure 2). In both cases, students were asked to attend an experimental session, where they would be interviewed, and to bring along a personal résumé. The sessions were held in the same rooms recruiters would use for job interviews. They were met by an experimenter, who reviewed their résumés and asked them to complete an application for a fictional scholarship that might be offered by their college. They were told it was all right to make themselves look good on the application, but they were not asked to be dishonest. The researcher then collected the applications, which were provided to an interviewer. For the US English stimulus set, each student was interviewed by another student via VoIP. For the Australian English stimulus set, the researcher who greeted the student conducted the interview. In both instances, students were asked about the information on the applications, regardless of whether it was true or not. In many cases, students then had to defend information they knew was false.

All interviews, of 20 US students (from the panhandle of Florida) and 21 Australian students (from Queensland), were recorded. Researchers reviewed all of the recorded material in order to create the stimulus sets. The résumés acted as ground truth, so by comparing the contents of the résumé to the application, researchers could tell what information on the applications was false. The researchers were looking for parts of each interview that were false and for parts that were true. They selected 16 snippets, half of which were true and half of which were false. These snippets were selected from the set of all 20 (USA) or all 21 (AUS) recorded interviews. The final stimulus set for each national culture consisted of a total of 32 recorded snippets. In addition to balancing them in terms of honesty, the researchers also balanced them in terms of media. Eight snippets were selected for each of four media representations: full audiovisual, video-only, audio-only, and text. For video-only snippets, the audio portion of the snippet was removed. For audio-only, the video portion was removed. The text snippets were transcribed from the interviews. The 32 snippets were then randomly

ordered to complete the stimulus set. The US English stimulus set was created for a doctoral dissertation (Lewis, 2009), based on recordings created in an earlier study (Tilley, 2005). The Australian English stimulus set was created by the authors during the summer of 2016 at a major Australian university. Each stimulus set was used to create a questionnaire in Qualtrics.

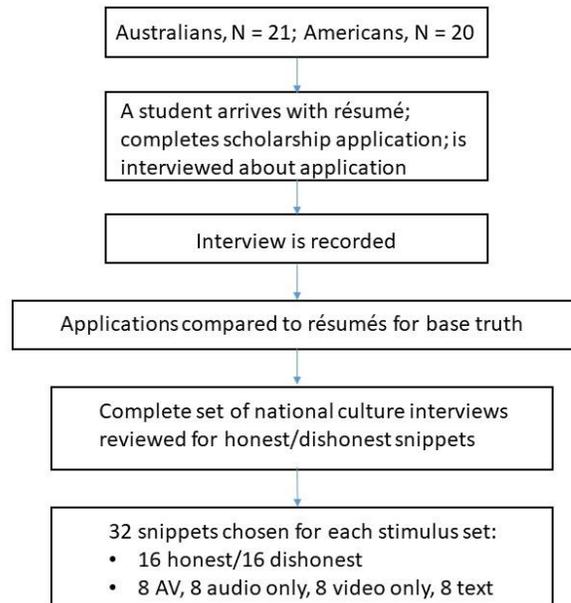


Figure 2. Flowchart of stimulus materials preparation

3.2 Veracity Evaluation

A different set of students was recruited to be veracity judges in a set of separate experimental sessions, later in 2016. A total of 36 undergraduate students enrolled in the business school of a major Australian university, and 40 undergraduate students at a Midwestern American business school, were recruited to judge the veracity of the stimulus materials (Figure 3). Half were randomly assigned to view the US English stimulus set, and half observed the Australian English set. Of the 36 participants at the Australian university, 19 self-identified as Australian. Seven of those were exposed to the US English stimulus set; 12 were exposed to the Australian stimulus set. At the US university, five students did not self-identify as Americans. Of the 35 who did, 16 were exposed to the US English stimulus set; 19 were exposed to the Australian set. It was important to the study, where the veracity judges needed to be representative of a particular national culture, that only the judgments of students who identified as either Australian or American be analyzed.

Each judge was asked to watch, listen to and/or read each of the 32 snippets in one or the other stimulus set and to then indicate the veracity of each on a 7-point scale that ranged from ‘1’ for ‘very honest’ to ‘7’ for ‘very dishonest.’ If the participant selected 5, 6 or 7, the next window that opened asked the participant to describe why he or she believed the snippet to be dishonest. Participants averaged about one hour in completing this part of the study. They were asked to answer a series of questions that measured five of Hofstede’s cultural dimensions (Hofstede, 1980; 2008; Hofstede, Hofstede, Minkov, & Vinken, 2008; Srite & Karahanna, 2006). The dimensions were measured on a 5-point scale, varying from ‘1’ for ‘strongly agree’ to ‘5’ for ‘strongly disagree.’

