

**Cultural and Cross-cultural Factors in Judgments of Credibility**

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## **Certificate of Authorship**

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University or any other educational institution, except where due acknowledgment is made in this thesis. Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during my candidature is fully acknowledged.

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Date: \_\_\_\_\_

Paola Castillo



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*"It does not matter how slowly you go so long as you do not stop".*  
~ Confucius

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## Abstract

The detection of deception has been relatively unexplored from a cross-cultural standpoint. The present thesis aims to extend current knowledge on cross-cultural lie detection by investigating the impact of a number of cultural and cross-cultural factors in judgments of credibility. Study 1 employed an experimental mock crime design to investigate whether there were culture-specific behavioural cues to deception. A total of 181 Australian and Colombian university students took part in this study with a mean age of 22.3 years ( $SD = 7.16$ ). The outcome of this study revealed that there were only two reliable indicators of deception and these deceptive cues were not dependent on culture. The results also indicated that there were significant differences in the baseline behavioural pattern of Australians and Colombians. Study 2 employed the same experimental mock crime design as Study 1, except that participants were asked to either lie or tell the truth in their second language. Forty one (14 males and 27 females) Colombian university students participated in the study. This group was compared with the already collected Colombian sample of Study 1. The results indicated that there were significant behavioural differences when communicators were speaking in their second compared to when speaking in their first language regardless of the veracity of the message. It was also found that the behavioural pattern associated with language use did not depend on message veracity. A survey method was used in Study 3 to examine whether stereotypical cues to deception are culture-specific or culturally-shared and the nature and extent of Australian and Colombian participants' beliefs about cultural differences in behaviour. A total of 234 Australian (31 males and 117 females) and Colombian (18 males and 31 females) participants with a mean age of 25.28 ( $SD = 9.67$ ) responded to an online or paper version questionnaire. The

findings indicated that although some beliefs were shared by both cultures, some stereotypical cues associated with deception were culture-specific. Also, it was found that participants had limited conception of the potential differences in behaviour across cultures.

The final study presented a selection of video clips recorded in Study 1 and 2 to 71 Australian students (20 males and 51 females) with a mean age of 21.3 years ( $SD = 5.98$ ), who made credibility judgments of the clips. The study aimed to investigate (i) whether there were, in general, differences in discriminability or response bias depending on culture or language, and (ii) whether any individual factors such as prejudice predict the extent of cross-cultural or second language use bias displayed by participants. With respect to the first aim, this study found that participants were generally poor not only at classifying lies and truths from individuals of their own culture, but also in a cross-cultural context. Although the results indicated that the language spoken by the stimulus subject had no impact on observers' ability to discriminate between truthful and untruthful messages, it was found that observers were generally more suspicious of Colombian clips and, in particular, of those that depicted Colombians speaking in a second language. With respect to the second aim, the study found that individual differences in prejudice, stereotypes and ethnocentrism did not appear to predict the bias associated with cultural and language differences. Overall findings provide evidence of the potential of cross-cultural and second language use bias. These results are discussed in light of the practical and theoretical implications for cross-cultural lie detection.

## Chapter 1 : Lying and lie detection

*Lying is publicly condemned but at the same time  
is privately practised by almost everybody.*

(Nyberg, 1993)

Judgments about credibility and deception often have significant implications. In forensic contexts, the evaluation of a person's veracity could affect the decision-making of investigators, prosecutors and jurors. In everyday situations, credibility judgments may have personal repercussions – for instance, being able to assess the honesty of a salesperson might have important economic consequences for the customer. Across a range of social, legal and professional settings, people are likely to make judgments about whether someone is telling them the truth. Understanding how people make such judgments and the accuracy of these evaluations are valuable topics for research.

Deception research conducted to date has occurred almost entirely in mono-cultural contexts, where individuals are asked to judge the veracity of messages from people with whom they share the same cultural background. This feature of the literature prompted Kim, Kam, Sharkey and Singelis (2008) to suggest that “deception appears to be regarded as a phenomenon that occurs in a *cultural vacuum*” (p. 24). This assumption seems questionable on at least two grounds. First, cultural norms, display rules and beliefs about lying might influence the cognitive and affective processes of deceivers, the behaviours that accompany deceptive messages, and the cues that observers use when making judgments of credibility. Second, in a cross-cultural interaction<sup>1</sup>, factors that affect inter-group perceptions, such as stereotypes and prejudice, may influence one person's

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<sup>1</sup> Cross-cultural communication refers to communication between people who do not share the same cultural background or ethnicity (Matsumoto, Yoo & LeRoux, 2005; Porter & Samovar, 1998).

judgments about the other. Without a clear appreciation of the impact these factors might have on the process and outcomes of credibility judgments, there is a considerable gap in our knowledge about credibility and deception assessments.

Intercultural evaluations of credibility are likely to be particularly important in immigration, customs and national security contexts. Factors such as the ease of international travel, the growth of short-term (e.g., study-related) and permanent migration and cultural diversity within nations due to multiculturalism make it likely that intercultural encounters are increasingly common in everyday life. In this thesis, I present a program of research that aims to investigate the impact of cultural and cross-cultural factors on judgments of credibility. This chapter reviews the current literature on lying and lie detection which, as noted above, has tended to be mono-cultural in focus. In Chapter 2, I review cultural and cross-cultural factors that may be relevant to the process of making deception judgments and outline a research program that investigates the impact of these factors on credibility judgments. Subsequent chapters (Chapters 3-6) report the studies that made up this research program, and Chapter 7 discusses the major theoretical and practical implications of the research findings and provides an overview of future directions.

### **Defining deception and lying**

Vrij (2000) defines deception as a “successful or unsuccessful deliberate attempt, without forewarning, to create in another a belief which the communicator considers to be untrue” (p. 6). This definition suggests that ‘intention to mislead’ and ‘consciousness of the act’ are the key elements for deception to occur. According to such a definition of deception, someone who truly believes the information they are giving is true is not considered to be deceiving because there was no intention or conscious attempt to deceive the other. Bok (1999) argues that deception can be conveyed through “any form of

communication, such as gesture, disguise, action or inaction, exaggeration, or silence” (p.13). Thus, deception is a complex and subtle form of behaviour that does not simply equate to saying something that it is not objectively true.

Whilst deception has been defined as an intentional deceptive message which is conveyed through *any* form of communication, lying has been defined as an intentional deceptive message which is *stated* and conveyed verbally, in writing, or through any form of language such as sign language (e.g., Barnes, 1994; Bok, 1999; Vrij, 2000). In this sense, a person may not be considered to be lying if he or she hides or omits information even though it would be considered deception. Although scholars have pointed out the distinctions between these concepts, lying is often considered part of the larger category of deception. In this thesis, lying and deception will be used interchangeably, because regardless of the type of communication used (i.e., whether language or any other form of communication), both terms imply the intention to convey a message that is not objectively true.

### **Nature and frequency of lying**

Because lying seems to be a commonplace occurrence, questions concerning reasons, purpose and extent of lying are of great interest to researchers. This area of research has identified three different kinds of lies: *outright lies or total falsehoods*, where everything communicated is contradictory to the truth; *exaggerations or distortions*, where the liar overstates the facts or convey an impression that exceeds the truth; *and concealments or subtle lies* (i.e., evading, denying or omitting relevant details) that are commonly used in everyday life (DePaulo & Bell, 1996; DePaulo, Kashy, Kirkendol, Wyer & Epstein, 1996; DePaulo & Kashy, 1998; DePaulo et al., 2003; DePaulo, Morris & Stromwall, 2004; Granhag & Strömwall, 2004; Kashy & DePaulo, 1996; Vrij, 2000).

In order to examine the occurrence of lying, DePaulo and colleagues (1996) conducted a diary study. For a period of one week, participants (college students and community members) were asked to keep a daily record of all social interactions lasting 10 minutes or longer, and of the lies that they told during those interactions. They found that lying is a daily life event. On average, participants reported lying once or twice a day about their feelings, actions, whereabouts, achievements, and knowledge (DePaulo et al., 1996). Community members and college students reported, on average, lying to 34% of the people they interacted with and indicated that the majority of lies told during these interactions were outright lies or total falsehoods (65% of the lies told). Subsequent studies have replicated these findings and have found that lying is also common when communicating via technologies such as e-mail, instant messaging and telephones. For instance, Hancock, Tom-Santelli and Ritchie (2004) asked 30 students to keep a diary of all the lies they told during social interactions that occurred using different communication technologies (e.g., instant messaging and e-mail). They found that participants reported lying an average of 1.6 times per day; about one out of every four of their interactions involved a lie (26% of all social interactions), and the highest proportion of lies occurred during their telephone conversations (37%). Thus, lying appears to be an element of ordinary social interactions – perhaps to a greater extent than might be expected.

Scholars have proposed a number of reasons to explain why lying or deceiving others occurs with such frequency. For instance, Kashy and DePaulo (1996) argued that people tell everyday lies to accomplish the “most basic social interaction goals, such as influencing others, managing impressions, and providing reassurance and support” (p.1037). For example, people may lie to avoid hurting someone’s feelings, to impress their boss or their romantic interest, or to get a new job. Thus, lying is often used as an impression management technique to portray oneself in a positive light in order to achieve

personal goals (Kashy & DePaulo, 1996; Weiss & Feldman, 2006). However, according to Tyler and Feldman (2004), as the motivation to make a specific impression intensifies, the number of untruthful statements also tends to increase when managing impressions. In their study, they found that situational factors such as interaction goals, audience, expectations and situational demands increased the number of exaggerations, biased omissions and distortions people made when managing their identities during a social interaction. Participants who regarded a situation as highly important were more motivated to make a positive impression and thus likely to make more untruthful statements than those who did not regard such situations as important. Consistent with this idea, DePaulo et al. (1996) found that approximately half of the lies reported in the study were purely “self-oriented”– lies that served personal interests (i.e., lies told to appear better or gain personal advantage, such as lying to escape from punishment or embarrassment).

Although lying may be used for self-presentation and impression management purposes, there is evidence that not all lies are told for personal benefit alone. DePaulo et al.’s (1996) diary study found that, in addition to self oriented motives, people lied for “other-oriented” reasons. Approximately 25% of the lies reported were lies told to assist others to gain personal advantage or benefit, for example, telling a friend that a shirt suits them in order to avoid making them feel bad. The remaining 25% of the lies told were to serve a combination of personal and others’ interests. The latter category is consistent with Vrij’s (2000) notion of “socially-oriented” reasons for lying in which the lie serves to maintain appropriate relationships with friends, colleagues, family and other people (p.9). In sum, the literature suggests that people often have several reasons to lie; however, lies are more likely to be told when it benefits the liar or when it is deemed necessary to achieve self-oriented goals.

Regardless of the reasons behind the lie, DePaulo et al.’s (1996) studies showed

that people reported having few feelings of regret or guilt when lying, and tended to consider the lies they told as “little lies with little consequences” (DePaulo et al., 1996, p. 991). Participants did, however, report feelings of discomfort and emotional distress when lying to someone with whom they had a close relationship (e.g., friend, intimate partner, or acquaintance). Despite the high occurrence of “little lies”, there is also the possibility that people may tell more serious lies in order to hide serious wrongdoings. Consistent with this idea, DePaulo et al. (1996) and DePaulo and Kashy (1998) acknowledged that participants could have over-reported their trivial and altruistic lies and under-reported their serious and self-centred ones. They suggested that such distortions in reporting could have occurred because of demand characteristics, lapses in memory and conscientiousness, or because participants may have neglected to record some of their lies as a result of fear of the outcome. They also argued that it was possible that people underreported their serious lies as a way to manage their self-presentations and show themselves in a positive light to the researchers.

The finding that lies are a commonplace occurrence has raised important questions about people’s ability to detect deception. DePaulo et al.’s (1996) study revealed that of the lies told, 70% to 80% were apparently not detected by others. However, it should be noted that lie detection rates were calculated based on the deceiver’s self report and a true indication of people’s ability may have been distorted. For instance, it is possible that lies were detected by the deceived person but the deceiver was not confronted about it. Furthermore, it is likely that if lies told during these social interactions were considered “little lies of little consequences”, the deceived person would have also perceived them that way and would have been less likely to confront the deceiver in order to avoid conflict. Thus, it is possible that DePaulo et al.’s (1996) findings do not accurately reflect, and probably overestimate, the true percentage of everyday lies that go “undetected”.

Nevertheless, these findings suggest that deception is a commonplace occurrence: it serves several purposes in everyday life and is often not detected.

In addition to examining the nature and frequency of lying behaviour, researchers have also focused on examining laypeople's and professionals' abilities to accurately discriminate between deceptive and non-deceptive messages. However, contrary to the 'everyday' contexts in which studies on the nature of lying have been conducted, most of the research on individuals' lie detection abilities has occurred in forensic or legal contexts (e.g., police interviews, mock crimes.). The following section reviews this literature.

### **Research on lie detection performance**

Extensive research has concentrated on the ability of individuals to detect truthful and deceitful messages (e.g., Ekman, 1996; Ekman & O' Sullivan, 1991; Ekman, O' Sullivan & Frank, 1999; Granhag & Stromwall, 2004b; Mann, Vrij & Bull, 2004; Porter, Woodworth & Birt, 2000; Vrij, 2000, 2004b; Zuckerman, DePaulo & Rosenthal, 1981). In these lie detection studies, participants are typically given video-taped and/or audio-taped statements, are asked to make dichotomous judgments of these statements (i.e., whether they consider the statement truthful or not), and are asked to identify the cues that contributed to their judgments. Generally, participants are shown materials that depict 50% of people lying and 50% of people telling the truth; hence, just by guessing, participants should be able to achieve a correct classification rate of 50%. Accuracy rates are usually determined by adding scores of correct judgments across statements (regardless of whether the message was truthful or not) and dividing by the total number of judgments made, thus providing a percentage of correct identifications for each lie detector (observer) (Bond & DePaulo, 2006; Vrij, 2004b).

In 1980, Kraut conducted a review of all the lie detection literature available at the time and found that in most of the studies he reviewed, accuracy rates ranged from 45% to 60%. Similarly, Vrij (2000) conducted a review of 39 lie detection studies involving laypeople that had been published after Kraut's review. Consistent with Kraut's findings, Vrij's review indicated that accuracy rates ranged between 45 and 60% with an average accuracy rate of 57%. More recently, Bond and DePaulo (2006) conducted a meta-analysis of 206 lie detection studies<sup>2</sup> that used a variety of measures of accuracy (e.g., dichotomous and multipoint rating scales) and samples (e.g., students and professional groups). As with Kraut's and Vrij's reviews, it was found that participants achieved an average of 54% correct lie/truth classifications at levels significantly higher than chance. However, although Bond and DePaulo (2006) found that participants were able to classify truths from lies at statistically significant levels, in percentage terms, people are generally poor at classifying lies from truths. Furthermore, they found that participants' ability to detect deception did not vary depending on the measure used. Overall, the reviews and the meta-analysis of the literature provide overwhelming evidence of people's poor ability to distinguish between deceptive and non-deceptive messages. Thus, despite the high incidence of lying and deception in everyday life, individuals are generally poor at detecting it.

Even though accuracy rates seem generally unimpressive, several studies have found some evidence to indicate that individuals from specific professional backgrounds might be able to discriminate truthful and deceptive messages more accurately than laypeople. Ekman and O'Sullivan (1991) asked law enforcement personnel such as FBI agents, US Secret Service agents, police officers, judges, and laypeople such as college

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<sup>2</sup> Some of the studies included in Kraut's (1980) and Vrij's (2000) reviews were also included in this meta-analysis.

students to make credibility judgments of a number of video clips. They found that police officers and polygraph examiners obtained similar accuracy rates to university students, whereas members of the U.S. Secret Service were able to successfully discern truthful and deceptive messages at levels significantly above chance (64%). Ekman et al. (1999) conducted a subsequent study in which they asked law enforcement personnel, federal judges, sheriffs, federal officers, academic psychologists, regular clinical psychologists, and psychologists with a specific professional interest in deception to make credibility judgments on a number of video clips. They found that federal officers, sheriffs, and regular clinical psychologists were significantly better at detecting lies than truths compared to the other professional groups (73%, 67%, and 68% overall accuracy rates, respectively). Vrij (2000) proposed that these professional groups might perform better than laypeople because they constantly have to judge the veracity of the statements they are exposed to, whereas other groups do not. Furthermore, these professionals are more likely to have received training in detecting deception, whereas laypeople or college students typically have not.

Despite encouraging findings that lying may be accurately detected by specific professional groups, it has been suggested that low truth–lie accuracy rates found in many lie detection studies may be the result of an experimental artefact (O'Sullivan & Ekman, 2004). Deception research has almost exclusively occurred in laboratory conditions where participants lie and make judgments of deception for the sake of the experiment without any real motivation for liars to get away with their lies or for observers to detect the lies. Consequently, the stakes may not be high enough for the liar to display clear deceptive cues and for the observer to identify these cues (Mann et al., 2004). Furthermore, participants who are asked to lie or to tell the truth are usually college students who, according to Vrij (2004b), are likely to be more intelligent than the average suspect in

police interviews. This difference in intelligence may affect the way lies are told and the types of deceptive cues that are displayed. Furthermore, in laboratory settings, liars are often asked to lie about topics (e.g., attitudes towards smoking in public places) that are unlikely to be discussed during a police interview (Vrij, 2004b).

To address the methodological issues of laboratory studies outlined above, researchers have examined accuracy rates in real life situations. For instance, Mann et al. (2004) conducted an experiment where they showed 99 police officers 54 videos of real life suspects who were either lying or telling the truth. They found that overall accuracy rates were significantly higher than expected by chance (65%). Similarly, Mann and Vrij (2006) asked 84 police officers to judge the veracity of people in real-life high stake situations (e.g., real life police interviews). They showed that police officers' accuracy rates were significantly above the level of chance (70%). The results of these studies suggest that, in more naturalistic settings, observers may be slightly better at classifying truthful and untruthful messages than most laboratory research indicates.

The literature reviewed above suggests that some professional groups may be better at discriminating between truthful and untruthful statements compared to other individuals or professional groups. However, there are two important issues that are worthy of discussion. First, it is important to note that a considerable number of incorrect classifications were still observed within these groups. These professional groups, which are often referred to as "wizards of deception" (O'Sullivan & Ekman, 2004, p. 269), displayed error rates that ranged between 35 and 40 percent. This error rate is particularly important in legal settings where a person's freedom may depend on whether his or her account is judged as credible or not. Thus, misjudging someone who is being truthful as deceptive can have very serious consequences.

Secondly, accuracy rates seem less impressive when the classification of lies and truths are examined separately. For instance, Vrij (2000) found that people (including some professional groups) were reasonably accurate at detecting truths (67%) but particularly poor at detecting lies (44%). Consistent with this, Bond and DePaulo's (2006) meta-analysis concluded that individuals were slightly better at detecting truths (61%) than lies (44%). This phenomenon has been referred to as "truth bias" – a tendency to judge more messages as truths than lies (Levine, Kim, Park & Hughes, 2006; Levine, Park & McCornack, 1999). According to Levine et al. (2006), because of this tendency to make more truthful than deceptive judgments, it follows that people are more likely to be correct when judging truths as opposed to lies – this is known as the veracity effect. Therefore, whilst observers may show a slightly better than chance accuracy rate it may not necessarily suggest that they are particularly good at detecting lies.

In conclusion, numerous studies have overwhelmingly demonstrated that both laypeople's and professionals' ability to differentiate between truthful and untruthful messages is generally poor, and, at best, remains far from perfect. Such low accuracy rates in lie detection have raised serious questions about the reliability of existing lie detection methods and the type of cues people use to detect deceit. More importantly, it raises the question of whether people do actually behave differently when lying compared to when telling the truth. As a result, a considerable amount of research has focused on whether there are behavioural differences between liars and truth-tellers, with the aim of identifying reliable verbal and nonverbal cues that will help improve current lie detection methods.

### **Theoretical approaches to behavioural correlates of deception**

Research in this area has generally found that lying is not a distinct psychological process corresponding with a unique set of behavioural responses or patterns (e.g., DePaulo et al., 2003; Vrij, 2000, 2008). However, it is possible that there are emotional and psychological processes that are more likely to occur when lying than when telling the truth and these are likely to produce a number of behavioural tendencies.

Zuckerman, DePaulo et al. (1981) proposed four processes that could influence a liar's behaviour: arousal, emotions, cognitive processing and attempted control. Based on the psychophysiological evidence of the detection of lying available at the time, they argued that lying often results in generalised arousal that either stems from the specific information the deceiver may have (also termed "guilty knowledge"), or stems from the deceiver's motivation to succeed at the deception task. This arousal could be evidenced by physiological cues such as pupil dilation, increased blinking and speech errors, and higher vocal pitch. However, Zuckerman, DePaulo et al. (1981) also suggested that these cues to deception may be accounted for by particular affects or emotions associated with lying rather than by an undifferentiated arousal. According to this notion, liars are likely to experience emotions such as fear, anxiety and guilt. These emotions can manifest behaviourally as signs of arousal such as higher pitched voice, fidgeting, increased speech errors and hesitations, indirect and slowed speech, gaze aversion, increased blinking, shorter message duration and increased movements (Ekman, 2001; Ekman & Friesen, 1969; Sporer & Schwandt, 2007; Vrij, Edward, Roberts & Bull, 2000; Zuckerman, DePaulo et al., 1981). Ekman (2001) and Ekman, Friesen and Scherer (1991) suggested that the presence of these behavioural responses are more evident if the liar is experiencing these emotions significantly, or the consequences of getting caught are serious enough. In

other words, the guiltier the liar is feeling about their lie the more s/he would display signs of arousal and indicators of guilt (e.g., gaze aversion). However, emotions experienced by the liar are not necessarily negative. Instead, liars could experience what has been referred to as “duping delight”, or excitement at fooling someone (Ekman & Friesen, 1969). Given that arousal and emotions are closely linked, Zuckerman, DePaulo et al.’s (1981) first two processes have been combined by researchers and referred to as “the emotional process” (Vrij, 2008).

Zuckerman, DePaulo and colleagues (1981) also argued that lying is a cognitively demanding task that requires greater cognitive effort than telling the truth. Lying is cognitively demanding because liars have to provide plausible answers, remember what was said, be consistent with what the observer knows or might find out (Vrij, 2000), carefully monitor reactions and behaviours of the person being deceived, and suppress the truth (Spence et al., 2001; Vrij et al., 2008). Therefore, the more complex the lie is to fabricate, the more cognitive resources are needed, thus decreasing the availability of resources for other communication processes such as the control of body language (Ekman & Friesen, 1972). This notion is supported by extensive empirical evidence which demonstrates that engaging in a cognitively demanding task often leads to fewer illustrators and body movements, more speech errors and hesitations, more frequent and longer pauses when speaking, longer response latencies, greater pupil dilatation and more gaze aversion (DePaulo et al., 2003; Ekman & Friesen, 1969, 1974; Ekman et al., 1991; Ekman, Ornstein, Tversky & Brainerd, 1997; Goldman- Eisler, 1968; Sporer & Schwandt, 2006, 2007; Vrij, 2000; Zuckerman, DePaulo et al., 1981).

Recently, Sporer and Schwandt (2006, 2007) proposed a more detailed theoretical explanation of Zuckerman, DePaulo et al.’s (1981) cognitive load process based on the model of working memory developed by Baddeley (2000). According to Sporer and

Schwandt (2006, 2007), there are cognitive and memory processes that are involved in constructing a lie. Describing a truthful experience involves not only retrieving information but also reconstructing an episodic or autobiographical memory. This reconstruction process relies on previously created event schemas and scripts that are readily available in the memory structure. As a result, truth tellers can utilise this accessible knowledge to create “more elaborate and longer stories” (Sporer & Schwandt, 2006, p. 426); it may also enable them to display faster speech and shorter response latencies. In contrast, when constructing a lie, the liar either needs to create new schemas from scratch or construct a new story based on knowledge about similar situations and events. Therefore, when the event information (e.g., a schema or specific event) is not readily available, working memory capacity is taxed, resulting in fewer resources being available for other processes such as speech production. Such taxation of resources would then result in responses that are likely to be shorter and more inconsistent, and may result in liars having longer response latencies, more pauses and speech disturbances, pupil dilation, decreased blinking, and decreased eye contact.

Sporer and Schwandt (2006) argued that skilled liars may be able to avoid this overload in memory capacity if the event they are recalling is well scripted or if they can draw information from similar experiences. For example, a girl who had permission to stay at her friend’s house but instead spent the night with her boyfriend could easily access a script of what a night at her girlfriend’s home would be like (DePaulo et al., 2003). However, it has been argued that all lies, regardless of whether they are script based, may be shorter and less detailed than truthful accounts because liars “may have only the basics of the scripted event in mind” (DePaulo et al., 2003, p. 79). In other words, people may only have access to basic information as to what happens in a certain situation and may need to create parts of the story from scratch, which would often lead to higher cognitive

load and may result in the display of behaviours described above.

According to Zuckerman, DePaulo et al. (1981), the final process that may affect a liar's behaviour is behavioural control. The attempted behaviour control element proposes that liars might worry that behavioural cues will give away their lies. Therefore, liars will try to control such cues and might engage in "impression management" in order to avoid getting caught (Memon, Vrij & Bull, 2003, p. 13). However, this impression management is a complex and difficult task because there are numerous variables that a liar would have to take into account. For instance, the liar may need to suppress his or her nerves, mask evidence of cognitive load, and have knowledge about how an 'honest' person behaves and the appropriate skills to effectively display such behaviour (Memon et al., 2003). This suppression and control of behaviours will often result in behaviour that looks planned, rehearsed, rigid, or too smooth (Vrij, 2000). For example, if the liar believes that movement will give away the lie, s/he may try to make deliberate movements and avoid those which are not essential, resulting in behaviours that look unusual and planned. According to this process, liars would be more likely to display an overall decrease in body movements (e.g., hand and arm, leg and foot movements) less gaze aversion, fewer speech errors and hesitations, shorter response latency and fewer pauses (Sporer & Schwandt, 2006, 2007; Vrij, 2000).

Each of the three potential mechanisms listed above predicts the display of different and sometimes contradictory verbal and nonverbal behaviours during deception (Sporer & Schwandt, 2006, 2007; Vrij, 2000; Vrij et al., 2000). For example, the emotional process would predict an increase in behaviours associated with anxiety or excitement such as fidgeting, speech errors, hesitations and gaze aversion. On the other hand, the content complexity and attempted control elements would each predict a decrease in movements during deception, resulting from cognitive load or self-restraint respectively (Sporer &

Schwandt, 2006, 2007; Vrij, 2000; Vrij et al., 2000). Based on these contradictory predictions, it has been argued that particular behavioural responses such as gaze aversion, speech error and illustrators are not likely to appear in every lying situation (Vrij, 2000, 2008). In fact, it may be possible that the behaviour of a liar might feature all three processes, making it more difficult to identify specific behaviours that occur only while lying and not while telling the truth (Vrij & Mann, 2004).

Behavioural changes resulting from these three processes may not be exclusive to liars. It is possible that some truth tellers experience the same emotions as liars (DePaulo et al., 2003; Memon et al., 2003). For instance, consider the case of an innocent person in a police interrogation who feels nervous and afraid of not being believed by the police. Furthermore, truth-tellers may also attempt to control their behaviour in the same way as liars because of their fear of making a dishonest impression (Fiedler & Walka, 1993). Thus, it could be argued that whilst the occurrence of the behaviours predicted by these processes may indicate lying, their presence does not automatically suggest that the person is, in fact, being deceptive. Nevertheless, these three processes have provided researchers with a theoretical basis to predict behavioural responses that may occur during deception and can be easily tested in experimental settings. As a result, deception research has concentrated on finding reliable behavioural correlates of deception, also known as “objective indicators of deception” (Vrij, 2000, p. 41), which are discussed in the next section.

### **Behavioural indicators of deception**

Researchers have also concentrated on identifying verbal and nonverbal behavioural cues that will reliably differentiate between liars and truth-tellers (e.g., DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007; Vrij, 2001; Vrij et al., 2000;

Zuckerman, DePaulo et al., 1981). Typically, in these studies participants are asked to provide truthful and/or deceptive accounts relating to a number of topics or situations. The average frequency and duration of specific verbal and nonverbal behaviours are compared across deceptive and non-deceptive messages (Vrij, 2000, 2008).

Table 1.1 summarises the findings of four deception reviews conducted to date that have examined behavioural correlates of deception: DePaulo et al. (2003)<sup>3</sup>, Vrij (2000)<sup>4</sup>, Sporer and Schwandt (2006, 2007), and Zuckerman, DePaulo et al. (1981). Each of these reviews was conducted on the deception literature available at the time; therefore, some of the studies examined in one review may have also been included in another. For instance, Sporer and Schwandt (2006, 2007) conducted their review on 39 lie detection studies, some of which were also reviewed by DePaulo et al. (2003). Their common and inconsistent findings are shown in Table 1.1.

As can be seen in Table 1.1, there are a number of verbal behaviours that are more likely to occur while lying than while telling the truth. The most common findings across the reviews are that liars' messages are likely to be shorter, include more negative statements, and are less plausible and logical than truth tellers' accounts. Researchers have suggested that the display of these verbal cues in a liar's statement may be associated with the experience of negative emotions and cognitive load that result from constructing the lie (DePaulo et al., 2003; Ekman, 1988; Ekman & Friesen, 1972; Ekman, Friesen & Scherer, 1976; Vrij & Mann, 2004).

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<sup>3</sup> Please note that DePaulo et al. (2003) investigated the relationship of more verbal and nonverbal behaviours but, for the purpose of making comparisons between studies, only those behaviours that were examined in the other three reviews reported were included in this table.

<sup>4</sup> It is important to note that this review was not quantitative (i.e., meta-analytic) in nature; it was a summary of the deception literature available at the time.

Table 1.1

*Summary of reviews on behavioural correlates of deception*

	DePaulo et al. (2003)	Sporer and Schwandt (2006; 2007)	Vrij (2000)	Zuckerman, DePaulo et al. (1981)
<b>Verbal cues</b>				
Duration of answers	<	<	<	—
Negative statements	>		>	>
Quantity of detail	<			
Uncertainty	>			
<b>Nonverbal cues</b>				
Vocal pitch	>	>	>	>
Speech errors	>	>	—	>
Leg and foot movements	—	<	<	—
Response latency	—	>	>	—
Functional hand and arm movements (i.e., Illustrators)	<	—	<	
Hand and finger movements	—	<	<	
Pupil dilation	>			>
Head movements (i.e., nodding)	—	<	—	—
Smiling	—	<	—	—
Shrugs	—	—		>
Speech hesitations	—		—	>
Blinking	—	—	—	—
Postural Shifts	—	—	—	—
Speech rate	—	—	—	—

**Note:** the signs refer to the actual behaviour/deception relationship: >, increase during deception; <, decrease during deception; — no clear association with deception; blank, relationship was not investigated in the review.

Table 1.1 also summarises nonverbal behaviours that are more likely to occur when lying than when telling the truth. The most widespread findings across the meta-analyses and Vrij's review are that liars appear more likely to display a higher pitched voice, have longer response latencies, make more speech errors, display fewer illustrators (i.e.,

functional hand and arm movements), and fewer hand and finger movements (i.e., non-functional hand and finger movements) compared to truth tellers. The display of these behaviours has been associated with the experience of the three psychological processes described in the previous section (i.e., emotion, attempted control and cognitive load). For instance, the display of higher vocal pitch and increased speech errors has been associated with liars experiencing emotional arousal during deception (DePaulo et al., 2003; Ekman et al., 1976), whereas the overall decrease in movements has been linked to liars experiencing cognitive load and/or attempted control processes.

The relationship between some of these behaviours and deception is not as clear cut as it seems because the experience of these processes may not always result in the noticeable display of a specific behaviour. For instance, the difference in vocal pitch between liars and truth tellers might be so small that specialised equipment may be needed to detect this difference (Vrij, 2008). In fact, DePaulo et al. (2003) only found a weak relationship between vocal pitch and veracity. Also, in the case of response latency, whilst Sporer and Schwandt (2006, 2007) and Vrij (2000, 2008) found that liars have longer response latencies, DePaulo et al. (2003) found no clear relationship between them. Furthermore, even though the findings of these studies provide some empirical evidence for the influence of emotional arousal, cognitive load, and attempted control processes on a liar's behaviour, there are behaviours that were not found to be clearly associated with deception as predicted by these three processes. For instance, theoretically, speech rate would be predicted to increase due to (emotional) arousal or attempted control (i.e., the avoidance of too many pauses or taking longer to respond). However, in these meta-analyses, speech rate was not found to have a clear association with deception. Other behaviours such as eye contact and blinking, which were thought to increase due to cognitive load and emotional arousal, were also found to be unreliable predictors of

deception. This suggests that there is great variability in the way verbal and nonverbal behaviours are affected by deception, making it difficult to identify reliable cues. Also, it further supports the idea that the experience of emotional, cognitive and attempted control processes during deception does not systematically result in the presence of specific behavioural signs. Overall, the findings presented above suggest that there are only a few behavioural correlates of deception.

The lack of reliable deceptive cues found in the literature has been argued to be the result of moderator variables which may blur the association between deception and behaviour (DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007). These moderators can magnify behavioural cues that may be displayed during deception (DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007). For instance, the motivation of the liar has been thought to affect the directionality and strength of behavioural signs of deception. Liars who are highly motivated to get away with their lies are likely to display more signs of arousal and attempted control than liars who are not motivated (Vrij, 2000; Zuckerman, DePaulo et al., 1981). In other words, a person who is really trying to get away with a lie may be more likely to experience increased arousal as a result of being nervous about the consequences of getting caught. The liar may also be more likely to try to control his or her behaviour in order to appear honest compared to someone who does not care about the consequences of getting caught. DePaulo et al.'s (2003) meta-analysis provided support for this notion and found that liars who received any type of motivation (e.g., financial or relevant for their professional careers) were likely to be more tense overall, display less eye contact, fewer speech disturbances and filled pauses, and have a higher pitched voice than liars who received no incentive to lie successfully. Similarly, Sporer and Schwandt (2006, 2007) found that motivated liars were also likely to smile more, speak faster and have longer response latencies than liars who were not motivated to succeed.

Another moderator variable thought to affect the display of deceptive cues is the planning of the lie. According to DePaulo et al. (2003), well prepared lies are less likely to require cognitive capacity which often results in fewer signs of cognitive load than lies that are unplanned. Therefore, compared to liars who have not had a chance to prepare their deceptive accounts, liars who have the opportunity to prepare their deceptive accounts in advance may respond faster and their messages may be longer. Prepared liars may also display fewer speech errors, body movements and less signs of arousal than unprepared liars. DePaulo and colleagues (2003), along with Sporer and Schwandt (2006), demonstrated that liars who did not have time to prepare their lies had longer response latencies than those who had time to prepare. Similarly, Sporer and Schwandt (2007) found that unprepared liars displayed less nodding and less hand movements than prepared liars.

Another variable that has been thought to moderate the relationship between behaviour and deception is the content or complexity of the lie. The more complex a lie is to fabricate, the more signs of cognitive load may be displayed by the liar (e.g., shorter message durations, increased response latency, faster speech rate and decreased overall movements) (Vrij, 2000). Vrij and Heaven (1999) examined the behavioural differences between those liars whose deceptive messages were relatively easy to fabricate (e.g., provide a wrong description of a person) and those liars whose messages were relatively more difficult to fabricate (i.e., make up a reason for a wrongdoing). As expected, it was found that liars made more speech errors when the lie was difficult to fabricate than when it was easy to fabricate.

In sum, research in this area suggests that there are no behavioural cues that are uniquely associated with deception; in fact, deceptive cues may depend on many factors and contextual features. It is, therefore, not surprising to find that accuracy rates are generally poor. Sporer and Schwandt (2007) suggest that in order to avoid

misinterpretations, lie detectors “need to be taught to analyse situational determinants first to determine whether or not some cues may be considered to indicate the presence of deception in a given situation” (p.26). Thus, lie detection seems to be more complex than just examining the frequency and occurrence of behavioural signs.

### **Stereotypical cues to deception**

Whilst the lack of reliable deceptive cues might provide an explanation for poor accuracy rates found in the lie detection literature, researchers have proposed that low accuracy rates are better explained by a mismatch between what is actually indicative of deception and what people *believe* indicates deception (Granhag & Strömwall, 2004; Memon et al., 2003; Miller & Stiff, 1993). Consequently, a number of studies have concentrated on examining people’s subjective beliefs about the behaviours that indicate deception and the cues that they generally use when making judgments of deception (e.g., Global Deception Research Team, 2006; Granhag, Andersson, Strömwall & Hartwig, 2004; Strömwall, Granhag & Hartwig, 2004; Vrij, 2000, 2004a, 2004b; Vrij & Semin, 1996; Zuckerman, Koestner et al., 1981). These subjective beliefs, also known as perceived indicators of deception (Vrij, 2000), are defined as those behaviours that people commonly associate with deception, regardless of whether they are an actual manifestation of deception or not (Vrij & Semin, 1996).

Research on perceived indicators of deception has identified common beliefs among observers about the relationship between nonverbal and verbal behaviours and deception. These studies have demonstrated that observers typically associate deception with increased vocal pitch, excessive speech errors and hesitations, a slow speech rate, long latency periods before speaking, more and longer pauses when speaking, increased gaze aversion, increased smiling, increased eye blinking, more body movements such as

illustrators, self-manipulations, hand/finger movements, shifting positions, etc. (Akehurst, Kohnken, Vrij & Bull, 1996; Global Deception Research Team, 2006; Granhag et al., 2004; Granhag & Strömwall, 2004; Granhag, Strömwall & Hartwig, 2005; Memon et al., 2003; Strömwall et al., 2004; Vrij, 2000, 2004a, 2004b, 2008; Vrij, Akehurst & Knight, 2006; Vrij & Semin, 1996). Also, observers tend to believe that liars' messages are shorter, less plausible, less consistent, contain fewer details, contain more negative statements and more irrelevant information (Granhag et al., 2004; Strömwall et al., 2004; Vrij, 2000; Vrij et al., 2006). Of these verbal and nonverbal cues, gaze aversion has been the most commonly reported behaviour indicating deception, followed by self-manipulations, and leg and foot movements.

It has also been shown that these perceived indicators of deception are commonly shared by laypeople and professional lie catchers (police officers, judges, detectives, customs officials, etc). Akerhurst et al. (1996) found that there were no differences between police officers' and college students' beliefs about correlates of deception. In their study, both groups associated deception with an increase in gaze aversion and movements (i.e., leg, arm and hand movements). Similarly, Vrij and Semin (1996) found that college students, police detectives, patrol police officers, customs guards and prison guards associated deception with an 'increase' in movements, including smiles and gaze aversion. Mann et al. (2004) found that the most common cues mentioned by police officers before and after making credibility judgments were gaze aversion, body movements, vagueness, miscellaneous speech, and fidgeting. Thus, the literature has shown that different professional groups also have stereotypical beliefs of how behaviour is affected by deception.

Recently, research has demonstrated that these stereotypical beliefs are not only shared by law enforcement professionals and laypersons in the western world but are also

commonly shared across the world. The Global Deception Research Team (2006) asked university students from 58 countries around the world: “*How can you tell when people are lying?*” in order to examine whether perceived cues of deception are universally shared. Their study showed that the most common beliefs about deception is that liars avoid eye contact (63.66%), that liars are nervous (28.15%), that liars’ remarks are incoherent (25.30%), and that lying can be detected by movements (25.04%). Other common beliefs across cultures were that lying could be detected by facial expressions, inconsistencies in the stories, speech fillers, facial colour, and pauses while speaking. The study demonstrated that there was a strong consensus of beliefs across the 58 countries, especially for gaze aversion in which participants from 51 out of the 58 countries tended to believe that gaze aversion was related to deception. However, it was acknowledged that asking an open-ended question might have limited the number of cues people reported in the study. Therefore, the researchers conducted a second study in 63 countries (46 of which participated in Study 1) in which participants were given a list of 10 of the most frequently reported behaviours found in Study 1, and were asked to indicate how each type of behaviour would be affected by lying (i.e., decrease or increase during deception). The findings were similar to those reported in Study 1; the most common beliefs across countries were that liars avoid eye contact, shift their posture, fidget, and tell longer and more inconsistent stories than truth tellers. The results from these studies suggest that there is a ‘world-wide view of how a liar behaves’ (Global Deception Research Team, 2006).

Despite the findings of the Global Deception Research Team (2006) suggesting that subjective beliefs about behavioural correlates of deception are commonly shared world-wide, there were also some cross-cultural differences worth noting. The study showed that gaze aversion was more likely to be mentioned in some countries than others. For instance, people from the United Arab Emirates were the least likely to mention gaze aversion as a

cue to indicate deception compared to other countries. The results also showed differences in the distribution of participants' responses for specific behaviours/cues. For example, it was found that although 54.2% of the respondents across cultures believed that liars are nervous, more than a quarter (27.0%) believed that they are calm. This suggests that there might be differences in the stereotypical beliefs about liars' behaviour across cultures.