4. Analysis & Results

Before we present the analysis of detection accuracy across cultures, using repeated measures logistic regression, we present the results of measuring the cultural dimension scores of both Australian and American study participants.

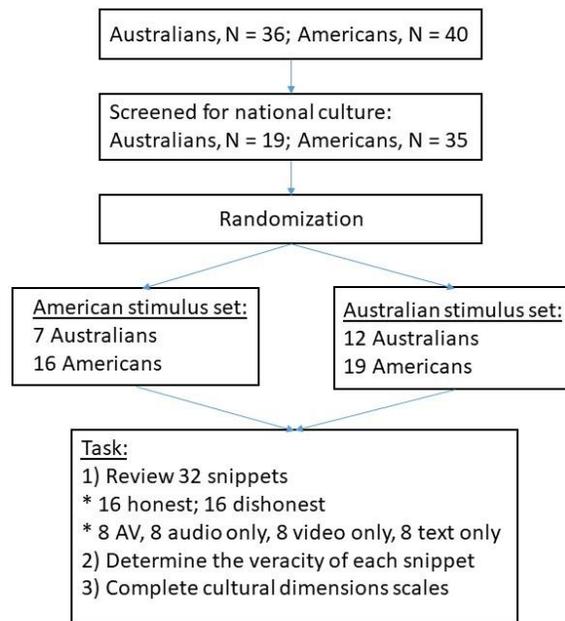


Figure 3. Experimental flowchart

4.1 Tests for Hofstede's Cultural Dimensions

Culture is a macro-level construct, so it often lacks precision in explaining individual-level behavior (Srite & Karahanna, 2006). Accordingly, it is inappropriate to use country scores, as developed by Hofstede (1980), or an individual's national citizenship, to predict individual behavior based on cultural values and beliefs (Furner & George, 2012; Straub, Loch, Evaristo, Karahanna, & Srite, 2002). Therefore, we measured cultural dimensions for each individual study participant.

We used measurement items published by Srite and Karahanna (2006) to measure Hofstede's dimensions. To test for the adequacy of four of the scales, we used factor analysis. We used exploratory factor analysis because of past psychometric issues with the scales (Lewis, 2009; Furner & George, 2012; George et al, 2018). There were serious problems with the six items used to measure uncertainty avoidance, and four other items were problematic, so all 10 of these items were dropped. The factor analysis results, based on varimax rotation and three forced factors, are shown in Table 7. Once the problematic items had been pruned, the reliabilities for the remaining items were reasonable (MF: .782; PD: .557; IC: .690). We averaged the remaining items for each scale to compute scores for the dimensions. We did not measure indulgence vs restraint. For the long- vs short-term orientation dimension, we used the following formula, where the m variables refer to items in the scale (Hofstede, 2008; Hofstede, et al., 2008) and C refers to a constant:

$$LT = 40(m18 - m15) + 25(m28 - m25) + C(ls)$$

Table 8 reports the US and Australian scores for the four cultural dimensions we could measure. Australians and Americans participants scored virtually the same on these four cultural dimensions, underlying the similarity of the cultures. One way ANOVA tests showed no statistically significant differences between Australians and Americans for each dimension. The first three dimensions were measured on a five-point scale. For individualism/collectivism, higher numbers indicate individualism, so the scores for both nationalities are in line with Hofstede's measures. For masculinity/femininity, lower numbers are masculine, so again, the results are consonant with expectations. The scores on long/short term orientation are also in line with expectations, towards the short-term orientation end of the scale. The only questionable scores are for power distance, which should be higher, indicating less tolerance for inequality. Despite the latter finding, the sample of Australians and Americans seems to be largely representative of what Hofstede's measures (Hofstede, 2016) indicate they should be.

Table 7. Factor analysis results for four of Hofstede's cultural dimensions for the Australian sample

	1	2	3
MF3	.794	.107	.276
MF2	.793	.092	.013
MF1	.737	.126	.147
MF5	.727	-.013	.108
IC3	-.014	.757	.173
IC5	-.186	.661	.158
IC1	.247	.630	-.006
IC2	.392	.605	-.151
IC4	.013	.592	-.317
PD3	-.087	-.291	.641
PD5	.262	.184	.597
PD1	.023	.016	.563
PD7	.330	.396	.554
PD2	.295	-.026	.524

Table 8. Measured scores on Hofstede's cultural dimension for Australians and Americans.