The study also had some important limitations. The nature of the questionnaire may have restricted participants from thinking about other cues that were not included in the available options. Also, the items on the questionnaire themselves may have cued participants' responses. Taking these limitations into account, it may be plausible to argue that there are more culture-specific beliefs about a liar's behaviour that this research may have not been able to identify. Consistent with this idea, Al-Simadi (2000) conducted a study in which he examined Jordanian students' beliefs about nonverbal behaviours associated with deception. In order to do this, he asked 347 Jordanian students to complete a questionnaire that included 20 visual and auditory nonverbal behavioural cues that were believed to be associated with deception (e.g., eye contact, hesitations and stuttering). Participants were asked to rate whether they believed the behaviour would increase, decrease or be unaffected by deception. They found that Jordanians associated deception with an increase in blinking, touching of the body, stuttering, hesitations, hand gestures, postural shifts, negative statements, self references and blushing. The Jordanian beliefs are somewhat similar to those found across cultures by the Global Deception Research Team (2006). However, eye contact was not endorsed by Jordanian students as a cue to deception. This is contrary to the high prevalence of endorsement found by the Global Deception Research Team across 58 countries, thus suggesting the possibility that there may be culture-specific stereotypical beliefs about a liar's behaviour.

Regardless of whether stereotypical beliefs are widely held across the world, deception research has suggested that these subjective beliefs are often inaccurate and contradict the empirical evidence of actual indicators of deception. For example, gaze aversion, one of the most commonly held beliefs across the world, has been consistently found to be an unreliable indicator of deception (DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007; Vrij, 2000, 2001). Furthermore, whilst people often believe that liars tend to increase their body movements, DePaulo et al.'s, Sporer and Schwandt's, and Vrij's reviews of behavioural correlates of deception suggest that lying is often associated with a decrease in movements. Even if laypeople or professionals rely on cues that have been found to be actual indicators of deception (e.g., higher vocal pitch), these cues may be used incorrectly or without appropriate regard to the context. For instance, people are often unaware that some indicators of deception are only likely to occur when the lie is difficult to fabricate or the liar is highly motivated to get away with their lies (Granhag & Vrij, 2005; Sporer & Schwandt, 2006, 2007). In sum, it appears that there exist widely held yet inaccurate beliefs among observers about the relationship between behaviour and deception.

There have been a number of explanations for these inaccurate beliefs about deception. One such explanation is that these types of beliefs stem from the idea that many of these behaviours are signs of nervousness, which people associate with deception. In other words, people believe that liars are nervous; thus, when observers see signs of nervousness, these behaviours are immediately associated with deception (Vrij, 2000). Others, such as Strömwall and colleagues (2004), argued that these inaccurate beliefs could originate from police interrogation manuals and other publicly available information (e.g., films or TV shows). These manuals often recommend relying on nonverbal and verbal cues that research has not identified as actual cues of deception (such as gaze aversion, posture

shifts, grooming gestures, and placing hand over mouth as cues to deception), thus reflecting and emphasising common misconceptions about the relationship between behaviour and deception. Vrij (2008) proposed that these beliefs are the result of the lack of feedback or the amount of misleading evidence laypeople and professionals face concerning the accuracy of their judgments. For instance, unless all passengers displaying nervous behaviour are stopped, a customs officer may never know if that behaviour indicates an intention to deceive. Lastly, Strömwall and colleagues (2004) proposed that stereotypical beliefs of deception are the result of confirmation bias; the tendency to seek confirming rather than disconfirming information. In other words, when people believe that liars avert gaze, they don't look for situations in which someone who did not display gaze aversion turns out to be lying; rather, they look for situations in which someone who did avert their gaze turns out to be lying (i.e., they confirm their beliefs).

In sum, this body of research suggests that people often hold inaccurate beliefs about the relationship between behaviour and deception. These beliefs are widespread amongst different professions and laypeople, and are likely to hinder lie detection performance.

### **Making judgments of deception**

The deception literature reviewed up to this point has examined the behavioural cues that are likely to occur while lying and the cues that people often use when making credibility judgments. However, there is an important limitation to this research that warrants further discussion. Current lie detection research suggests that the detection of deception occurs in an objective and systematic manner, where observers examine the liar's behaviour by looking at the occurrence and frequency of verbal and nonverbal

behaviours. Truth and lie judgments are then based on the correspondence between the observed behavioural cues and the judge's beliefs about cues to deceit (Vrij & Mann, 2004). In other words, this approach to investigating deception implies that the communicator displays a number of behavioural cues, and observers systematically look for and use those cues to make judgments of credibility. However, in most daily life situations, lie detection does not occur in such a systematic way (Vrij & Mann, 2004). The mere presence of deceptive cues (e.g., gaze aversion) may not always result in a judgment of deception being made (Feldman & Chesley, 1984; Zuckerman, DePaulo et al., 1981). Therefore, assuming that people make judgments of credibility based only on the occurrence of behavioural cues neglects the very nature of the communication process, where people use their own beliefs, norms and values to make attributions about a person's behaviour.

According to Feldman and Chesley (1984), as well as Zuckerman, DePaulo and colleagues (1981), behaviours are not restricted to one meaning because the specific meaning(s) chosen for a behaviour is determined from information about the communicator (i.e., person being observed) and the circumstances in which the behaviour is performed (i.e., context or situation). Therefore, in a given case or context, a behaviour may or may not be viewed as a cue to deception. According to Zuckerman, DePaulo et al. (1981) and Feldman and Chesley (1984), lie detection should be viewed as a two-factor process: perceiving or attending to the relevant cues and then interpreting them. Current lie detection research is limited because it ignores the way behavioural information is perceived, evaluated and employed by observers when making decisions about a person's credibility (i.e., the context). As a result of this limited view in the deception literature, a number of theories from the communication and social cognition literature can be applied to explaining the way people may make judgments of credibility.

Attribution theory is a useful framework for understanding the process involved in making credibility judgments (Feldman & Chesley, 1984). It postulates that the basis for the interpretation of a person's behaviour lies in the perceived causes of that behaviour (Heider, 1958). According to this theory, observers attribute "cause" based on perceived internal (personal) or external (environmental) factors which seem to contribute to the person's actions. If there are a number of possible causes for a particular behaviour, it is less likely that the effect will be attributed to any 'one' cause, because of what Kelley (1967) called the discounting principle. He suggested that, according to this principle, any single cause will assume less importance as a determinant of the behaviour as other reasons become available for consideration. This principle is likely to be particularly important when making credibility judgments in courtroom cases (Feldman & Chesley, 1984; Kraut, 1978; Zuckerman, DePaulo et al., 1981). For instance, if the defendant were to display behavioural cues that could be inferred as indicative of deception (e.g., increase of hand movements) it could be expected to impact negatively on the persons' credibility. On the other hand, if there are other alternative explanations for this behaviour (e.g., nervousness due to severity of sentence), the discounting principle may apply and the strength of deception as a plausible cause for the behaviour may fade. However, it has been widely documented that people have a tendency to emphasise dispositional or internal factors and overlook situational factors as explanations for the behaviour, a tendency known as the fundamental attribution error (Colwell, Miller, Miller & Lyons, 2006; Vrij, 2004a, 2004b). In terms of this error, a person may be more likely to judge the presence of a behaviour as a result of the person being deceptive (i.e., dispositional), rather than as the result of the person being nervous (i.e., contextual or situational). In short, attributions of credibility may not only involve the systematic occurrence of behavioural cues but also the evaluation of situational and dispositional factors that are perceived as causes of such behaviour.

Recently, it has been theorised that a mismatch between an observer's expectancies and the person's behaviour may result in judgments of deception. Bond, Omar et al. (1992) proposed the expectancy violation model which suggests that expectancies<sup>5</sup> stem from social norms, which are "situationally based standards that prescribe certain actions and proscribe others" (p. 969). In other words, they denote "a range of acceptable behaviour" (Levine et al., 2000, p. 124). Therefore, a violation of social norms is set to occur when an individual's behaviour falls outside the range of acceptable behaviour and is deemed deviant or inappropriate. According to the model, when norm violations occur, expectancies violations also occur. These violations would then demand an explanation and raise suspicion of the person, which may result in arousal and "finer-grain information processing" (Burgoon & Hubbard Ebesu, 2005, p. 153). Attention is then directed towards the violated behaviour, and an evaluation process is initiated in order to "make sense" of it. This evaluation process may result in a non-specific activation of judgments of deception as a possible cause for the violation. In other words, perceivers would accept at face value behaviours that are expected and will scrutinise unexpected behaviours. Causal attributions of these violations are then made, and in the absence of a plausible alternative explanation, perceivers will suspect that unexpected behaviours may indicate that the communicator is lying. Thus, deception might be inferred from any behaviour that violates a social norm. For example, if the norm for a social interaction includes relatively high levels of eye contact, a person who avoids eye contact may be suspected of deception as a result of violating that norm. Furthermore, the more frequently the person displays nonverbal behaviour that violates a given social norm, the more dishonest or deceptive the person is likely to appear.

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<sup>5</sup> Burgoon and Walther (1990) defined expectancies as "cognitions about the anticipated communicative behaviour of specific others, as embedded within and shaped by the social norms for the contemporary roles, relationships and contexts" (p. 236).

In order to test the expectancy violation model, Bond, Omar et al. (1992) conducted a series of experiments. In the first experiment, they asked a sample of American university students to make judgments of credibility from a number of silent videotapes. The videotapes depicted a person telling the truth while displaying either a number of bizarre behaviours (e.g., arm-raising, head tilting and staring), or displaying 'normal' behaviours. They found that participants significantly attributed more dishonesty to people who were displaying unusual behaviours (60.3% lie judgments) than to those who were behaving normally (43.9% lie judgments). It was concluded that people infer deception from behaviours that violate nonverbal expectancies and norms. Even though the results supported an expectancy violation model, Bond and colleagues acknowledged that the silent videos might have exaggerated the impact of strange behaviours and, thus increased the chances of dishonesty judgments. Furthermore, the nature of the videos (i.e., subjects were always telling the truth) might have not given specific cues for inferring deceit. More importantly, the specificity of the effect was not established as it was not clear whether attributions of deception occurred due to the weirdness of the stimulus material or the occurrence of norm-violating behaviours. In order to address these limitations, they conducted a second experiment. In this study, participants were asked to make credibility judgments from a number of videos (audiovisual presentation) that depicted people telling the truth while displaying weird behaviours, weird occurrences (e.g., person appeared wearing a 'large nose band', video displayed weird camera movements), or normal behaviours. Similarly to the first study, it was found that observers attributed dishonesty to people who displayed weird behaviours significantly more often than to people who were behaving normally (45% and 33%, respectively). Also, it was found that videos that depicted weird occurrences were not judged as less honest than videos that depicted people behaving normally (29% and 33%, respectively). It was concluded that people infer

deception from the presence of weird behaviours rather than from an unspecified weirdness (i.e., weird occurrences) in the videos.

In order to examine the cross-cultural validity of the expectancy violation model they proposed, Bond, Omar et al. (1992) conducted a third study. In this experiment, eight literate Indians were videotaped lying or telling the truth while displaying a number of unusual behaviours such as head tilting, leg lifting, torso bending and jaw thrusting. A sample of illiterate Indians (farm workers) were asked to judge these videos and were given financial incentives for their participation (regardless of whether their judgments were accurate or not). The results replicated the findings from Studies 1 and 2, with participants attributing more dishonesty to people who were exhibiting unusual behaviours (39% lie judgments) than to those who were behaving normally (31% lie judgments). In general, it was concluded that judgments of deception are not tied to any specific set of behaviours; instead, they arise from socially inappropriate behaviours that violate social norms and expectancies.

Levine et al. (2000) identified several important limitations in Bond, Omar et al.'s (1992) studies. Firstly, they argued that although the bizarre behaviours chosen in Bond, Omar et al.'s (1992) studies were appropriate for demonstrating how any normative expectancy violation would result in judgments of deception, these behaviours are highly unlikely to occur outside research settings. Secondly, they suggested that demand characteristics could also explain their findings. Thirdly, participants in these studies might have been primed to use deception as a causal explanation of "weird behaviours" because they were asked to make dichotomous judgments of credibility (i.e., lying or not lying) without other possible options (e.g., drunkenness, nervousness). Lastly, Levine and colleagues (2000) also contended that Bond, Omar et al. (1992) confounded norm violations and expectancies. According to Levine et al. (2000), even though norms may

create expectations, they are conceptually and empirically distinct from expectations; thus the basic premise underlying the expectancy violation model was in fact norm violations. For instance, polite behaviour, depicted by someone who is expected to be rude, would violate expectations but would not violate social norms. Consistent with this idea, it has also been argued that not all expectancy violations will result in attributions of deception (Aune, Levine, Ching & Yoshimoto, 1993; Burgoon & Hubbard Ebesu, 2005; Burgoon & Walther, 1990).

Evaluations of expectancy violations also involve a valency process that result in positive and/or negative evaluations of the behaviour (Burgoon & Hubbard Ebesu, 2005). For instance, it may be possible that high degrees of gaze, extremely close or far conversational distance, etc. may all produce positive evaluations (e.g., consider the person as friendly). This valency process is influenced by the interpretation of the violation and how the actor is regarded (i.e., communicator valence). In other words, the valency of the behaviour depends on who has committed the violation and the meaning that has been associated with that violation. For example, increased gaze may be positively evaluated if the behaviour is displayed by someone close (e.g., intimate partner), whereas it may be negatively evaluated if it is displayed by a stranger. Therefore, an expectancy violation may not result in an activation of attributions of deception. It may be possible that the meaning and evaluation of the cause for the violation involves examining situational and dispositional factors of the behaviour (Feldman & Chesley, 1984; Kelley, 1967).

Recently, Mendes, Blascovich, Hunter, Lickel and Jost (2007) investigated the effect of expectancy violations during a social situation. In the study, participants were paired with a confederate who would either describe their socio-economic background as consistent with the observer's stereotypical expectancies (i.e., expectancy consistent condition) or would violate those stereotypical expectancies (i.e., expectancy violation

condition). They found that those confederates that violated the expectancies of the observers were more likely to be viewed negatively than non-expectancy violating partners. It was also found that observers felt more threatened and uncertain towards the expectancy violating partner than the non-violating one. In sum, attributions of deception may not be merely based on norm violations but also on a number of evaluative processes and the interpretation of the cause of the violation.

The norm violation model has been put forward by Levine et al. (2000) to address limitations of the expectancy violation model proposed by Bond, Omar et al. (1992). The norm violation model asserts that norm violations are evaluated independently of expectations, and that norm violations are inappropriate whether they are anticipated or unexpected. Therefore, someone that violates a norm will be viewed as less credible regardless of whether the norm violation was expected or not. Levine et al. (2000) conducted a study in order to test their norm violations model. The authors randomly assigned participants to different conditions in which the normative behaviour (abnormal or normal), expectations (no expectations and expectation), veracity of message (honest or lying), and confederate identity (male or female) varied. Those participants in the expectancy and normative violation condition were told that the person they were about to interview was a “little bit weird” – i.e., participants were primed to expect abnormal behaviour from the interviewee. The person they were asked to interview (a confederate) would then display a number of unusual behaviours such as tooth picking, excessive stretching, exaggerated alternation of speaking volume, and unusual eye movements during the interview. After the interview, participants were asked to rate their perceptions of honesty of the interviewee. It was found, as predicted by the model, that interviewees displaying abnormal behaviours were more likely to be rated as less honest than those displaying normal behaviours independently of the observer’s expectancies (i.e.,

independently of whether they were given an expectancy priming). Specifically, expectancy violating and expectancy consistent conditions did not differ significantly in ratings of perceived honesty. It was concluded that attributions of deception are based on norm violations regardless of the expectations of the observer.

In sum, this body of research suggests lie detection is not only about looking for behavioural signs of deception: it is a much more complex process that involves the examination of an array of situational and contextual factors.

### **Summary**

The literature reviewed in this first chapter has concentrated primarily on three areas: (i) examining accuracy rates of laypeople and professional lie catchers, (ii) identifying systematic cues that will reliably differentiate between liars or truth tellers, and (iii) identifying cues people use when making credibility judgments. Research in these areas has generally found that laypeople and professional lie-catchers are poor at correctly classifying truths and lies. It has also demonstrated that there are only a few reliable cues that effectively distinguish between liars and truth tellers, and that people often use unreliable cues when making judgments of credibility (e.g., Akehurst et al., 1996; DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007; Strömwall & Granhag, 2003; Vrij, 2000). Finally, the chapter also discussed a number of theoretical approaches that may explain the way people make judgments of credibility.

One important limitation of the research discussed so far is that it has largely ignored the impact of cultural factors on deception and lie detection. Specifically, current deception research has been limited to answering questions regarding the universality of behavioural correlates of deception and the way these cues are used to make judgments of

credibility (Sabourin, 2007). Studies on subjective and actual indicators of deception have largely been conducted in Western cultures such as the United States (DePaulo et al., 2003), United Kingdom (Memon et al., 2003), and Germany (Fiedler & Walka, 1993), which share similar socio-cultural norms. In fact, in DePaulo et al.'s (2003) meta-analysis on behavioural correlates of deception, only two studies with Non-Western backgrounds were included in the analysis. Therefore, current research findings may largely reflect Western views and beliefs about cues to deception. In addition, even though the Global Deception Research Team (2006) provided some evidence for the universality of stereotypical cues to deception, their finding that some countries were likely to endorse some beliefs to a greater extent than others suggests that there may be some culture-specific cues to deception.

Hence, it is plausible that the way deception is expressed, the cues that liars display, and the cues that observers use, evaluate and interpret when making judgments of credibility, are culture-specific. For instance, a lie that is perceived as unacceptable in one culture may induce higher degrees of emotion or guilt in the deceiver and may result in a specific pattern of behaviours; whereas the same type of lie may not be perceived as unacceptable by another culture and hence may result in different types of emotions and behavioural signs. If behavioural signs of deception are culture –specific, then current lie detection methods would need to be modified or revisited in order to account for cultural variability of deceptive behaviour.

Moreover, current deception research has viewed lie detection as a systematic process whereby behaviour is observed and inferences made according to the frequency and occurrence of indicators of deception. However, the way people make inferences and evaluations of a person's behaviour may be influenced by other cognitive and affective factors such as stereotypes, prejudice, language bias and ethnocentrism. Hence, it is plausible that lie detection may be hampered by the attitudes and beliefs people have

towards the group they are trying to judge. As a result, examining the role these factors play when making credibility judgments is particularly important in cross-cultural contexts.

Given the limited interest culture has received in the deception literature, I explore the impact of culture on deceptive behaviour and lie detection in Chapter 2. I first discuss the role of culture in the communication process and then argue that several cognitive and affective factors may influence the way people make attributions of deception in cross-cultural contexts.



## **Chapter 2 : Culture, lying, and cross-cultural judgments of credibility**

*“There is no one aspect of human life that is not touched and altered by culture”*  
(Hall, 1973, p. 169)

Culture is now widely recognised as an important theoretical construct that should be considered when investigating all aspects of human behaviour (Matsumoto & Yoo, 2006). Although numerous definitions of culture have been proposed and there is not a single, widely accepted definition, many of these descriptions share several characteristics. These are that culture is defined as “a set of values or information systems” (Matsumoto & Yoo, 2006, p. 235), “systems of socially transmitted behaviour” (Matsumoto, 2006, p. 220) or “programming of the mind” (Hofstede, 2001, p. 9) that is shared by a group of people and communicated through generations. These ‘shared systems’ not only “describe, define and guide people’s way of life” (Matsumoto, 2006, p.220), but also “distinguish the members of one group or category of people from another” (Hofstede, 2001, p. 9). Thus, culture can be regarded as a set of systems, norms, rules or beliefs that are shared by people from a group and transmitted through socialisation.

For decades, the role of culture has been studied in many psychological areas, such as cognition (Mishra, 2001), the expression and perception of emotions (Ekman & Friesen, 1971) and values (Schwartz, 1994). However, due to the ever increasing number of cross-cultural interactions taking place in the world today, one area of study that has received particular attention has been the role of culture in the communication process. I begin this chapter with a discussion of the role culture plays in the verbal and nonverbal aspects of communication. I then provide a brief review of several cultural dimensions that have explained variability in communication processes. The chapter then turns its focus to the

role culture and cultural differences may play in deception and cross-cultural judgments of credibility. After this, I will provide a brief discussion on the impact that several cognitive and affective factors may have on cross-cultural judgments of credibility. Finally, I provide a brief overview of the current research program.

### **Culture and the communication process**

Communication involves both verbal and nonverbal behaviour, and culture influences both (Matsumoto, 2006). During an interaction, verbal and nonverbal messages are sent simultaneously (Neuliep, 2006). The thoughts and ideas of one person are encoded into verbal and nonverbal messages, which are then transmitted to another person(s) who must decode, interpret and respond to them (Gudykunst, 1997). The verbal message is expressed through language and the nonverbal message is expressed through gestures (kinesics), interpersonal space (proxemics), touch (haptics), eye contact (oculesics), time (chronemics) and vocal characteristics such as tone and accent (Knapp & Hall, 2006; Samovar, Porter & McDaniel, 2007). Culture has been thought to influence the encoding and decoding of verbal and nonverbal messages; it affects both, the production of language, symbols and nonverbal codes as well as the interpretation and meaning that is given to these behaviours (Ekman & Friesen, 1971; Knapp & Hall; Matsumoto, 2006). Culture, therefore, defines not only what aspect of communication we attend to and what is important, but also when and how one should communicate a message.

The role of culture in verbal communication is most obvious when cultures have different languages and dialects that would easily differentiate them from one another (Kupperbusch et al., 1999). Thus, because cultures have their own vocabulary, pragmatics,

grammar, and/or syntax, verbal cues are definable and are considered to be more explicit than nonverbal cues (Matsumoto, 2006). For instance, people from the United States of America and England share the same language (i.e., English) but they differ in the way words are used and interpreted (Neuliep, 2006) .

The role of culture in nonverbal communication is, however, less simple and clear. According to Andersen (2005), one reason for this is that nonverbal communication is a “subtle, implicit, non-linguistic, multidimensional, and spontaneous process” (p. 239); as such, perceptions are rarely conscious which makes it difficult to identify and interpret nonverbal codes from other cultures. Whilst verbal messages play an important role, communication has been regarded as primarily and fundamentally a nonverbal process (Neuliep, 2006). Consequently, researchers have become increasingly interested in the role of culture in nonverbal communication processes.

Research in this area has focused on examining the display, use, and interpretation of gestures and proxemic behaviour across cultures (e.g., Ekman, 1976; Efron, 1941 cited in Matsumoto, 2006; Morris, Collet, Marsh & O’Shaughnessy, 1979). This type of research was pioneered by Efron (1941 cited in Matsumoto, 2006), who conducted a large comparative study of gestures among different ethnic groups in New York. In his analysis, he found that Jewish and Italian immigrants, compared to American born citizens, used distinct gestures when communicating. Later, Ekman (1976) found that emblematic<sup>1</sup> gestures amongst Japanese, Americans, and New Guineans were also distinct as a result of cultural influences. Similarly, Watson (1970) documented not only differences in gestures, but also in proxemic, oculosic, haptic, and vocal behaviours across cultures. For instance, he found that Arab students exhibited closer and more direct proxemic behaviour and gaze,

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<sup>1</sup> The term “emblem” refers to any gesture that had become established as a vocabulary item with a shared meaning, which could be used in place of words. For example, the OK sign is considered an emblem (Matsumoto, 2006).

‘touched’ their conversational partner more, and their voice volume was higher than American students. He also found that people from South American and Middle Eastern cultures interacted in closer proximity than North Americans and North Europeans. Similarly, Morris and colleagues (1979) found that some cultures do not only use different gestures but also interpret some gestures in a very distinct way. For instance, they found that the ‘fingers crossed sign’<sup>2</sup> in some cultures was interpreted as representing protection but in others as a sign of breaking a friendship.

A large amount of research on the role of culture in the communication process has centred on the expression and perception of emotion (Matsumoto, 1991, 2006). This area of research was pioneered by Ekman (1972) and Izard (1971). They were the first to provide evidence to support the idea that emotional expression has a universal basis. Their studies demonstrated that people around the world were able to accurately identify what emotion was being portrayed in still photographs of faces. Their findings suggested that there are six ‘basic’ emotions that are universally recognized: happiness, fear, anger, sadness, disgust, and surprise (Ekman, 1972; Ekman & Friesen, 1971; Izard, 1971).

Later research showed that whilst people all over the world are able to accurately recognise these six emotions, cultures differ in the rules that govern how these basic expressions are used and interpreted. These rules are known as *cultural display rules* and are defined as rules of expression management that dictate the appropriateness of emotional displays depending on social circumstances<sup>3</sup> (Ekman, 1972). In other words, they dictate how, when and to whom people should express their emotional experiences (Safdar et al., 2009). Possibly the most compelling evidence for cultural display rules was



<sup>2</sup> (Morris et al., 1979)

<sup>3</sup> The universality and culture specific findings in relation to the expression and perception of emotions has been widely documented and debated but it will not be discussed here further (see Ekman et al., 1987; Elfenbein & Ambady, 2002, 2003; Matsumoto, 1989, 1991, 2006; Matsumoto et al., 2002; Matsumoto & Kudoh, 1987; Matsumoto & Kudoh, 1993).

found when Ekman (1972) videotaped American and Japanese males while watching a movie that elicited disgust. He found that Japanese and American males displayed the same facial responses to the stimulus clips, thus further illustrating the universal basis of emotions. However, when Japanese participants were asked to watch the video clips a second time while an interviewer was present in the room, they displayed considerably fewer negative emotions and even smiled when they were asked about their emotional reactions. This finding was attributed to Japanese rules of when it is appropriate and inappropriate to display negative emotions depending on the social circumstance. Another piece of evidence supporting cultural display rules was obtained by Matsumoto and Kudoh (1993). They conducted a study to compare American and Japanese people's attributions of personality based on smiles. In the study, American and Japanese participants were asked to judge smiling and neutral faces depicted by both Caucasian and Japanese males and females. They found that Japanese people have a display rule to use smiles for social appropriateness more frequently than Americans do, and relatively less frequently to display true feelings of pleasure and joy. Consistent with these display rules, they found that Americans were more likely to associate positive traits (e.g., honesty, sociability, sincerity) with smiling faces and that Japanese people were more likely to associate smiling faces with negative traits (e.g., distrust, dishonesty) .

More recently, Safdar et al. (2009) provided further evidence of cultural display rules of emotions. They found that Japanese display rules permitted the expression of powerful emotions such as anger, contempt and disgust significantly less than the North American and Canadian display rules. They also found that Japanese display rules for the expression of anger, contempt and disgust differed between in-groups and out-groups. That is, the expression of such emotions was dependent on whether the interactant was a member of their in-group (e.g., family member) or out-group (e.g., stranger/interviewer). It

was also found that Japanese people expressed positive emotions (e.g., happiness, surprise) significantly less than Canadians but about the same as North Americans. Overall, the literature on the universality of basic emotions and culture-specificity of display rules demonstrates that the fundamental expression of emotions may be shared by people from different cultures, but the usage, meanings and interpretations given to these emotions may not be as easily translated across languages and cultures.

The literature reviewed above provides ample support for the idea that culture plays a role in the encoding and decoding of nonverbal behaviours, which are an important part of the communication process. However, it does not provide a clear explanation of the nature of such cultural influences, i.e., it does not explain why and how culture influences such behaviours. For instance, knowing that a person avoids eye contact because he or she is from the United States of America does not explain why differences in the normative pattern of eye contact exist across cultures. Matsumoto (1991) argued that theoretical frameworks such as *cultural display rules* explain some of the cultural variability reported in the literature, but lack predictive power. That is, display rules do not allow one to determine whether a culture is likely to have a rule in some circumstances and situations but not in others.

In order to address the lack of predictive power of cultural display rules, researchers proposed the development of cultural dimensions that enabled them to predict and explain such cultural variability in nonverbal behaviours and other communication processes (Bond & Tedeschi, 2001; Matsumoto et al., 2002). In other words, scholars aimed for the development of psychological dimensions that relate to culture and allow for the inclusion, measurement, and degree of influence of the variables of interest (Matsumoto et al., 2002). Hofstede (2001) pioneered this area of research and developed five meaningful dimensions: Individualism - Collectivism, Power Distance, Uncertainty

Avoidance, Masculinity and Long Term - Short Term Orientation. However, of these five dimensions, Individualism- Collectivism and Power Distance have been the two most widely used by researchers to explain cross-cultural differences and similarities in communication processes. Therefore, only these two are discussed below.

### **Individualism- Collectivism**

One of the most important and widely used measures of cultural variability is the Individualism-Collectivism (IC) dimension. Individualistic cultures have been defined by Hofstede (2001) as those in which the needs, values and goals of an individual take precedence over the needs, values and goals of the in-group; whereas collectivistic cultures are those in which the needs, goals and values are sacrificed to satisfy the group. As such, individualistic societies value independence, autonomy, self-reliance, uniqueness and achievement orientation; whereas collectivistic societies value interdependence, harmony, and conformity (Matsumoto et al., 2002; Triandis, 1994). The relative importance given to in-group and out-group relationships is one of the major factors that differentiate between individualistic and collectivistic cultures (Gudykunst, 1997). According to Gudykunst, people in individualistic cultures are likely to have many in-groups (e.g., family, religion, profession); hence specific in-groups exert relatively little influence on an individual's behaviour. Alternatively, in collectivistic cultures, people have fewer general in-groups and, thus an individual's commitment to a specific in-group is greater than in individualistic cultures. The degree of IC, therefore, determines how people live, their values and their reasons for communicating with others (Andersen, Hecht, Hoobler & Smallwood, 2002; Gudykunst et al., 1996).

Individualism and collectivism may both exist in all cultures but one tends to prevail over the other. Hofstede (2001) found that individualism prevails in Western and

European countries such as Australia, Belgium, Canada, Denmark and United States, while collectivism prevails in less developed and Eastern countries such as Brazil, China, Colombia, Saudi Arabia, and Mexico.

Numerous scholars have attempted to explain cultural differences and similarities in verbal and nonverbal communication processes using the IC dimension; however the majority of this research has concentrated on examining the influence of this dimension on the expression and perception of emotion. For instance, Matsumoto (1991) suggested that American and Japanese cultural display rules of emotion found in Ekman's (1972) study (as described in the previous section) could be explained and predicted by the IC dimension. He argued that Japanese participants were more likely to hide or mask the display of negative emotions in the presence of the investigator because, as members of a collectivistic culture, harmony and group cohesion of the in-group are primary goals. In individualistic cultures, however, there is relatively less pressure to maintain such group harmony and cohesion.

Recently, Matsumoto and colleagues (2008) conducted a study in more than 32 countries and found that individualistic and collectivistic cultures hold different display rules and norms concerning the expressivity of positive and negative emotions in in-group and out-group situations. Specifically, they found that individualism was positively correlated with higher overall expressivity norms, particularly, for positive emotions. That is, members of individualistic cultures were more likely to express positive emotions regardless of the situation. Moreover, they found that with in-group interactants, members of individualistic cultures endorse more emotion expression, whereas members of collectivistic cultures endorse less. On the other hand, with out-groups interactants, members of individualistic cultures endorsed relatively less expressions of negative emotions to out-groups relative to in-group interactants. These findings provided further

evidence that differences and similarities in display rules across cultures could be explained and predicted by the degree of IC in a culture.

Other researchers reported that the degree of IC in a culture is associated with other nonverbal behaviours and communication styles. For instance, it has been found that members of individualistic cultures are more likely to have greater proximal distance, smile more, be more nonverbally affiliative, and use more confrontational strategies when dealing with interpersonal problems than members of collectivistic cultures (Andersen, 2005; Gudykunst et al., 1996; Tomkins, 1984). Therefore, the degree of IC also has an impact on the way individuals of a culture communicate and the norms and rules that determine what is appropriate or not appropriate during an interaction.

### **Power distance**

As mentioned previously, another dimension of cultural variability proposed by Hofstede (2001) is Power Distance. Power Distance (PD) is defined as “the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally” (Hofstede, p. 98). Cultures vary from low to high degrees of PD. As such, individuals from high PD cultures accept power and status differences as part of society, and their behaviour reflects the preservation of such differences; whereas individuals from low PD cultures believe that inequality should be minimised, and their behaviours reflect that view. Similar to the IC dimension, high and low PD exists in all cultures but one tends to predominate over the other. Hofstede (2001) found that cultures highest in PD were the Philippines, Mexico, Venezuela, India, Singapore, Brazil, Hong Kong, France and Colombia, whereas cultures lowest in PD were Austria, Denmark, Germany, Israel, New Zealand and Sweden.

Numerous researchers have explained similarities and differences in

communication processes and styles using the PD dimension. Matsumoto (1991) found that there are display rules that maintain these power/status differences between interactants. Members of high PD cultures promote the display of emotions that preserve these status and power differences (i.e., displaying positive emotions to higher status others, and negative emotions to lower status others), whereas members of low PD cultures promote the display of emotions that minimize such status/power differences (i.e., display of positive emotions to lower status individuals and more negative emotions to higher status individuals). For instance, downcast eyes, honorific tones and fixed smiles are examples of these status-based rules seen in cultures with high PD (Andersen & Bowman, 1999; Bond & Rao, 2004). Thus, the degree of PD may determine how people use and interpret the display of negative and positive emotions.

In addition to Hofstede's (2001) IC and PD dimensions, two other dimensions – context and immediacy – have been developed by Andersen et al. (2002) in order to explain cross-cultural variability in communication processes. These two dimensions are now discussed briefly.

### **Context**

Context has been defined as “the degree to which communication of a culture is explicit and verbal, or implicit and nonverbal” (Andersen et al., 2002, p. 99). High context cultures are those in which knowledge of nonverbal codes, the environment and the context are essential for the understanding of a message. In contrast, low context cultures are those in which the meaning of the message is conveyed explicitly through verbal communication; thus, interactants in low context cultures tend to be less reliant on nonverbal codes for the conveyance and interpretation of meaning (Andersen, 2005; Andersen et al., 2002; Bond & Rao, 2004). Specifically, a message in a high-context

culture is defined as one in which “most of the information is either in the physical context or internalised in the person, while very little is in the coded, explicit, transmitted part of the message” (Hall, 1973, p. 79), whereas a message in a low-context culture is defined as one in which communication occurs predominantly through explicit statements in text and speech – i.e., “vested in explicit code” (p.70). For example, a grimace or a smile provides implicit meaning that is not explicitly available through verbal message<sup>4</sup>. Individuals from low context cultures are, therefore, more likely to be perceived as excessively talkative and repetitive by those from high context cultures. Conversely, people from high context cultures are more likely to be perceived as non-disclosing and mysterious by those from low context cultures. According to Andersen et al. (2002), low context cultures include Germany, Switzerland, United States, Sweden, Norway, Finland, Denmark and Canada, and high context cultures include China, Japan, South Korea, and Mexico.

### **Immediacy**

Immediacy is defined as behaviours that communicate interpersonal closeness or availability (Andersen, 2005). Thus, the immediacy dimension is anchored at one end by behaviours that communicate warmth, closeness and approach (e.g., smiling, eye contact, more vocal animation, open body positions) and at the other end by actions that express avoidance and distance (e.g., large personal space, close body position). Some researchers have referred to immediacy behaviours as nonverbal involvement, intimacy or expressiveness (Andersen et al., 2002; Floyd & Burgoon, 1999). Cultures that display significant amounts of immediacy behaviours or interpersonal closeness are often called

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<sup>4</sup> Although the present review focuses on general differences across cultures, it should be noted that even within “cultures”, context might be particularly high or low within a specific type of interaction. For instance, communications with a close acquaintance (e.g., spouse, family member) are said to be high context situations as nonverbal codes can be used to provide meaning to the message without explicitly saying it.

“high-contact” cultures, whereas those that display less immediacy actions are called “low-contact” cultures. People in high contact cultures are likely to make more eye contact, stand closer to one another, and engage in more touching than people in low-contact cultures. Most Arab, Latin American and Mediterranean countries are said to be high contact cultures. Northern European nations, including Scandinavia, Germany and England, and almost every Asian country, including Burma, China, Japan, Indonesia, Korea, Thailand and the Philippines, are said to be low contact cultures (Andersen, 2005; Andersen et al., 2002).

In sum, the preceding discussion provides extensive evidence of the role culture plays in the encoding and decoding of verbal and nonverbal messages. Cultures have display rules and norms which not only denote the appropriateness of behaviours but also the interpretation and meaning given to these behaviours. Thus, cultural differences in communication styles may play an important role during cross-cultural interactions.

### **Cross-cultural issues in deception**

Cross-cultural encounters around the world are far more numerous than ever before due to the creation of new technologies, globalisation of economies and changes in immigration patterns (Samovar, Porter & McDaniel, 2005). In Australia alone, it has been reported that 56% of the increase in the population in 2006-2007 was the result of immigration (Australian Bureau of Statistics [ABS], 2008). This cultural diversity within the Australian population has resulted in over 200 languages being spoken in the community. Aboriginal and Torres Strait Islander Australians alone speak more than 60 different languages. In the 2006 census, it was reported that 16% of the Australian population speak a language other than English at home, an increase of 10% since 2001.

The six most commonly spoken languages other than English were Italian (1.6%), Greek (1.3%), Arabic (1.2%), Cantonese (1.2%), Mandarin (1.1%) and Vietnamese (1%) with speakers of these languages together comprising 7% of the total population. Aboriginal languages were reported to be spoken by 11% of all Indigenous Australians and less than 1% of the total Australian population (ABS). As a result, cross-cultural encounters, in which at least one person does not share the same native language and/or culture with the other person(s), are becoming increasingly common in many legal, business, work and social settings.

Brislin (2001) suggested that when people from different cultures come into extensive contact, there is a potential for miscommunication and misunderstandings which lie in the nature of culture itself. For instance, what can be considered polite and effective in one culture may be considered rude and ineffective in another culture. Similarly, Matsumoto, Leroux and Yoo (2005) argued that cross-cultural communication is characterised by ambiguity and uncertainty because the ground rules by which the interaction occurs may not be similar. In other words, the meanings given to verbal and nonverbal codes are unknown and different for both the communicator and the receiver, which may produce opportunities for misunderstanding. The literature reviewed earlier in this chapter supports Matsumoto et al.'s (2005) and Brislin's (2001) ideas. Culture influences the ground rules and norms of behaviour, and the meanings and interpretations given to these behaviours. Thus, during cross-cultural interactions, it is plausible that differences in cultural norms and practices may increase the potential for miscommunication or errors. Spencer-Rodgers and McGovern (2002) argue that during cross-cultural communication a number of barriers arise as a result of differences in patterns of behaviour, affect and cognition. As a result, in order to achieve cross-cultural understanding, communicators and receivers must meet the challenges of language

barriers, unfamiliar customs and practices, and cultural variations in verbal and nonverbal communication styles. They argued that effective cross-cultural communication requires cognitive, affective and behavioural adaptations that can be troublesome to both communicators and receivers. The impact of these barriers during cross-cultural communication can be seen in a number of studies on perceptions of credibility.

Vrij and Winkel (1991) conducted several studies to examine whether variability in communication styles had an effect on perceptions of credibility. They first investigated the behavioural patterns of white native Dutch and black Surinam citizens of the Netherlands during simulated police interviews. In the experiment, they approached Dutch and Surinam shoppers and asked them to participate in a study to determine how accurate police officers were at detecting deception in a short interrogation about the theft of a set of headphones. Half of the participants were given the headphones and were asked to hide them and convince the interrogating officer that they did not possess them. The other half of the participants were not given the headphones and were asked to tell the truth. The participants were then interviewed by a native Dutch police officer or Surinam police officer about the possession of the headphones. All interviews were videotaped and participants' behaviours were scored. The results showed that regardless of whether they were lying or not, compared to native Dutch people, Surinam people generally made more speech errors, spoke more slowly, spoke with higher pitched voice, smiled more, displayed more gaze aversion, and performed more self manipulations, illustrators and trunk movements. The results of this study thus support the idea that culture influences communication styles.