Cultural Dimension	Australia	USA
Individualism/Collectivism (IC)	2.95	3.02
Masculinity/Femininity (MF)	1.81	1.87
Power distance (PD)	2.07	2.12
Long Term Orientation (LT)	39.41	59.56

4.2 Tests for Relationships between Deception and Culture and Media

We had three hypotheses. The first predicted that representatives of a national culture would be able to successfully detect deception in both members of their own culture and in members of other cultures. As we have seen, people tend to be only as good as chance at accurate deception detection, so a score of 50% or higher indicates successful detection. No statistical test is needed to determine if H1 is supported – it will be supported if detection accuracy levels are at 50% or above for both cultures being judged, that of the judge and that of the other culture. H2 asked about the relative accuracy of judges for members of their culture and for members of other cultures. It predicted that there would be no relative differences in detection accuracy, given the comparison of similar American and Australian cultures. Due to the repeated measures of the design and the binomial nature of the dependent variable, H2 will be tested with repeated measures logistic regression. Finally, H3 predicted that there would be a media difference in detection accuracy, such that media that can transmit the fewest cues to deception would be associated with less accurate detection than would media that can transmit more cues. H3 will also be tested with repeated measures logistic regression, for the same reasons as H2. With data similar to ours, both George et al (2018) and McHaney et al (2018) used repeated measures logistic regression for testing their hypotheses.

We analyzed the relationships between culture and deception detection accuracy, and between media and deception detection accuracy, using repeated measures logistic regression, in SPSS Version 23. The GENLIN command was used, with a binomial distribution and logit as the link function. Repeated measures were used, as each participant answered 32 different questions. Given that each of the 54 judges was asked to respond to 32 snippets, 1728 responses were generated.

Logistic regression was used since the dependent variable, whether or not the veracity judgment was correct, was binomial (correct or incorrect). The 7-point scale on which veracity was originally measured was collapsed into a discrete variable, where scores of 1 to 3 were considered a judgment of truth, and scores of 5 to 7 were considered a judgment of dishonesty. The 228 responses of '4' (i.e., undecided), at the center of the 7-point scale, were omitted from the analyses. The total number of responses omitted represented 13.20% of the total number of responses received. (Australian judges answered '4' 74 out of 608 times, or 12.20%; US judges answered '4' 154 out of 1120 times, or 13.75%.) The predictive

factors were communication media and stimulus set.

Overall, participants correctly distinguished between honest and dishonest snippets 53.90% of the time (51% correct for US English and 56% correct for Australian English). Australians successfully detected deception in both Australian (57%) and American (50%) snippets; Americans successfully detected deception in both American (51%) and Australian (56%) snippets. The results of the logistic regression analysis showed that the culture of the treatment was statistically significant ($X^2(1, N = 1500) = 4.591, p \leq 0.032$). It was more difficult to accurately detect deception in the US English stimulus set than in the Australian English set. The Australian and the American judges all had trouble with the American snippets. Their success with the American snippets was no different from chance (two-tailed tests: USA judges, USA snippets: $t(436) = 0.287, p < .774$; AUS judges, USA snippets: $t(197) = .071, p < .943$). Success with the Australian snippets was better than chance for both sets of judges (USA judges, AUS snippets: $t(530) = 2.887, p < .004$; AUS judges, AUS snippets: $t(337) = 2.470, p < .014$).

The logistic regression analysis also showed a statistically significant difference for media ($X^2(3, N = 1500) = 14.402, p \leq 0.002$). A Bonferroni matched pair test ($\alpha < .05$) showed only one statistically significant difference: detection was more accurate in audiovisual snippets (60% correct) than in text (47% correct). The audio only snippets had an accuracy rate of 53%, while video only snippets had an accuracy rate of 54%. There was no interaction between culture and media.

When analyzing the data separately for the two groups of judges, we found that there were no statistically significant differences for culture. There were differences for media, though. While Australians were 50% accurate with the US English stimulus set and 57% accurate with the Australian English set, the differences were not statistically significant. For media, they were better with full audiovisual (63% accuracy) compared to video only (50%) ($X^2(3, N = 534) = 8.778, p \leq 0.032$). Analysis of the data from the perspective of US judges was similar. They were 51% accurate with the US English stimulus set and 56% accurate with the Australian set, but the differences were not statistically significant. For media, US judges were better with full audiovisual (58%) than they were with text (47%) ($X^2(3, N = 966) = 10.119, p \leq 0.018$).

We found, then, that both Australian and US judges were able to accurately detect deception in both the US English and Australian English stimulus sets, with success rates at or above 50% for each cultural group. However, there were no statistically significant differences in their detection accuracy across cultures. We also found that each group of judges was better at detection in one medium over another: audiovisual beat video-only for the Australians, while audiovisual beat text for the Americans. Overall, the judges were more successful with audiovisual snippets than they were with text. The answer to both of our research questions -- 1) Can individuals of one culture accurately detect deception in individuals from another culture? and 2) Is there a relationship between deception detection and media? -- is yes.

5. Discussion

The reach of global communication has spread rapidly in the past decade, due in part to the availability of smartphones. Smartphones allow relatively inexpensive access to the internet and access to people all over the world through text messaging and voice/video calls. And with that increase in communication comes an increase in exposure to deception, within our own culture and across the world's many cultures. Can we discern deception on the part of people from cultures other than our own? And the communication media that we are using make a difference in how easy it is for us to discern deception?

Based on our findings in this study, the answer to both of these research questions is affirmative (Table 9). Australian judges were able to discern deception in the communication of both Australians (at 57%) and Americans (although the accuracy rate for the US English stimulus, at 50%, is low and just meets the threshold for determining if deception detection is successful (Bond & Atoum, 2000; Bond, et al., 1990)). US judges were also able to detect deception in the communication of both Americans (51%) and Australians (56%). Hypothesis 1 is supported. Neither group of judges was better with one group or the other, supporting Hypothesis 2. Our findings provide additional support to the 'universal cue hypothesis,' which says that people can successfully detect deception, regardless of the culture of the sender or the receiver. Based on the results of this study, the Australians would fill an additional cell in Table 3, in the 'no difference' column, as would the Americans. Table 3, with these additions, is reproduced here as Table 10. The reason for the finding of 'no difference' no doubt lies in part in the extreme similarity between Australian and US cultures. This finding may seem obvious to some, but there have been no prior tests of deception detection abilities across national cultures, where the cultures were so similar. All prior studies involved national cultures that varied widely from each other.

Table 9: Summary of hypotheses tests

<i>H1:</i> Members of a national culture will be able to accurately detect deception among members of their own culture and in members of other cultures.	<i>Supported:</i> Australians successfully detected deception in Australian (57%) & American (50%) snippets; Americans successfully detected deception in American (51%) and Australian (56%) snippets.
<i>H2:</i> Australian and US judges will be able to detect deception equally well both within and across their cultures.	<i>Supported:</i> The differences in detection across cultures were not significant for either Australians or Americans.
<i>H3:</i> Media that can transmit more cues to deception will be associated with more accurate deception detection, compared to media that transmit fewer cues.	<i>Supported:</i> Detection success was higher with full audiovisual snippets (60%) than with text (47%).

In Table 10, Australians appear in two columns, ‘better with other groups’ and ‘no difference.’ (Americans appear in all three columns.) Clearly, the ability of members of a cultural group to detect deception across other cultural groups is not dependent on the culture of the judge. Judges from a particular culture perform at different levels, sometimes being better detectors of deception in their own group, sometimes better with other groups, and sometimes being equally good across groups. To some extent, the pattern of detection success seems to depend on the differences between the cultures of the judge and those being judged. For cultures that are very similar, like Australia and the US, group members are equally good at detecting deception both within their group and in the other group. Where the differences are more extreme (Table 5 and Figure 1), differences between cultures seem to be associated with one group doing better at detection with the other group than with their own. What might account for this outcome? One possibility: A bias against foreigners, in particular a bias against foreigners speaking in a second language (Bond & Atoum, 2000; Evans & Michael, 2013; Castillo et al., 2014). As Castillo and colleagues report in their 2014 study of Australians judging Australians and Colombians, “the difference in response bias across cultures was in the direction that suggests a tendency to greater suspicion of people from another culture – i.e., Colombian clips, in particular, those speaking in a second language” (p. 79). Such a bias, conscious or not, might motivate veracity judges to be suspicious of foreigners, leading to better detection of deception among members of those groups, as compared to their own group. Differences across cultures would influence a judge’s detection success, where extreme differences would result in better detection with the other group than with his or her own.