Vrij and Winkel (1992) conducted a second experiment to examine whether differences in nonverbal behavioural patterns and skin colour had an impact on perceptions of credibility. Data from their earlier study (Vrij & Winkel, 1991) was used to establish

behavioural norms for “white Dutch” and “black Surinam” nonverbal behaviours. Surinam and Dutch actors were then videotaped and were asked to display gestures and smiling behaviour of typical white (Dutch) or typical black (Surinam) while giving a statement. For example, the actors showed normative smiling behaviour typical of black (Surinam) people in one version, and normative smiling behaviour typical of white (Dutch) people in the other version. Dutch police officers were then shown these video clips and asked to indicate to what extent the people in the video made a suspicious impression, were nervous and appeared unpleasant. It was found that skin colour did not have a negative impact on impression formation but nonverbal behavioural differences did. Specifically, it was found that both Surinam and Dutch actors were seen as more suspicious, nervous and unpleasant when they showed nonverbal behaviour that was consistent with Surinam citizens than when they displayed normative Dutch nonverbal behaviour.

Vrij and Winkel (1994) extended this line of research in a subsequent study, in which they examined the influence of accent, skin colour, speech style (i.e., direct or indirect) and spoken fluency on perceptions of credibility. They presented 175 Dutch police officers with a series of slides and an audiotape of a citizen being interrogated. They then asked the police officers to provide ratings of the perceived suspiciousness, nervousness and unpleasantness of the citizen. Skin colour and accent were manipulated by presenting slides depicting either a person of Dutch or Surinamese origin accompanied by audio recorded in a corresponding accent. The variables of speech style and spoken fluency were manipulated by using normative data obtained in their first study (Vrij & Winkel, 1991). The audiotapes were then manipulated to correspond to the typical speech style and spoken fluency of Dutch and Surinam citizens respectively. They found that neither accent nor skin colour produced an unfavourable assessment of the participants of Surinamese origin. However, consistent with their previous study (Vrij & Winkel, 1992), it was found

that when the citizens displayed the typical speech style and spoken fluency of Surinam citizens, police officers were likely to rate them as more suspicious, nervous and unpleasant than citizens displaying typical Dutch behaviour. Again, these findings suggest that cultural differences in communication styles may have a negative impact on perceptions of credibility.

The results of these studies have important practical and theoretical implications for cross-cultural deception and lie detection. First, Vrij and Winkel's (1991) findings provide further evidence for cultural differences in behavioural patterns. Secondly, their results provide evidence to suggest that these culturally mediated behavioural differences may increase the potential for cross-cultural bias when people are making attributions about a person's behaviour (Vrij & Winkel, 1992, 1994). Specifically, the finding that the normative behavioural pattern of black Surinam citizens was perceived by white Dutch police officers as more suspicious, more nervous and less pleasant than the typical white Dutch behavioural pattern suggests that cultural behavioural differences had a negative impact on impression formation. More interestingly, the behaviours that were found to be typical of black Surinam citizens in Vrij and Winkel's study (1991) have also been identified by deception research as correlates of deception or as stereotypical cues commonly associated with deception (e.g., Akehurst et al., 1996; Granhag et al., 2004; Granhag & Vrij, 2005; Strömwall et al., 2004; Vrij, 2008). Specifically, as indicated in Chapter 1, gaze aversion and increased overall body movements have been consistently identified as the most commonly reported behaviours associated with deception (Global Deception Research Team, 2006). Vrij and Winkel (1994) suggest that these findings could be explained by a lack of familiarity with the culture's baseline communication patterns. Overall, the findings highlight the possibility that during cross-cultural credibility judgments, the behavioural patterns of one culture may be vulnerable to being

misinterpreted as attempts to hide the truth by the other culture.

Vrij (2008) argues that although the lack of cross-cultural research in lie detection is a shortcoming, there is no theoretical reason to believe that liars' behaviour will differ across cultures. He stresses that behavioural indicators of deception are the result of liars experiencing processes of emotion, cognitive load or attempted control (discussed in Chapter 1), and that these processes and accompanying behaviours are universally shared. However, Vrij's (2008) argument and the three process approach to correlates of deception ignore differences in the way deception is perceived and regarded across cultures.

According to Kim et al. (2008), the three process approach is problematic because it assumes that all cultures endorse the same value towards speaking the truth. They argue that the premise that the display of emotional behaviours (e.g., fear or guilt) is the result of not telling the truth is only true if deception is considered inherently immoral. For instance, if a culture perceives outright lies as not being a form of deception, it is less likely that automatic behavioural responses will result when conveying this type of lie. Thus, if there is no negative emotion tied to deceiving, there should be no automatic display of cues of emotion. Accordingly, if one does not experience high levels of guilt in response to communicating deceptively, one is not likely to exhibit cues of arousal. Kim et al. (2008) found that the altering or rejection of truthful information is not typically considered deception in collectivistic cultures. Rather, this manipulation of information is seen as necessary in order to maintain harmonious relationships. When a person from a collectivistic culture alters the truth, s/he may not experience guilt or fear of lying because it is acceptable to do so according to cultural norms and practices. This is the same for behavioural control. If the communicator does not regard deception as an immoral practice that is to be avoided, it is less likely that s/he would engage in attempted control. The communicator may not feel worried that several behavioural cues may give away his or her

lies and thus might not engage in “impression management” strategies to avoid getting caught – as proposed by Memon et al. (2003). Kim and colleagues (2008) concluded that given the systematic cultural differences in the motivations and perceptions associated with deceptive communication, researchers can no longer continue to investigate deception without regard for such cultural differences.

Cultural differences in norms and practices may also have an effect on the way people make attributions of credibility in cross-cultural contexts. In a situation in which a communicator and an observer are from different cultures, the observer will apply social norms or beliefs concerning behaviour that may differ from the communicator’s own norms. As a result of this discrepancy, a communicator who is behaving consistently with his or her own cultural norms might violate the expectancies of the observer. According to the expectancy violation model (Bond et al., 1992) and norm violation model (Levine et al., 2000) discussed in Chapter 1, violations of the observer’s cultural norms and/or expectations would increase the likelihood that the observer will suspect the communicator of being dishonest if no other plausible explanation is available. These models can also account for Vrij and Winkel’s findings (Vrij & Winkel, 1992, 1994); it is possible that because black Surinam citizens have a distinct normative behavioural pattern compared to white Dutch citizens, the norm violations that occurred during these interactions may have aroused suspicion and thus resulted in more negative judgments compared to those communicators who did not violate these norms. However, very little deception research has examined the impact of norm and expectancy violations in cross-cultural judgments of credibility. Based on these two models, one would expect that norm violations would increase the number of deceptive judgments and thus result in cross-cultural bias.

In the deception literature, only a limited number of studies have examined these issues. For instance, Bond, Omar, Mahmoud and Bonser (1990) conducted a study to

investigate whether behavioural correlates of deception were different across cultures and whether lie detection was possible across cultures. In order to examine whether deceptive cues were different across cultures, they scored the frequency of eight nonverbal and vocal behaviours of American and Jordanian students lying and telling the truth about a person they liked and a person they disliked. Some of these participants were asked to conceal their lies, whereas some were asked to convey their lies to the interviewer (i.e., use any strategy to convey their lies without explicitly saying that they were lying). Like Vrij and Winkel (1991), they found that there were differences in the baseline behaviour between cultures: Jordanians displayed more eye contact, more movements, and more filled pauses per minute compared to Americans regardless of whether they were lying or not. Furthermore, they found that the behaviours associated with deception were also culturally mediated. Specifically, Jordanians were more likely to display filled pauses while lying than telling the truth, but Americans did not show this pattern.

The results of Bond, Omar et al.'s (1990) study not only support the idea that baseline behaviour is culture-dependent, but it also suggests that there may be culture-specific indicators of deception. Consequently, it is possible that people from different ethnicities or cultures show different behavioural patterns while lying. Moreover, the results of this study also provide support for the notion that the baseline behaviour of a culture may be interpreted as deceptive, and thus suggest the potential for bias during cross-cultural interactions. For instance, the normative behavioural patterns of Jordanians (e.g., more movements and more filled pauses) have also been identified by deception research as cues commonly associated with deception. Consistent with the literature, the increase of body movements has been commonly associated with nervousness and deception (Global Deception Research Team, 2006). However, one major limitation of Bond, Omar et al.'s (1990) study is that they did not test whether differences in baseline

behaviour across cultures resulted in more judgments of deception being made – that is, whether there was a cross-cultural bias.

Bond and Rao (2004) proposed that cross-cultural differences in behaviour may affect cross-cultural lie detection in two ways: (i) it may hinder the lie detection process, especially if lie detectors make judgments of credibility based on norm deviations of a culture-specific baseline behaviour (i.e., norm violation model), and (ii) it may facilitate lie detection, especially if people in different cultures infer deception from different behavioural cues (i.e., have different stereotypical views of a liar's behaviour), and liars concentrate on controlling only those cues that their compatriots associate with deceit. In such cases, deception would be exposed by the cues that the liar did not bother to hide. However, based on current deception literature, it is difficult to arrive at a conclusion about these two possibilities because less than a handful of studies have examined people's ability to detect deception in cross-cultural contexts.

Bond, Omar et al.'s (1990) study, described above, also examined lie detection accuracy in cross-cultural contexts. They showed that, within cultures, Americans achieved a lie/truth detection accuracy rate of 54.9% when lies were concealed and 62.2% when lies were conveyed by American students, both rates higher than expected by chance. Similarly, Jordanians had a lie/truth detection accuracy rate of 57.2% when lies were concealed, and 57.6% when lies were conveyed by Jordanian students, also higher than expected by chance. Interestingly, when lie detection was examined across cultures, it was found that when lies were concealed, American observers achieved a lie/truth detection accuracy rate of 49.9% and Jordanian observers 48.7%, both no different from chance. When lies were conveyed, American observers achieved 51.7% accuracy and Jordanians achieved 49.8% accuracy rate, neither rate significantly different from chance. These results suggest that participants were particularly poor at making accurate lie/truth

classifications in cross-cultural contexts and slightly better in within-culture contexts. In fact, even when deceivers were using strategies to convey their lies, judges were not able to accurately detect whether the person from the other culture was lying.

However, Bond and Atoum (2000) pointed out that the no-audio presentation of videos in Bond, Omar et al.'s (1990) study may have undermined observers' attempts at cross-cultural lie detection. In order to address this limitation, Bond and Atoum (2000) conducted a series of studies. They videotaped American, Jordanian and Indian students and community members either lying or telling the truth. The videotapes were then judged for deception by other American, Jordanian and Indian students and community members. Contrary to Bond, Omar et al.'s (1990) findings, participants' detection accuracy rate across cultures was around 51.66% and within cultures 54.27%, both significantly higher than expected by chance alone (i.e., 50%), although not impressive. They concluded that people can accurately detect lies of people with whom they do not share the same cultural background; however, judgments of credibility were still consistently higher within than across cultures.

The results of these studies suggest that lie detection across cultures may be possible, but cultural differences in behaviour may complicate this process. As previously shown, in mono-cultural contexts, lie detection accuracy has been consistently found to be particularly poor (i.e., around 50-60% ); in cross-cultural contexts, however, the picture is not any better because accuracy rates have been found to be similar or even worse, as demonstrated by Bond and Atoum's (2000) study. More importantly, regardless of whether people can accurately detect deception in cross-cultural or mono-cultural contexts, there are a number of cultural factors that have not been examined in the deception literature, and these could increase the likelihood of cross-cultural bias or errors with potentially significant consequences.

### **Cognitive and affective factors in cross-cultural lie detection**

The previous section highlighted that cultural differences in behaviour may result in errors or bias during cross-cultural interactions. The focus on such cultural differences in behaviours and norms suggests that previous research has also consistently neglected the influence of other cognitive and affective factors on inter-group perceptions, such as stereotypes, ethnocentrism, language bias and prejudice (Stephan & Stephan, 2002; Wiseman, Hammer & Nishida, 1989). There is considerable evidence in the cross-cultural communication literature that suggests that many misunderstandings which arise during intercultural communications are rooted in the attitudes and beliefs people hold towards members of the out-group (Stening, 1979). Wiseman and colleagues (1989) suggested that an individual's attitudes towards members of another culture not only influence how positive or negative their impressions of that culture are, but also determine the degree of mutual understanding that could be achieved during cross-cultural communication. However, the deception literature has largely disregarded the impact these factors may have during cross-cultural lie detection. In this section I briefly discuss how stereotypes and prejudice, ethnocentrism, and second language use may influence judgments of credibility in cross-cultural contexts.

#### **Stereotypes and prejudice**

Social psychologists have long been interested in stereotypes and prejudice because they are particularly important in understanding how people make sense of and react to each other (Stangor, 2000). These two concepts have been widely viewed as interrelated (Devine, 1989; Sherman, Stroessner, Conrey & Azam, 2005). Whilst

stereotypes are commonly defined as the knowledge, beliefs and expectations associated with social groups and their members, prejudice is defined as the positive or negative evaluations of social groups and their members (Sherman et al., 2005). Therefore, stereotypes are seen as the cognitive component, and prejudice as the affective or evaluative component, of intergroup bias<sup>5</sup> (Amodio & Devine, 2006).

Stereotypes are particularly important in understanding intergroup relations because they help to create expectations of how a group and their members should behave, and provide ways to explain and predict their behaviour (Gudykunst, 2004). Their influence can be pervasive, affecting the perceiver's attention to the information, their inferences, interpretations of and judgments of behaviour (Hamilton & Sherman, 1996; Hamilton, Sherman & Ruvolo, 1990). Consequently, stereotypes are particularly relevant during cross-cultural communication because they can affect the information that is noticed, remembered, stored and recalled about individuals from a group (Stephan & Stephan, 2002; Wiseman et al., 1989). However, it has been argued that stereotypes in and of themselves do not always lead to miscommunication or errors. According to Gudykunst (2004), inaccurate predictions of a person's behaviour are particularly likely to occur when negative stereotypes of a group are rigidly held. For example, if a person has a strong belief that Americans are dishonest, seeing a man known to be American take a package from a car would likely lead that observer to assume that the American is stealing the package. Furthermore, people who hold rigid stereotypes of an out-group also tend to be negatively prejudiced towards that out-group. Consequently, rigidly held stereotypes and negative evaluations of an out-group are more likely to result in discriminatory behaviours (e.g., Hilton & von Hippel, 1996; Jussim, Coleman & Lerch, 1987).

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<sup>5</sup> Intergroup bias refers to the systematic tendency to evaluate one's own membership group (in-group) or its members more favourably than a non-membership group (out-group) or its members (Hewstone, Rubin & Willis, 2002).

The role of stereotypes and prejudice would appear to be particularly important when cross-cultural judgments of credibility are made. It is plausible that holding negative stereotypes and prejudiced attitudes towards members of a cultural group may increase the likelihood of interpreting a behaviour as indicative of deception. These cognitive and affective factors may increase the potential of a dispositional attribution being made. However, the impact of these factors on cross-cultural judgments of credibility has been largely ignored in the deception literature.

### **Ethnocentrism**

Another central concept in understanding group attitudes and intergroup relations is ethnocentrism. Ethnocentrism is commonly defined as “the view of things in which one’s group is the centre of everything, and all others are scaled with reference to it” (Sumner, 1906 cited in Stephan & Stephan, 2002, p. 130). Such views, according to Samovar and colleagues (2005), are the perceptual window in which cultures interpret and judge each other. Typically, ethnocentrism is exemplified by positive attitudes and behaviours towards the in-group and negative attitudes and behaviours towards out-groups (Hammond & Axelrod, 2006; Neuliep & McCroskey, 1997; Stephan & Stephan, 2002; Wiseman et al., 1989). Ethnocentric groups see themselves and members of their in-groups as virtuous and superior, and see their own standards of value as universal and true, whereas out-groups are seen as contemptible, immoral, inferior, suspicious and weak (Neuliep & McCroskey, 1997; Smith & Bond, 1993).

Consistent with this, ethnocentrism has been commonly associated with negative stereotypes, negative affect and prejudice towards the out-group (Dovidio, Gertner & Kawakami, 2002; Perreault & Bourhis, 1999). For instance, Gagnon and Bourhis (1996) found that individuals who identified strongly with their in-group were more likely to

discriminate against an out-group than those who identified less strongly with their in-group. In cross-cultural interactions, ethnocentric views have also been thought to determine the extent to which a culture's behaviour is judged and understood. Some researchers argue that interactants high in ethnocentrism may base their expectations on their own cultural social norms and rules, resulting in misunderstandings of the other interactant's intentions, values and behaviour (Lin & Rancer, 2003; Neuliep & McCroskey, 1997; Stephan & Stephan, 2002). Similarly, Gudykunst (2004) noted that the more ethnocentric people are, the more trouble they would have making accurate predictions of, and explanations for, a stranger's behaviour.

From this literature, it appears plausible that ethnocentric beliefs may also influence cross-cultural judgments of credibility. The degree of ethnocentrism a person holds may determine the way they interpret and judge the behaviour of an individual from a different culture. For instance, people high in ethnocentrism may perceive foreigners as more deceptive than their compatriots. However, the role of ethnocentrism has been largely ignored in the deception literature.

### **Second language use**

People hold attitudes toward many different features of speech such as speech rate or style (e.g., Cargile & Giles, 1998; Yook & Albert, 1999). Frumkin (2007) argued that characteristics of language and speech provide ways for receivers to judge, form opinions and determine believability of the communicator because these features often trigger stereotypes. Therefore, a communicator's behaviour and receiver's evaluations may be affected by characteristics of speech and language.

One important feature of cross-cultural interactions is that one participant may be required to communicate in a second or non-native language. According to Spencer-

Rodgers and McGovern (2002), this often results in differences in communication styles and variations in values, norms and customs between interactants. In particular, members of the dominant ethno-linguistic group may experience feelings of impatience and frustration when communicating with non-native speakers of a language; these cultural differences then lead to communication errors or misunderstandings (Spencer-Rodgers & McGovern, 2002).

Based on this literature, it is plausible that deceptive communication and, in particular, lie detection, may be influenced by language, especially second language use. Cheng and Broadhurst (2005) conducted a study that aimed to investigate these issues. They videotaped 31 students from a university in Hong Kong who were randomly assigned to lie or tell the truth about their opinion of capital punishment, and who were interviewed in their mother tongue (i.e., Cantonese) or their second language (i.e., English). Twenty-seven other students then viewed a subset of these interviews and judged whether the person depicted in each video was lying or telling the truth. Overall, they found that observers were more successful in identifying liars speaking in their second language (English) than liars speaking in their native language (Cantonese), but were more successful in identifying truth-tellers speaking in Cantonese than in English.

The detection accuracy findings of Cheng and Broadhurst (2005) suggest a language bias, such that people speaking in their first language are more likely to be judged as credible compared to people speaking in their second language, irrespective of veracity. On the basis of a behavioural analysis of their video clips, Cheng and Broadhurst (2005) argued that participants speaking in English tended to display more nonverbal movements indicating nervousness and anxiety (increased gaze aversion, hand and arm movements, and leg and foot movements) compared to those speaking Cantonese. They concluded that these extra nonverbal behaviours and changes in their baseline behaviour may have created

confusion in observers and thus resulted in an increased number of false positives for the English truth-telling clips.

The implications of Cheng and Broadhurst's (2005) study for cross-cultural judgments of deception are weakened by some limitations of the research. In particular, their research was not cross-cultural, meaning that when communicators were speaking in their second language, the judges were also listening in their second language. It is, therefore, unclear whether the same second-language bias would apply when judges observe a second-language speaker who is communicating in the judges' first language. Cheng and Broadhurst (2005) also did not describe the methodology of their behavioural analysis in sufficient detail to establish its validity, and provided only a descriptive account of the behavioural patterns without any inferential statistical analysis.

Notwithstanding these limitations, however, the notion of behavioural differences associated with communicating in one's second language points to some important considerations for detecting deception. As indicated in Chapter 1, liars are likely to display a number of behaviours as a result of experiencing cognitive and affective processes: emotion, cognitive load, and attempted control. However, as Cheng and Broadhurst's (2005) study suggests, these same processes and behaviours may also be experienced by someone speaking in their second language; in particular, the emotional and cognitive load processes may be associated with speaking in a language in which one does not have native fluency. Consistent with this idea, Fehringer and Fry (2007) studied the incidence of hesitations, filled pauses, automatism, repetitions and reformulations in both the first and second language of highly proficient adult bilingual speakers (English and German). They found that despite high proficiency, speakers still produced an increased overall rate of hesitations, filled pauses, repetitions and reformulations in their second language. They concluded that this is the result of second language usage needing more working memory

resources and attention in every stage of speech production. Therefore, it appears that second language use often results in changes in baseline behavioural patterns and, in particular, the display of behaviours that may indicate cognitive load. However, if observers attribute deception based on the presence of behaviours that suggest cognitive load or arousal, then in a situation where the communicator is providing a message in their second language, the display of behavioural signs that are associated with language demands may be interpreted by observers as attempts to hide the truth. As a result, one would expect that behavioural differences that are mediated by second language use would increase the potential for errors when judgments of credibility are made in cross-cultural contexts.