Table 10. Patterns of comparative deception detection success across cultures in four studies

Better in own group (compared to other groups)	Better with other group (compared to their own group)	No differences
Americans (judging Americans & Jordanians) (Bond & Atoum, 2000)	Jordanians (judging Jordanians & Malaysians) (Al-Simadi, 2000)	Indians, Americans & Jordanians (judging Indians) (Bond & Atoum, 2000)
Jordanians (judging Americans & Jordanians) (Bond & Atoum, 2000)	Malaysians (judging Jordanians & Malaysians) (Al-Simadi, 2000)	<i>Australians (judging Americans) (current study)</i>
Spaniards (judging Spaniards & Americans) (George et al, 2018)	Australians (judging Australians & Colombians) (Castillo et al, 2014)	<i>Americans (judging Australians) (current study)</i>
Indians (judging Indians & Americans) (George et al 2018)	Americans (judging Americans, Spaniards & Indians) (George et al, 2018)	

We also found a main effect for media. As mentioned previously, there is some evidence of a direct relationship between media and deception detection, but many studies have found that the relationship is mediated. We found evidence of a direct effect, however. Across both groups of judges, those watching full audiovisual snippets were better at detecting deception than those who viewed text. This finding supports Hypothesis 3, that deception detection would be more successful with media that transmit more cues to deception than with media that transmit fewer cues. According to Rao and Lim (2000), full audiovisual media transmit 14 cues to deception, and text transmits half as many (7). What is perhaps more interesting is that media effects differed with each group of judges. While US judges were better at detection with full audiovisual compared to text, Australian judges were better at detection with full audiovisual than

with video-only communication. Based on Rao and Lim's work (2000), video-only modes of communication convey only five cues to deception. These findings are consonant with earlier findings regarding culture, deception and media. In the first study conducted by Bond and colleagues (1990), the researchers concluded that people could not accurately detect deception across other cultures, and their videos had no sound. In Bond's second study (with Atoum, 2000), the researchers concluded that people could detect deception across other cultures, but this time, the videos had sound. While it is interesting that media effects differed across cultures, the reasons why are not clear.

6. Limitations, Implications and Future Research

Although the unit of analysis was the veracity judgment, a limitation of this study was the relatively small number of participants who self-identified as being from either Australia or the US. Of the 76 participants in the study, we were not able to use data from 22 of them (which translates into 704 veracity judgments). We would also have preferred a more balanced sample of US and Australian judges.

Our findings have two implications for research. First, we have provided additional evidence that the universal cue hypothesis holds, even when the cultures being compared are very similar. Previous research found support for the hypothesis when the cultures being compared varied quite a bit from each other. Apparently, the cues that senders give off when deceiving are recognizable to members of both similar and dissimilar national cultures (as well as to members of their own cultures). Second, we now have an additional data point for cultural comparison with the inclusion of the Australian sample and the creation of our Australian English stimulus set. Unlike the other cultures and stimulus sets, the Australians were selected because of their similarity to other cultures, not because of their differences. We now have a broader spectrum from which to study cultural dimensions and deception detection.

Our findings also have implications for practice. The universal cue hypothesis holds across several cultural comparisons. For interrogators or judges, or anyone else whose job involves determining if someone is telling the truth, in most cases they can rely on the indicators of deception they have learned, in life or through training. What they have learned to look for in detecting deception works as well for people from any other culture as for people from their own. Specifically, for American interrogators, they should approach deception detection in Australian interviewees the way they approach the task with American interviewees, and vice versa. Our findings about media support the premise that media with the most cues are associated with better deception detection. When it is possible to select the best medium for interviews, where detecting the truth is important, interrogators should choose the medium that conveys the most cues to deception. Full audiovisual, such as videoconferencing, is more effective than text-based media, such as email. For Australian judges, as opposed to the entire sample of participants, full audiovisual was better than video without sound, again supporting the more-cues-is-better for detection accuracy thesis.

7. Conclusions

We now have enough cross-cultural deception detection comparisons to move beyond the question of whether people can successfully detect deception across cultures. They can. Now we can try to better understand why there are differences in detection outcomes: Why one group can detect deception better in another group compared to their own, while yet another group is better at detecting deception in their own group compared to others. And as this study has shown, in some cases groups are equally good at detection in both their group and another. A bias against foreigners is one possible explanation for some of these findings, especially when the foreigner, who typically speaks a different language, is now speaking "your" language. A selective comparison of more cultures and languages can be conducted to help produce a more complete understanding. From the few studies that have investigated media, culture and deception, we do have consistent evidence of media effects. Video-only communication seems to be the worst for deception detection. However, it is interesting to note that media effects seem to differ across judges from different cultural groups. Additional research is called for to investigate this intriguing finding.

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