In sum, the literature reviewed in this section has shown that cultural differences in norms and practices have the potential to create misunderstandings and errors during cross-cultural communication. Also, cognitive and affective factors such as stereotypes, prejudice, ethnocentrism, and language bias play an important role when people are trying to explain and predict a stranger's behaviour, and often have the potential to produce misunderstandings during cross-cultural interactions. It is possible that these same factors play a part when people are trying to make judgments of credibility in cross-cultural contexts. However, limited research has been conducted on the possible effect culture and individual factors have on deception and lie detection.

### **Aims of the Thesis**

The aim of the research program described in the present thesis is to extend the research that has been done on the role of culture in deceptive behaviour, in particular, in judgments of deception in cross-cultural contexts. The research aims to build on the

theoretical and empirical work that suggests potential bias in cross-cultural deception judgments, particularly due to the impact of expectancy or norm violations. Furthermore, it aims to investigate the impact of cognitive and affective biases such as stereotypes, prejudice, ethnocentrism, and second language use when making judgments of credibility in cross-cultural environments.

In order to do this, the present research program has focused on cultural differences between two specific countries, Australia and Colombia. These countries were selected not only due to convenience and existing knowledge (I am Colombian), but also because they are useful cultures to compare for several reasons. Firstly, there is empirical evidence of substantial differences between the two cultures on several dimensions discussed earlier in this chapter. For instance, Hofstede (2001) found that Australia is one of the top 10 most individualistic cultures in the world, and Colombia is one of the least. Specifically, Hofstede (2001) found that out of the 50 countries and 3 regions tested, Australia ranked second in the world with an individualistic index of 90, and Colombia ranked 49 with an individualistic index of 13. Moreover, in Australia, Power Distance is relatively low compared to Colombia where power distance is relatively high (ranked 36 and 67 respectively). Based on the literature reviewed in this chapter, the position in which Australia and Colombia fall along these dimensions may result in differing norms and practices in communication styles, which makes both countries good candidates for cultural comparisons. Secondly, people from the two countries tend to differ in visible appearance. Being able to visually identify that a person is from a different culture may elicit stereotypes and prejudice. Lastly, the language spoken in each culture is different, as most Australians' native language is English and most Colombians' native language is Spanish. However, a considerable proportion of Colombians learn English as a second language which allows not only for the examination of behavioural differences in

deceptive behaviour when speaking in a first and second language, but also for the impact of second language use when cross-cultural judgments of credibility are being made.

### **Overview of the present research program**

Overall, the present research program examined a broad set of variables that may play a role in judgments of deception in cross-cultural environments. The primary goal of this approach was to develop a model which illustrates the factors that shape deception and credibility judgments, particularly when different cultures are involved, in order to arrive at an understanding of cross-cultural judgments of deception. In order to do this, the present research program employed a range of non-experimental and experimental methodologies. Studies 1 and 2 employed an experimental methodology in order to examine (i) whether both cultures differ in their behavioural pattern, (ii) whether participants' behaviour differs when speaking in their first language compared to when speaking in their second language, (iii) whether there are behavioural indicators of deception regardless of the culture and language spoken, and (iv) whether behavioural correlates of deception are dependent on culture or language – i.e., whether there are culture-specific and language-specific cues to deception. Study 3 used a survey method to investigate Australians' and Colombians' beliefs about the different behavioural norms that may exist between both cultures. This was done with the aim of exploring participants' cultural knowledge and familiarity with the other culture's behavioural norms and patterns. Study 3 also explored whether stereotypical cues to deception were shared by both cultures or were culture-specific. Finally, building on the findings of the three previous studies, Study 4 sought to investigate whether cultural and language based behavioural differences may impact the way judgments of credibility are made. In particular, it examined whether behavioural differences that stem from cultural and language factors may result in bias or errors when

cross-cultural judgments of credibility are made. Study 4 also sought to examine whether individual differences in a number of variables may moderate the extent in which these biases operate. Specifically, it aimed to examine the effect of ethnocentrism, prejudice and stereotypes on cross-cultural judgments of credibility.



## **Chapter 3**

### **Study 1: Lying and truth-telling in Australia and Colombia**

*“No mortal can keep a secret. If his lips are silent,  
he chatters with his finger-tips; betrayal oozes out  
of him at every pore”.*

(Freud, n.d.)

The present study sought to investigate whether there are culture-specific behavioural correlates of deception. Specifically, it examined whether Australian and Colombian participants display a different behavioural pattern while lying and while telling the truth. In order to investigate this, an experimental design was used. Participants in this study were asked to either lie (lying condition) or tell the truth (truth-telling condition) about a mock computer crime and these truthful or deceptive messages were videotaped and analysed.

As discussed in Chapter 1, the vast majority of deception and lie detection studies have been mono-cultural in focus, where communicators and lie detectors have shared similar cultural norms and values (e.g., DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007). This research has largely assumed that liars across the world experience a set of universal affective and cognitive processes that lead to similar behavioural indicators of deception. Thus, it is assumed that liars of whatever cultural background will display a specific pattern of behaviours (i.e., gaze aversion, smiling, lack of movement, etc.) that results from experiencing cognitive load when fabricating a lie, or attempted control when trying to mask their emotions, or fear and arousal from fear of getting caught (Sabourin, 2007). However, this assumption does not take into account the influence of culture in the communication process (i.e., verbal and nonverbal behaviour). As discussed in Chapter 2,

culture defines the way we use, display, and interpret verbal and nonverbal behaviour. Therefore, it is plausible that culture also has a pervasive influence on deceptive communication and behaviour. Based on this, it is possible that behavioural correlates of deception may also vary according to the cultural or ethnic origin of the communicator.

However, only a few deception studies have examined this issue, and they have generally found that the behaviours associated with deception are relatively similar whatever the ethnic origin of the communicator (e.g., Bond & Atoum, 2000; Bond et al., 1990; Vrij & Winkel, 1991, 1992, 1994). Nonetheless, these studies have also demonstrated that there are culture-specific behavioural patterns regardless of the veracity of the message. For instance, as described in Chapter 2, Vrij and Winkel (1991) found that Surinam citizens made more speech errors, spoke with higher pitched voice, smiled more, displayed more gaze aversion and performed more self-manipulations, illustrators and body movements than Dutch citizens during a police interview, regardless of whether they were lying or not. These findings suggest that there are strong cultural variations in the way a message is communicated. More importantly, Vrij and Winkel (1991, 1992, 1994) found that these cultural variations between the communicator and the observer had a negative impact on impression formation. They found that those who displayed behaviours that were inconsistent with the observer's behavioural norms and expectancies were likely to be judged as more suspicious, more nervous, and less pleasant than those who were consistent. Based on this literature, in this study, it was expected that although there may be behavioural differences between liars and truth-tellers, the behavioural differences between Australians and Colombians would be greater than the differences associated with veracity.

## Method

### Participants

A total of 181 Australian and Colombian participants took part in this study. In Colombia, 109 students (29 males and 80 females) with a mean age 20.34 ( $SD = 3.65$ ) years from Pontificia Universidad Javeriana (Bogotá) volunteered to participate in the study. In Australia, 72 students (18 males and 54 females) with a mean age 24.26 ( $SD = 10.67$ ) years from Charles Sturt University (Bathurst) participated in the study as part of a subject requirement.

Participants from each nationality were assigned to one of two conditions: lying condition or truth-telling condition. In Colombia, 50 participants (14 males and 36 females) were assigned to the lying condition and 58 (15 males and 43 females) were assigned to the truth-telling condition. Only one Colombian participant was excluded from the sample for not following instructions<sup>1</sup>. In Australia, 34 participants (9 males and 25 females) were assigned to the lying condition, and 38 (9 males and 29 females) were assigned to the truth-telling condition.

### Materials

*Translation of experimental materials.* All experimental materials were translated into Spanish by the principal investigator. Due to limitations on accessibility and availability of bilingual Spanish- English translators, it was decided to use a team approach rather than a back-translation of the materials (Harkness, Pennell & Schoua-Gusberg, 2004). The translation of the experimental materials was then reviewed by an independent

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<sup>1</sup> The participant was assigned to the “innocent” truth-telling condition but accessed the information that only the “guilty” lying condition participants were instructed to access.

bilingual (Spanish-English) translator, who was also a native Spanish speaker and a psychologist with knowledge of experimental designs. The independent bilingual translator and the principal investigator worked as a team reviewing and discussing the translation produced, thus, ensuring the highest content and meaning equivalence possible between the original and the translated versions of the material.

*Videotaping of interviews and post-interview discussions.* Two standard digital video cameras were used to record the interviews. One of the video cameras provided a close-up of the participant's upper body as shown in Figure 3.1. This was done in order to have a detailed view of the participant's face and upper trunk movements.



*Figure 3.1.* Example of close-up view of a participant.

The other video camera provided a view of the participant's entire body (See Figure 3.2 for image) in order to capture torso, leg and foot movements. Note that this resulted in two videos per participant, one with the upper-body close-up, and one with the

full body close-up.



Figure 3.2. Example of full-body view of a participant.

*Computer Task.* The computer task for this study was based on the “computer break-in” methodology employed by Kassin and Fong (1999), but was modified to suit the present research. In the present study, participants were asked to break into a student’s bogus e-mail account (a laptop with Internet Explorer and access to the internet was used for this task). A simulated webmail system was designed to recreate a student’s personal e-mail account. The initial page of the website included a fake company’s logo, a username box, password and log in buttons. Once signed in, it contained an inbox, outbox,<sup>2</sup> and log out buttons. The inbox contained three fictional e-mails which could be considered highly confidential: one from the university’s medical centre, one from a lover, and one from a fellow student in trouble asking for advice. These e-mails were designed to attract

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<sup>2</sup> The outbox did not have any messages but participants were able to click and check it.

participants' attention and arouse curiosity to read the contents of the e-mail messages. The specific contents of the e-mails were different but the topics were similar to those used by Kassin and Fong (1999). While the instructions and content of computer materials (i.e., e-mails and webmail interfaces- outbox, inbox, etc.) were identical for both countries, Colombian participants were given instructions and computer materials in Spanish, their native language, in order to avoid any confusion in the understanding of their task. Kassin and Fong (1999) allowed participants to provide a free account of their whereabouts and what they were doing at the time of the computer break-in. However, in this study, in order to keep truthful and deceptive accounts consistent for subsequent use in the lie detection study, participants in both conditions were told to describe what they did in the computer room. That is, they were told to keep their accounts limited to the websites they visited and what they did while they were in the room.

### **Procedure**

Participants in both countries were recruited by posting an advertisement on the Charles Sturt University and Pontificia Universidad Javeriana Schools of Psychology noticeboards and electronic forums. The advertisement was entitled "Abilities of communication during short interviews" and the study was described as one about people's ability to tell a convincing story during short interviews. There was no mention of lying or deception in the poster. This was done in order to avoid selection bias in the study's sample, for instance, by attracting only those participants that believed they were good at lying.

*Experimental instructions.* Participants were greeted by the research assistant who explained the purpose and tasks of the study. Participants received the following instructions:

Ok, so you already know that this study is about communication skills. I now want to tell you that in the present study we are trying to determine the extent to which people are able to discover if someone is lying or telling the truth during short interviews. Therefore, one part of this study is going to involve you *either* lying or telling the truth to the interviewer. In a little while I am going to ask you to perform a computer task, then you are going to be interviewed about what you have been doing. Before the interview I am going to give you instructions to *either* lie or tell the truth. After the interview I will come back and you can ask any questions. Please note that the interview will be videotaped.

After this, participants were asked to read the information sheet and sign the consent form (see Appendix A1 and A2) if they agreed to participate. The research assistant then asked participants for their consent to use the videotapes from the present study in future investigations. Those participants who authorised the use of the videotapes for a future study signed a second consent form (see Appendix A3).

*Computer task.* Following the informed consent procedures, the research assistant gave participants further instructions according to the condition to which they were assigned. Participants in the **lying condition** were given the following instructions:

In the room next door there is a computer. In a moment I want you to go into that room and use the computer to perform a specific task. You are going to access an e-mail account and read several e-mails. Here are the instructions you need to access the system [*participants were given a piece of paper with instructions, website address, password and username*<sup>3</sup>]. You should go to the website given in the instructions, log in using the username and password you have been given, and read the messages in that e-mail account. Make sure you read all of the messages. Once you have finished reading the messages, log out of the system and then come back to this room.

It is important that you follow the instructions you have been given and make sure you complete every step. Also, you should not do anything else on the computer. Once you have finished this task we will go on to the next part of the study. Do you have any questions? Ok, go and use the computer now and I will see you soon.

Participants in the **truth-telling condition** were given the following instructions:

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<sup>3</sup> The username was the participant's identification number. This was done to be able to keep a log record of those participants who read the e-mail messages when they were not supposed to. The password was the same for every participant.

Now, before we begin the main part of the study, I am going to ask you to do something. In the room next door there is a computer. In a moment, I want you to go into that room and use the computer to surf the Internet for about five minutes. You can visit whatever websites you like, log onto your e-mail, or do anything else on the Internet. Just keep yourself occupied for about five minutes. After 5 minutes I want you to come back here.

When you go into the room, you might find that someone else has already used the web browser. If it is logged into any websites or e-mail accounts you should just log out and then visit the websites you would like to look at. Make sure you log out straight away and do not look at whatever the other person had been accessing. Do you have any questions? Ok, now please go to the room and I will see you in about 5 minutes.

Before participants in the truth-telling condition entered the room where the computer was located, the research assistant logged into the e-mail account with the participant's identification number (username) and left the window open on the main interface of the bogus webmail page. Participants in the truth-telling condition then came into the computer room and found that the bogus student's e-mail account was already opened. In order to ensure that participants in the truth-telling condition did not read the messages in the e-mail account, a log record was kept of the participant identification number and whether they clicked into the inbox or not. Those participants that accessed the messages were excluded from the analyses. Only one Colombian participant was excluded from all the analyses as a result of accessing the e-mail messages when they were not supposed to.

After the computer task, the research assistant asked participants in both conditions a series of questions to verify that they had followed the instructions correctly. Specifically, participants were asked to describe what they had seen when they sat down in front of the computer, and indicate whether they had followed the instructions or done anything else on the computer.

*Interview Instructions.* After ensuring that participants had followed instructions, the research assistant took participants back into the interview room and gave them instructions in preparation for the interview.

Participants in the **lying condition** were given the following instructions:

The interviewer is going to ask about what you did while you were in the computer room. Obviously, you know that you logged into someone's e-mail account and read the messages in that account. **You should lie about what you did in the computer room.** Rather than admitting that you accessed the account you should say that someone else had logged into it before you arrived and that you logged out without reading the messages. To account for your time in the computer room, you should tell the interviewer that after logging out of the e-mail system you used the computer to surf the Internet. Do not mention any instructions I have given you – the interviewer is trying to catch people based on their answers about what happened inside the computer room.

Your task is to convince the interviewer that what you are saying is the truth. If the interviewer believes you are lying, she will stop the interview immediately and your participation in the study will be terminated. So, it is important that you convince the interviewer that you really are telling the truth.

However, do not assume the interviewer thinks you are lying unless she stops the interview. She will ask questions to test you and try to catch those people who are lying. Unless she actually says the interview has been terminated and your participation in the study is finished, you should assume that she does not believe you are lying.

Participants in the **truth-telling condition** received the following instructions:

The interviewer is going to ask about what you did while you were in the computer room. Obviously, you know that you found the system logged in and that you logged out and then did other things on the computer. You should tell the absolute truth about what happened in the computer room. Do not mention any instructions I have given you – the interviewer is trying to catch people based on their answers about what happened inside the computer room.

Your task is to convince the interviewer that what you are saying is the truth. If the interviewer believes you are lying, she will stop the interview immediately and your participation in the study will be terminated. So, it is important that you convince the interviewer that you really are telling the truth.

However, do not assume the interviewer thinks you are lying unless she stops the interview. She will ask questions to test you and try to catch those people who are lying. Unless she actually says the interview has been terminated and your participation in the study is finished, you should assume that she does not believe you are lying.

Again, it is important to note that the tasks and instructions were designed so that the interviewees would all give similar responses of content regardless of the veracity condition to which they were assigned.

*Interview.* After the instructions were given, the interviewer – a second research assistant – who was blind to the participants’ experimental condition, came into the room and greeted the participants, indicated the cameras that were going to record the interview, and started recording. It is important to note that participants from both conditions and countries were asked the same questions about what they did while they were in the computer room. However, Colombian participants were asked these questions in their native language, Spanish, in order to avoid confusion.

The interviewer introduced herself and asked the following questions:

- Do you know why are you being interviewed? [*NB: If participants only responded “yes” or “no”, a following question was asked: Can you tell me why you are being interviewed?*]
- Did you enter the computer room?
- What did you do in the computer room?
- Tell me exactly which web sites you visited and what you did on those web sites.
- Did you do anything else on the computer?
- Did you log into an e-mail account that was not your own?
- Did you read any confidential e-mail messages?
- Are you lying to me?
- Did you just make this story up?

The interviewer then thanked the participant for answering the questions and told them to wait in the room for the research assistant to come back. After the interview, the first research assistant came back into the room, asked participants if they had any questions and then thanked them for their time.

*Coding of behaviour.* I conducted the behavioural coding by examining the frequency and duration of the nonverbal and paraverbal behaviours shown in Table 3.1. These behaviours were chosen because past research has identified them as behavioural

correlates of deception or as perceived indicators of deception (DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007; Vrij, 2000). In order to examine the frequency of behaviours a lap counter was used, and the duration of behaviours was measured using a stopwatch. Both videotapes (full body and upper body close up) were used in the coding of behavioural data. While conducting the behavioural coding, I was blind to the condition to which the participant belonged, but not to their nationality, as it was obvious that participants speaking in Spanish would belong to the Colombian cultural group.

*Inter-rater reliability.* The reliability of my behavioural coding was independently checked by a second rater. As the second rater was not a Spanish-English bilingual, it was believed that he would not be able to code the vocal behaviours of the Colombian video clips consistently and reliably. Therefore, he only coded a random sample of the Australian video clips (20% of the 72 Australian videos). Prior to conducting the scoring, the rater received appropriate training, in which he was given instructions on how to code each behaviour and how to use the scoring key. In order to avoid experimenter biases the independent rater did not receive information regarding the condition of the participant he was analysing. Furthermore, he was instructed to use the upper-body close up view video for those behaviours that were located in the upper body; that is, facial expressions, hand and arm movements, eye movements, and so on, and the full body close up for those behaviours such as leg, torso and feet movements. However, if one of the videos did not provide a clear and detailed view of a specific behaviour, he was instructed to check consistency of scores using the other available video clip.

Table 3.1

*Descriptions of nonverbal and paraverbal behaviours analysed*

Nonverbal behaviours	Description
Gaze aversion	Frequency of times the participant looked away from the interviewer.
Smiles and laughs	Frequency of smiles and/or laughs. These were defined as mouth movements in which whether the corners of the mouth were pulled to the side of the face (Vrij & Winkel, 1991).
Non- functional hand movements	Frequency of non-functional movements of hand and fingers (e.g., fidgeting).
Functional hand and arm movements	Frequency of functional arm and hand movements designed to modify, emphasise, or supplement what was being said.
Self-manipulations	Frequency of scratching (head, wrist, face etc.), touching one's hair, adjustment of clothing, etc.
Head nods	Frequency of up and down head movements- suggesting affirmation.
Head Shakes	Frequency of side to side head movements.
Trunk movements	Frequency of movements of the trunk forwards, backwards or sideward.
Postural shifts	Frequency of shifts in position while seating.
Leg and foot movements	Frequency of leg and foot movements such as crossing and uncrossing legs, rapid twitching of feet, etc. (Sporer & Schwandt, 2007).
Paraverbal behaviours	
Speech errors	Frequency of word repetitions, slips of the tongue, sentence incompleteness, sentence change, etc.
Speech hesitations	Frequency of speech fillers such as ah, ums, etc.
Number of pauses	Frequency of pauses between words and/or sentences
Response latency	Total duration of periods of silence between the end of the interviewer's question and the participant's response.
Response time	Total duration of participant's answers (excluding interviewer's questions)
Total time of the interview	Total duration of the interview (including interviewer's questions).

An intra-class correlation (ICC) two-way random effects model<sup>4</sup> assessing absolute agreement was conducted in order to examine consistency, agreement, and whether there were systematic biases in the scoring between raters. The results of the ICC analysis for the independent variables based on all possible raters showed strong positive correlations for

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<sup>4</sup> Following Shrout and Fleiss (1979), a two-way random effects model of ICC is used when all judges and targets/subjects are both considered as a random factor. Thus, it is possible to generalise that there was consistency and agreement across all possible judges and subjects

all the 15<sup>5</sup> variables,  $ICC(14, 2) \geq .95$  ( $n = 15$ , 95%  $CI \geq .95$  to  $\leq 0.99$ ), thus indicating that the raters not only had consistent scores but also had a high level of agreement in scores for each of the behavioural variables. The results also suggested that there were no systematic biases between raters in any of the behaviours scored. Therefore, my coding of the behaviours was deemed reliable for further analyses.

## Results

Prior to conducting the main analyses, frequency scores were corrected for the total duration of the interview and reported on a per-minute basis<sup>6</sup>. ‘Response latency’ and ‘response time’ variables were corrected by the number of questions in the interview (i.e., nine), thus providing an average of ‘response time’ (reported in seconds) and an average ‘response latency’ (reported in milliseconds). These averaged times and corrected frequency scores were then used in the statistical analyses. The variables ‘total time of interview’ (i.e., duration of whole interview) and ‘average response time’ (i.e., duration of answers) were identified as being equivalent as they both indicate the duration of the total interview and thus the variable ‘total time of interview’ was excluded from further analyses.

Descriptive statistics as a function of culture and veracity condition are shown in

Table 3.2. These descriptive statistics indicated that participants from both cultures and both conditions did not display any ‘postural shifts’; therefore this variable was also excluded from further analyses.

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<sup>5</sup> The “shifts in position” variable was excluded from this analysis because it was found that participants in both cultural groups and veracity conditions did not display any shifts in position during the interview.

<sup>6</sup> Frequency scores for each behaviour were divided by the total duration of the interview (which was recorded in seconds) and then multiplied by 60.

A discriminant analysis was initially considered for the data analysis; however, a normality analysis showed normality analysis showed that all independent variables were skewed. Therefore, a logistic regression model logistic regression model was considered more appropriate than a discriminant analysis because it has no because it has no assumptions about the distribution of the predictor variables (Tabachnick & Fidell, 2007). & Fidell, 2007). Logistic regression is a technique used for predicting a dichotomous dependent variable dependent variable from a set of independent variables. It essentially allows prediction of group membership group membership (i.e., Australian or Colombian) through evaluating the odds (or probability) of probability) of membership in one of the groups based on the combined values of the predictor variables predictor variables (Tabachnick & Fidell, 2007). Three logistic regression models were tested: the first tested: the first examined the main effects of culture, the second the main effect of veracity and the third, the and the third, the interaction effect between culture and veracity. The verbal and nonverbal behaviours listed behaviours listed in

Table 3.2 were used as the predictor variables. Prior to testing each model, a multicollinearity analysis was carried out. The multicollinearity analysis indicated that the predictor variables were not highly correlated with Variance Inflation Factor <sup>7</sup> (VIFs) values well below 10 and tolerance<sup>8</sup> values considerably greater than 0.1 (for tolerance, and VIF values for each predictor variable please see Appendix A4).

### **Behavioural differences across cultures**

The first logistic regression model examined whether Australian and Colombian participants behavioural pattern differed regardless of the veracity of the message. For each predictor variable, the reference category ‘Australia’ was coded 0 and the target group ‘Colombia’ was coded 1.

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<sup>7</sup> Myers (1990) suggested that a VIF value of 10 is cause of concern and multicollinearity may be biasing the model.

<sup>8</sup> Menard (1995) suggested that a tolerance value of less than 0.1 indicates a serious collinearity problem.

Table 3.2

*Proportion of behaviours as a function of culture and veracity conditions*

	Australia <sup>a</sup>	Colombia <sup>b</sup>	Total
	<i>M (SD)</i>	<i>M (SD)</i>	
<b>Nonverbal behaviours/veracity</b>			
Gaze aversion			
Truth	7.45 (3.42)	8.62 (4.19)	8.16 (3.93)
Lie	7.07 (3.14)	8.81 (4.32)	8.10 (3.96)
Total	7.27 (3.28)	8.71 (4.23)	
Smiling			
Truth	4.45 (3.64)	3.22 (4.73)	3.71 (4.35)
Lie	3.81 (3.32)	3.03 (3.33)	3.34 (3.33)
Total	4.15 (3.49)	3.14 (4.13)	
Self- manipulations			
Truth	1.24 (2.45)	1.72 (5.23)	1.53 (4.34)
Lie	0.73 (1.67)	0.72 (2.20)	0.73 (1.99)
Total	1.00 (2.12)	1.26 (4.13)	
Non -functional hand movements			
Truth	8.01 (6.40)	9.00 (12.20)	8.61 (10.27)
Lie	7.66 (5.97)	9.86 (12.80)	8.97 (10.59)
Total	7.85 (6.16)	9.40 (12.43)	
Functional hand and arm movements			
Truth	5.31 (4.33)	4.61 (5.97)	4.89 (5.37)
Lie	5.15 (4.09)	4.62 (5.45)	4.84 (4.92)
Total	5.23 (4.19)	4.62 (5.71)	
Leg and foot movements			
Truth	9.29 (11.74)	17.96 (19.89)	14.52 (17.59)
Lie	8.36 (11.56)	19.72 (22.79)	15.12 (19.78)
Total	8.85 (11.58)	18.78 (21.20)	
Head nods			
Truth	5.16 (2.47)	4.22 (2.94)	4.59 (2.79)
Lie	4.58 (2.44)	3.00 (2.38)	3.64 (2.50)
Total	3.95 (1.40)	5.79 (3.37)	
Head shakes			
Truth	4.07 (1.40)	6.30 (3.85)	5.42 (3.30)
Lie	3.82 (1.40)	5.19 (2.61)	4.63 (2.30)
Total	3.95 (1.40)	5.78 (3.37)	
Trunk movements			
Truth	0.13 (0.40)	0.30 (0.75)	0.23 (0.64)
Lie	0.46 (1.50)	0.47 (0.97)	0.47 (1.21)
Total	0.29 (1.08)	0.38 (0.86)	
<b>Paraverbal behaviours/veracity</b>			
Speech errors			
Truth	1.33 (1.30)	1.37 (1.46)	1.36 (1.39)
Lie	1.74 (1.14)	1.25 (1.48)	1.45 (1.37)
Total	1.52 (1.23)	1.32 (1.46)	

Table 3.2 continued.

*Proportion of behaviours as a function of culture and veracity conditions*

Behaviour/veracity	Australia <sup>a</sup> <i>M (SD)</i>	Colombia <sup>b</sup> <i>M (SD)</i>	Total
Average response latency (milliseconds)			
Truth	697.05 (288.31)	635.29 (206.93)	659.73 (242.88)
Lie	708.59 (274.24)	702.02 (249.31)	704.68 (258.08)
Total	702.50 (279.83)	666.18 (228.89)	
Speech Hesitations			
Truth	3.12 (1.54)	2.64 (2.20)	2.82 (1.97)
Lie	3.43 (1.83)	1.96 (2.19)	2.55 (2.16)
Total	3.26 (1.68)	2.32 (2.21)	
Number of pauses			
Truth	1.28 (0.79)	2.11 (1.44)	1.78 (1.28)
Lie	2.23 (1.09)	2.34 (1.57)	2.30 (1.39)
Total	1.73 (1.04)	2.22 (1.50)	
Average response duration (seconds)			
Truth	5.91 (2.55)	3.54 (1.64)	4.48 (2.35)
Lie	14.69 (47.81)	3.80 (1.92)	8.21 (30.66)
Total	10.10 (32.94)	3.66 (1.77)	

Note: <sup>a</sup>  $n = 72$ , <sup>b</sup>  $n = 108$ .

A classification analysis showed that the model correctly classified Australians in 80.6% of the cases and correctly classified Colombians in 98.7% of the cases. The overall accuracy rate was 86.7% when 60% was expected by chance alone<sup>9</sup>. The model significantly predicted group membership  $\chi^2(14, 180) = 130.86, p < .001$ , and a Psuedo- $R^2$  suggested that the model was useful for predicting culture as demonstrated by the large effect size (Nagelkerke  $R^2 = .70$ ). The observed and expected frequencies were not significantly different (Hosmer- Lemeshow:  $\chi^2(8, 180) = 2.24, p = .973$ ), thus suggesting that the data fitted the model well.

The Wald's statistic,  $p$  value, odds ratio, and Confidence Interval (CI) for the odds

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<sup>9</sup> Due to unequal group sizes the probability that a person would belong to the Colombian group and not the Australian group just by guessing was 60%.

ratio for each variable in the model predicting culture are shown in Table 3.3. As can be seen, eight variables made a significant contribution to the model: gaze aversion, smiling, head nods, head shakes, trunk movements, speech hesitations, number of pauses, and average response time. Specifically, Colombian participants smiled less, made fewer head nods and speech hesitations, and their responses were generally shorter than Australian participants regardless of the message veracity. Colombian participants also averted their gaze more, made more trunk movements and head shakes, and paused more while speaking than Australian participants.

Table 3.3

*Wald's statistics, p values, odd ratio, and confidence intervals for odds ratio for each predictor variable in the logistic regression model predicting culture*

Behaviour/predictors	Wald's $\chi^2$	<i>p</i>	Odds Ratio (OR)	95% CI for OR
<i>Constant</i>	0.17	.68	1.71	N/A
<b>Gaze aversion</b>	6.12	<b>.01</b>	1.19	[1.04, 1.37]
<b>Smiling</b>	10.86	<b>.001</b>	0.75	[0.63, 0.89]
Self-manipulations	1.60	.21	1.20	[0.91, 1.58]
Non-functional hand movements	0.66	.42	1.02	[0.97, 1.08]
Functional hand movements	1.40	.24	1.07	[0.97, 1.20]
Leg and foot movements	1.38	.24	1.02	[0.99, 1.05]
<b>Head nods</b>	5.62	<b>.02</b>	0.80	[0.66, 0.96]
<b>Head shakes</b>	8.45	<b>.001</b>	1.41	[1.12, 1.79]
<b>Trunk movements</b>	7.73	<b>.005</b>	1.99	[1.22, 3.22]
Speech errors	1.98	.16	1.39	[0.88, 2.20]
Response latency (milliseconds)	3.14	.08	1.00	[1.00, 1.01]
<b>Speech hesitations</b>	4.07	<b>.04</b>	0.76	[0.58, 1.00]
<b>Number of pauses</b>	7.84	<b>.005</b>	1.85	[1.20, 2.85]
<b>Average response time (seconds)</b>	24.18	<b>&lt; .001</b>	0.42	[0.30, 0.60]

Note. Significant predictors reported in bold; *CI*= confidence interval; N/A= Not applicable.

### **Behavioural differences between lying and truth-telling conditions**

The second logistic regression model examined whether there were significant behavioural differences between liars and truth tellers regardless of culture (i.e., tested the main effect for veracity). For each predictor, the reference category or truth-telling condition was coded 0, and the target group or lying condition was coded 1.

The classification analysis showed that the model was able to correctly classify 76.0% of the truth tellers and 56.0% of liars, with an overall success rate of 66.7% when 53.3% was expected by chance alone. The model was predictive of veracity,  $\chi^2(14, 180) = 25.18, p = .033$ , and there was a close match between the observed and expected frequencies (Hosmer- Lemeshow test:  $\chi^2(8, 180) = 12.79, p = .119$ ). A Pseudo- $R^2$  indicated that the model's success rate of group classification was unimpressive, with a small effect size (Nagelkerke  $R^2 = .17$ ).

The Wald's statistic,  $p$  value, odds ratio, and confidence interval for the odds ratios for all predictor variables in the model are reported in Table 3.4. The analysis showed that there were only two significant predictors of veracity condition: head nods and number of pauses. As can be seen, truth-tellers made more head nods, and had fewer pauses compared to liars.

Table 3.4

*Wald's statistics, p values, odds ratio, and confidence intervals for odds ratio, for each predictor variable in the logistic regression model predicting veracity*

Behaviour/predictors	Wald's $\chi^2$	<i>p</i>	Odds Ratio (OR)	95% CI for OR
<i>Constant</i>	0.65	.48	1.92	N/A
Gaze aversion	0.01	.94	1.00	[0.92, 1.08]
Smiling	0.36	.55	0.97	[0.87, 1.08]
Self-manipulations	2.54	.11	0.90	[0.79, 1.02]
Non-functional hand movements	0.22	.64	0.99	[0.96, 1.02]
Functional hand movements	0.28	.60	0.98	[0.91, 1.05]
Leg and foot movements	0.02	.90	1.00	[0.98, 1.02]
<b>Head nods</b>	<b>5.01</b>	<b>.03</b>	<b>0.86</b>	<b>[0.75, 0.98]</b>
Head shakes	1.67	.20	0.90	[0.78, 1.05]
Trunk movements	3.13	.08	1.52	[0.96, 2.40]
Speech errors	0.41	.52	0.92	[0.70, 1.20]
Response latency (milliseconds)	0.00	.98	1.00	[1.00, 1.01]
Speech hesitations	0.43	.51	0.94	[0.79, 1.13]
<b>Number of pauses</b>	<b>4.18</b>	<b>.04</b>	<b>1.33</b>	<b>[1.01, 1.73]</b>
Average response time (seconds)	0.48	.49	1.06	[0.90, 1.25]

Note: Significant predictors reported in bold. *CI*= confidence interval; N/A= Not applicable.

### **Behavioural differences across cultures and veracity conditions**

The final logistic regression model investigated whether predictor variables were sensitive to an interaction between culture and veracity condition. More specifically, this was examining the question of whether Australian and Colombian liars showed a different behavioural pattern. Contrast coefficients were created to represent the interaction between the dependent variable: culture (Australia and Colombian) and veracity condition (truth-telling- lying). Australian participants in the truth-telling condition were given a value of 1, Colombian participants in the truth-telling condition were given a value of -1, Australian participants in the lying condition were given a value of -1, and Colombian participants in the lying condition were given a value of 1. Thus, Australian participants

lying and Colombian participants telling the truth were the reference category and given a value of 0 and Australian participants telling the truth and Colombian participants lying were the target group and given a value of 1.

A classification analysis indicated the lack of predictive value of the model with an overall classification of 62.2% when 51.1% was expected by chance alone,  $\chi^2(14, 180) = 15.07, p = .373$ , with measures of effect size indicating a small effect (Nagelkerke  $R^2 = .11$ ), thus, indicating that there were no moderating relationship of culture on deceptive behaviour.

## Discussion

The present study examined whether (i) Australians and Colombians displayed behavioural differences; (ii) liars and truth-tellers displayed behavioural differences; and (iii) the behavioural differences between liars and truth-tellers varied across cultures. Consistent with the deception literature, the present study indicated that the behavioural pattern associated with truthful and deceptive messages is relatively similar whatever the cultural origin of the communicator (Bond et al., 1990; Vrij & Winkel, 1991, 1992, 1994). That is, the interaction model (i.e., the final logistic regression) indicated that there were no significant differences in the 16 behavioural indicators of deception studied between Australians and Colombians. These findings may suggest that liars across the world experience a set of universally shared affective and cognitive processes that lead to similar behavioural correlates of deception (Sabourin, 2007; Vrij, 2008). Whilst the results of the third logistic regression model indicate that there were no culture-specific cues to deception, the findings of the other models are noteworthy.

The comparison of liars' and truth-tellers' behaviour (i.e., second model), collapsed across cultures, indicated that statistically significant behavioural predictors of deception did exist. However, consistent with previous research that suggests lying is not a distinct psychological process corresponding with a unique set of behavioural patterns (e.g., DePaulo et al., 2003; Vrij, 2008), there were only two behaviours that reliably distinguished between truthful and deceptive messages found in this study. These were: head nods and pauses while speaking. Although these behavioural indicators predicted veracity at a level significantly better than chance, the ability to classify liars and truth-tellers remained far from perfect, suggesting that the effect of deception on behavioural cues was small relative to participants' individual differences in behaviour, which is also demonstrated by the small effect size (Nagelkerke  $R^2=.17$ ).

The results reported in the literature relating to the two specific behaviours which differed between liars and truth-tellers in the present study are somewhat mixed. The present results are consistent with Sporer and Schwandt's (2007) findings on nonverbal indicators of deception, which indicated that liars display fewer head nods while speaking compared to truth tellers. However, other meta-analyses and reviews (e.g., DePaulo et al., 2003; Vrij, 2000; Zuckerman, DePaulo et al., 1981) have found that the association between head nods and deception is not as clear cut as it seems. Similarly, the present study found that liars have more pauses while speaking than truth-tellers; however, previous research has not found the association between pauses and deception to be reliable (DePaulo et al., 2003; Sporer & Schwandt, 2006; Zuckerman, DePaulo et al., 1981). One plausible explanation for these conflicting findings is the possibility of moderator variables blurring the association between behaviour and deception. Reviews of the deception literature have consistently suggested that the way verbal and nonverbal behaviours are affected by deception depends on moderator variables such as motivation of

the liar, planning of the lie, and degree of difficulty of the lie (DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007; Vrij, 2000; Zuckerman, DePaulo et al., 1981). Therefore, it seems likely that the lack of consistency between studies, including the present findings, may be the result of differences in design and operational definitions that affect such moderator variables. For instance, DePaulo et al. (2003) found that the number of pauses varied as a function of the motivation of the liar. That is, liars who were highly motivated to get away with their lies displayed fewer filled pauses than those who were not motivated.

Furthermore, clear and particularly strong cues to deception may depend on the nature of the deception task. For instance, the higher the chance of being caught, the more likely it is that the liar will experience emotional processes such as guilt or nervousness (Ekman et al., 1999; Ekman et al., 1997). The mock crime task used in the present study may not have created enough emotional arousal in the participants and thus the behavioural correlates of deception reflect this. Therefore, although the present findings indicate a pattern of deception cues that was consistent across the cultural groups, they should be taken, along with the contradictions that are currently found in the literature, as cues that are specific to the nature of the participants' task in the present study.

In addition to the differences associated with veracity, the present study demonstrated that there are strong cultural variations in baseline behaviour between Australian and Colombian participants regardless of the veracity of the message. Specifically, it was found that Colombians smiled less, made less eye contact, made fewer head nods, had fewer speech hesitations, and had shorter responses compared to Australians regardless of whether the message was truthful or not. Moreover, Colombians had more pauses while speaking, and made more trunk movements and head shakes than Australians regardless of message veracity. These findings are consistent with the literature which suggests that culture has a pervasive influence in the way verbal and nonverbal

behaviour is expressed and used (e.g., Gudykunst, 2004; Matsumoto, 2006). The results are also consistent with Vrij and Winkel's (1991, 1992, 1994) and Bond, Omar et al.'s (1990) findings, and provide further evidence of variability in verbal and nonverbal behaviours between cultures regardless of the veracity of the communication.

Importantly, the findings indicated that the cross-cultural differences in behaviour were much greater than any differences associated with veracity. Although the analyses indicated that both culture and veracity could be predicted based on behavioural differences, the measures of model fit and classification accuracy were considerably stronger for culture than veracity. Furthermore, there was a broad range of behavioural differences across cultures, but only two cues reliably predicted veracity. In other words, the behaviour of Colombians tended to differ from Australians in more characteristics and to a greater extent, relative to the degree of difference between liars and truth-tellers from either culture.

The findings of cultural differences in baseline behaviour have important implications for cross-cultural judgments of deception. Firstly, if people make lie and truth judgments based on a correspondence between the observed behavioural cues and their beliefs about cues to deception, then it is plausible that the normative behaviour of one culture may be viewed as deceptive by another culture (Vrij & Mann, 2004; Vrij & Winkel, 1991, 1992, 1994). This is particularly likely if observers do not have accurate knowledge of the normative behavioural pattern of the observed culture. Therefore, it is important to examine observers' knowledge of another culture and their beliefs about behavioural cues associated with lying. This issue is examined in Chapter 4.

Secondly, if people make inferences of credibility based on violations of social norms or expectancies, as proposed by the expectancy violation (Bond et al., 1992) and norm violation models (Levine et al., 2000), then cultural differences in behaviour may

increase the likelihood of error or bias in such judgments. For instance, a person who is behaving consistently with their own cultural norms while unwittingly violating an observer's is more likely to be judged as dishonest than someone who is not violating those norms. Indeed, the findings of the present study suggest that the normative eye contact behaviour of Colombian participants is different to the eye contact normative behaviour of Australian participants. Culturally determined behaviour, then, may increase the likelihood of errors when making cross-cultural judgments of deception.

In sum, the results of the current study suggest that it may not be possible to talk about culture-specific cues to deception, or that there are reliable cues that will differentiate between truthful and deceptive messages. However, there are cultural variations in verbal and nonverbal behaviours that may have an impact when cross-cultural credibility judgments are being made. Accordingly, Study 4 of the present research program investigated the impact of such cultural behavioural differences on judgments of credibility in a cross-cultural context.

## **Chapter 4**

### **Study 2: Lying and truth-telling in a second language**

*“Halfe the world knowes not how  
the other halfe lies”.*

George Herbert

It is particularly important to investigate the impact of second language use on behaviour because during cross-cultural interactions at least one of the interactants may speak in a second language. Therefore, investigating whether behavioural differences between liars and truth tellers are dependent on the language spoken (i.e., first or second language) is essential for our understanding of cross-cultural lie detection.

Cross-cultural interactions are often characterised by conflict and uncertainty because at least one person does not share the same language (Matsumoto et al., 2005). Spencer-Rodgers and McGovern (2002) argue that miscommunication and errors often result because members of the dominant ethno linguistic group may experience feelings of impatience and frustration because of language barriers that arise during a cross-cultural interaction. These language barriers may further complicate the process of making accurate credibility judgments in a cross-cultural context, thus increasing the potential for bias or errors in these judgments.

Numerous research studies on second language use have demonstrated that speaking in a non-native language is more cognitively taxing than speaking in a mother tongue (e.g., Fehringer & Fry, 2007; Hongyan, Zhiguo, Taomei & Danling, 2010; Kroll & de Groot, 2005). As discussed in Chapter 2, Fehringer and Fry (2007) provided evidence that second language use had a negative impact on speech production because of the cognitive demands it causes on working memory capacity. Therefore, speaking in a second language may result in a display of behaviours that suggest cognitive load and

anxiety. However, the literature reviewed so far has also suggested that lie detectors often associate lying with an increase in cognitive load, and often look for cues that would indicate whether the person was thinking hard, feeling anxious or nervous (e.g., Akehurst et al., 1996; Global Deception Research Team, 2006; Granhag et al., 2004). If communicating in a second language is cognitively taxing and results in signs of cognitive load, a person communicating in their second language may be judged as deceptive. In other words, the behavioural signs that arise from language demands may be interpreted by observers as attempts to hide the truth because these cues are stereotypically associated with deception.

Consistent with the literature, Cheng and Broadhurst (2005) found that regardless of message veracity, speaking in a second language results in a different behavioural pattern compared to when speaking in a first language. Specifically, they found that participants speaking in their second language were more likely to display signs of nervousness and high cognitive demand (e.g., gaze aversion, increased body movements). However, as described in Chapter 2, several shortcomings in the study raise questions about the validity and generalisability of their results. Accordingly, the purpose of Study 2 was to examine the effect of second language use on deceptive behaviour. Specifically, the present study investigated whether Colombian participants behave differently when speaking in a second language compared to speaking in their first language, and whether the cues to deception differ depending on whether participants speak in their first or second language. In order to address this issue, the present study had a group of Colombian participants complete the same experimental procedure as Study 1, except that they were interviewed (while lying or telling the truth) in their second language – English. Their messages were videotaped, and their vocal and nonverbal behaviours were analysed by frequency and duration. These behavioural analyses were then compared to the Colombian

sample of Study 1, who were either lying or telling the truth about a mock computer crime in their first language – Spanish. Given the literature that suggests speaking in one's second language may affect behaviour (e.g., via increased cognitive load), it was predicted that the behavioural differences associated with speaking in one's second rather than first language would be significant and would be greater than any behavioural differences associated with veracity.

## Method

### Participants

A total of 41 (14 males and 27 females) bilingual Colombian students from Pontificia Universidad Javeriana (Bogotá- Colombia) made up the English speaking group in this study. Unfortunately, due to an oversight, the age of participants was not recorded. However, this sample was obtained from the same population as the Colombian sample in Study 1 and therefore assumed to be of a comparable age.

Participants in this group were randomly assigned to one of two conditions: 22 participants (9 males and 13 females) were assigned to the truth-telling condition and 19 participants (5 males and 14 females) were assigned to the lying condition.

Behavioural responses from the English speaking group were compared to the previously collected behavioural responses of the Colombian participant group in Study 1. In that group there were 108 Colombian students (29 males and 80 females) with a mean age of 20.34 years ( $SD = 3.66$ ). Of these participants, 50 (14 males and 36 females) were lying and 58 (15 males and 43 females) were telling the truth. None of the Study 1 participants were permitted to take part in Study 2.

## Materials

The materials for this experiment were the same as those described in Study 2 (e.g., video cameras, computer task). However, in the present study, the consent forms and information sheets were modified to describe the aims and nature of the present study (see Appendix B1, B2 and B3). Spanish – English bilingualism was assessed by a self-report measure where participants rated on a 7 point scale how proficient they thought they were in speaking their second language –English, where 1= *not very fluent* and 7= *very fluent* (See Appendix B4).

## Procedure

The experimental instructions were identical to those for Study 1 (see procedure section page 90) and consequently are not repeated here. The only difference was that, unlike Study 1, participants were asked to respond to the interviews in English. It is important to note that in this study, in order to avoid confusion and misunderstanding, the instructions for the tasks were given in Spanish. The interviews were the only part of the study that was conducted in their non-native language – English. Also, after the interview, in order to measure for second language use proficiency, participants were asked to indicate on a 7 point rating scale their language ability and their fluency.

The coding of behaviour procedure of the videos was exactly the same as the one used in Study 1. I conducted the behavioural coding by examining the frequency and duration of the 16 nonverbal and vocal behaviours shown in Table 3.1 on page 95. Furthermore, given that the behavioural coding for Australian videos was consistent and reliable in Study 1, it was deemed unnecessary to conduct a reliability analysis for the present study (see inter-rater reliability section in Chapter 3).

## Results

Participants' mean rating of their English fluency was  $M = 3.85$  ( $SD = 1.42$ ), which suggested that they typically did not consider themselves highly fluent in their second language.

Prior to conducting the main analysis, frequency scores were corrected for the total length time of the interview and reported on a per-minute basis. 'Response latency' and 'response time' variables were also averaged and reported in seconds and milliseconds respectively. These averaged times and corrected frequency scores were then used in all further analyses.

Descriptive statistics as a function of language and veracity are reported in Table 4.1. These descriptive statistics indicate that participants in both language groups and veracity conditions did not display any 'postural shifts', which was also found in Study 1. Therefore, this variable was excluded from further analyses. The variables 'total time of the interview' and 'average response time' were again identified as equivalent measures and thus the 'total time of the interview' variable was excluded from further analyses.

A discriminant analysis was initially considered appropriate to test the hypotheses of the present study. However, as in Study 1, a normality analysis indicated that the variables were somewhat skewed and did not meet the assumptions for a discriminant analysis. As a result, a logistic regression was considered more appropriate. Three logistic regression models were conducted, predicting language, veracity, and a language and veracity interaction respectively. The 14 behavioural variables listed in Table 4.1 were used as predictor variables for all three models. Prior to testing each model, a multicollinearity analysis was conducted. The analysis indicated that there were no

multicollinearity issues, with tolerance greater than .24<sup>1</sup> and VIF values well below 4.11<sup>2</sup> (VIF and tolerance values see Appendix B5).

### **Behavioural differences across languages**

The first logistic regression model examined whether the behavioural pattern of Colombians may be different when speaking in their non-native language (English) compared to when they are speaking their native language (Spanish) regardless of the veracity of the message.

A classification analysis indicated that the model was able to correctly classify 94.4% of participants speaking in Spanish and 68.3% of participants speaking in English, with an overall accuracy rate of 87.2%<sup>3</sup>. The model was found to be predictive of language  $\chi^2(14, 149) = 88.10, p < .001$ , with measures of effect size suggesting that the effect was large (Nagelkerke  $R^2 = .65$ ). A Hosmer and Lemeshow (H-L) goodness of fit analysis revealed that the model fitted the data appropriately  $\chi^2(8, 149) = 6.65, p = .575$ .

Only two behavioural variables contributed significantly to the model: functional hand and arm movements (Wald's  $\chi^2(1, 149) = 7.53, p = .006, CI e^B = 0.66 - 0.93$ ) and average response latency (Wald's  $\chi^2(1, 149) = 11.52, p = .001, CI e^B = 1.00 - 1.01$ ). The results suggest that Colombian participants made more functional hand movements when speaking in their first language (Spanish) than their second language (English). Also, response times were considerably faster when they were speaking in their first language.

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<sup>1</sup> Menard (1995) suggested that a tolerance value of less than 0.1 indicates a serious collinearity problem.

<sup>2</sup> Myers (1990) suggested that a VIF value of 10 is cause of concern and multicollinearity may be biasing the model.

<sup>3</sup> Due to different sample sizes, the probability that a person belongs to the English speaking group just by guessing is 73%.

Table 4.1

*Proportions of behaviours as function of language and veracity*

	Spanish <sup>a</sup> <i>M (SD)</i>	English <sup>b</sup> <i>M (SD)</i>	Total
<b>Nonverbal behaviours</b>			
Gaze aversion			
Truth	8.27 (4.30)	8.29 (2.04)	8.28 (3.80)
Lying	8.80 (4.32)	6.85 (3.23)	8.27 (4.12)
Total	8.52 (4.30)	7.62 (2.72)	
Smiling			
Truth	2.88 (3.03)	4.09 (2.61)	3.21 (2.95)
Lying	3.03 (3.33)	3.46 (2.63)	3.15 (3.14)
Total	2.95 (3.16)	3.80 (2.61)	
Self- manipulations			
Truth	1.72 (5.23)	2.62 (.364)	1.97 (4.84)
Lying	0.72 (2.20)	1.19 (2.68)	0.85 (2.33)
Total	1.26 (4.13)	1.96 (3.27)	
Non- functional hand movements			
Truth	8.61 (12.10)	12.79 (12.23)	9.76 (12.20)
Lying	9.86 (12.80)	9.03 (12.63)	9.63 (12.63)
Total	9.18 (12.38)	11.05 (12.36)	
Functional hand and arm movements			
Truth	4.61 (5.97)	4.44 (4.15)	4.56 (5.51)
Lying	4.63 (5.45)	2.51 (3.76)	4.04 (5.10)
Total	4.62 (5.71)	3.54 (4.04)	
Leg and foot movements			
Truth	17.40 (19.38)	16.66 (20.00)	17.19 (19.42)
Lying	19.72 (22.80)	24.39 (25.62)	21.00 (23.50)
Total	18.47 (20.96)	20.24 (22.81)	
Head nods			
Truth	4.03 (2.93)	2.24 (1.19)	3.54 (2.69)
Lying	3.00 (2.38)	2.60 (1.33)	2.89 (2.14)
Total	3.55 (2.72)	2.40 (1.25)	
Head shakes			
Truth	5.86 (2.72)	3.90 (1.90)	5.32 (2.66)
Lying	5.19 (2.61)	4.04 (2.18)	4.87 (2.54)
Total	5.55 (2.68)	3.96 (2.00)	
Trunk movements			
Truth	0.30 (0.75)	1.17 (3.33)	0.54 (1.87)
Lying	0.47 (0.97)	0.72 (0.87)	0.54 (0.95)
Total	0.38 (0.86)	0.96 (2.49)	
<b>Paraverbal behaviours</b>			
Speech errors			
Truth	1.35 (1.47)	2.45 (1.49)	1.65 (1.54)
Lying	1.25 (1.48)	1.45 (1.33)	1.31 (1.43)
Total	1.31 (1.47)	1.99 (1.49)	

Table 4.1 continued

*Proportions of behaviours as function of language and veracity*

	Spanish <sup>a</sup> <i>M (SD)</i>	English <sup>b</sup> <i>M (SD)</i>	Total
Speech hesitations			
Truth	2.44 (1.85)	3.99 (3.69)	2.87 (2.56)
Lying	1.96 (2.18)	3.44 (2.05)	2.37 (2.24)
Total	2.22 (2.02)	3.73 (3.02)	
Number of pauses			
Truth	2.09 (1.46)	3.04 (1.55)	2.35 (1.54)
Lying	2.34 (1.57)	2.55 (1.22)	2.40 (1.47)
Total	2.21 (1.51)	2.81 (1.41)	
Average response latency (milliseconds)			
Truth	635.29 (206.93)	1403.08 (958.79)	846.43 (627.92)
Lying	702.02 (249.31)	1310.41 (977.95)	869.55 (610.65)
Total	666.18 (228.89)	1360.14 (956.65)	
Average response time (seconds)			
Truth	3.54 (1.64)	7.04 (3.64)	4.50 (2.81)
Lying	3.80 (1.92)	6.05 (2.70)	4.42 (2.37)
Total	3.66 (1.77)	6.58 (3.24)	

Note: <sup>a</sup>  $n=108$ , <sup>b</sup>  $n=41$ .

### **Behavioural differences between lying and truth-telling conditions**

The second logistic regression investigated the main effect of veracity. In order to do this, veracity condition (lying and truth-telling) was used as the dependent variable, and the 14 nonverbal and vocal behavioural variables described above as independent variables.

The model was not predictive of veracity with an overall classification rate of 59.7%,  $\chi^2(14, 149) = 14.13, p = .440$ . Measures of effect size indicated a small effect (Nagelkerke  $R^2 = .12$ ). This suggests that the likelihood that a person was either lying or telling the truth could not be reliably estimated by behavioural cues.

### **Behavioural differences across language and veracity conditions**

The final logistic regression model was conducted to examine whether the predictor variables were sensitive to an interaction between language and veracity condition. In order to do this, a contrast coefficient variable was created. Participants who were lying and speaking in Spanish were given a value of -1, participants lying and speaking in English were given a value of 1, participants who were telling the truth in Spanish were assigned a value of 1, and participants who were telling the truth in English were assigned a value of -1.

The logistic regression analysis showed that the model had no predictive value,  $\chi^2(14, 149) = 13.40, p = .495$ , with an overall classification rate of 63.8%, with a small effect size (Nagelkerke  $R^2 = .12$ ). This indicated that the behavioural pattern associated with veracity did not depend on whether the participants communicated in their first or second language.

### **Discussion**

The present study sought to investigate whether (i) Colombians displayed behavioural differences when communicating in English compared to Spanish; (ii) Colombian liars and truth-tellers displayed behavioural differences; and (iii) the behavioural differences between liars and truth-tellers varied depending on whether participants communicated in English or Spanish. The findings relating to the interaction (i.e., the third logistic regression model) indicated that whether participants spoke in their first or second language did not moderate the pattern of behavioural differences between liars and truth-tellers. In other words, when lying in a second language participants did not behave differently compared to when lying in their first language. Therefore, contrary to

expectations, it seems that second language use does not alter the degree to which behavioural cues might indicate deception.

In fact, the present study found that collapsing across language conditions (i.e., the second logistic regression model), behavioural cues were insufficient to significantly predict whether participants were lying or telling the truth. This is in contrast to the corresponding analysis in Study 1, which included some of the same participants (i.e., Colombians speaking Spanish) combined with a different group (Australians speaking English) and identified two significant predictors. Notwithstanding the different outcomes in terms of statistical significance, in both cases, the analyses indicated that the behavioural cues were of limited effectiveness in reliably distinguishing liars from truth-tellers, with effect size estimates (Nagelkerke  $R^2$ ) of .17 and .12 for the previous and current studies respectively. These findings highlight the limited reliability of specific behavioural cues as indicators of deception.

The findings of the present study also showed that participants' baseline behaviour differed markedly when communicating in their second language compared to when communicating in their first language, regardless of veracity. Specifically, it was found that Colombian participants made more functional hand and arm movements and their response latency was considerably shorter when speaking in their first language (Spanish) than their second language (English). These findings are somewhat consistent with the literature on second language use, which has demonstrated that speaking in a second language is cognitively taxing and often results in increased speech errors, automatism and pauses (Fehringer & Fry, 2007; Hongyan et al., 2010; Kroll & de Groot, 2005). Although the considerably longer response latency for second language use compared to first language use does suggest cognitive load resulting from language demands, participants did not display an increase in other paraverbal behaviours such as speech errors. These

findings may call into question the cognitively taxing interpretation of second language use. However, a plausible explanation for the lack of change in other paraverbal behaviours is the nature of the participants. They were recruited by informing them that they would have an interview in their second language. Therefore, it is possible that only those who considered themselves as highly proficient in their second language (i.e., English) and were confident of their ability participated in the study. This may have resulted in less cognitive demands when speaking in their second language and thus had less impact on speech production.

Differences in behaviour across second and first language use have important implications for cross-cultural judgments of deception. If observers attribute deception based on the presence of behavioural cues associated with cognitive load and nervousness – as suggested by the literature on stereotypical cues of deception (e.g., Granhag et al., 2004; Vrij, 2008) – then it is plausible that a communicator speaking in a second language may be more likely to be judged as deceptive. For instance, a communicator speaking the truth in a second language may show signs of cognitive load that result from language demands and these behavioural cues may be misinterpreted by observers as attempts to hide the truth. Linguistically mediated behavioural differences could then hinder the lie detection process by producing bias and errors in judgment. However, current deception research has not examined whether such language based behavioural variability increases the likelihood of deception judgments (i.e., lie bias) when making cross-cultural judgments of deception. Consequently, one of the aims of Study 4 of the present research program was to investigate this issue.

It must be acknowledged that there was a lack of randomisation of the language used for participants in both studies (Study 1 and 2). Thus it is not entirely possible to rule out confounding variables such as individual differences or testing effects. However, this

seems unlikely because both studies were conducted in the same university and during the same session of study. Therefore, it was assumed that participants from both studies were comparable in a number of demographics (e.g., age).

Prior to examining the potential for second language use bias, it is important to examine participant's knowledge of the cultural behavioural differences between the two cultural groups and the stereotypical cues they use to make credibility judgments. Study 3 investigated these issues.

## Chapter 5

### Study 3: Australian and Colombian beliefs about behaviour and deception cues

*“Truth exists; only lies are invented”*

Georges Braque

Existing literature suggests that during cross-cultural interactions, knowledge and familiarity with a culture’s behavioural patterns are important determinants of one’s ability to minimise bias and misunderstandings that result from differences in communication styles, cultural norms, values and customs between interactants (Spencer-Rodgers & McGovern, 2002; Wiseman et al., 1989). The findings of Study 1 indicated that there are differences in the baseline behavioural pattern of Australians and Colombians. Therefore, it is particularly important to investigate whether people recognise the existence of these differences in behavioural patterns across cultures. In particular, it is important to examine whether people hold incorrect beliefs about the way culture influences behaviour and communication. Accordingly, the first aim of the present study was to investigate Australians’ and Colombians’ beliefs about cultural differences in behaviour.

A second aim of the present study was to examine Australian and Colombian stereotypical behavioural cues associated with deception. As discussed in Chapters 1 and 2, research has consistently found that when people are making judgments of credibility they are more likely to look for cues they *believe* indicate deception regardless of whether or not they are an actual manifestation of deception, and that these stereotypical beliefs are commonly shared by many professional groups and laypeople, and across cultures. However, whilst the Global Deception Research Team (2006) found that most stereotypical cues to deception are shared across cultures, they also found that some cultural groups were likely to endorse stereotypical beliefs more than other cultures. This

suggests that there may be some culture-specific beliefs. The present study therefore aimed to extend that literature by examining whether Australian and Colombian cultural groups have culture-specific stereotypical cues to deception. Given the limited research that has been conducted on the role of culture in deceptive behaviour and lie detection, it would be premature to indicate what type of stereotypical cues would differ between the two cultural groups. It would also be premature to indicate what beliefs participants may have about the differences in behavioural patterns and conversational styles between Australian and Colombian cultures. Consequently, the aims of the present study were exploratory in nature.

## Method

### Participants

A total of 234 Australian and Colombian participants with a mean age of 25.28 ( $SD = 9.67$ ) took part in this study. Of these participants, 148 were Australian (31 males and 117 females) with a mean age of 25.26 ( $SD = 10.1$ ), and 86 were Colombian (18 males and 31 females). Due to technical difficulties gender demographics of Colombian participants were only recorded for 49 of the 86 participants. Of these 49 Colombian participants the mean age was 25.37 ( $SD = 8.42$ ). Although this is not ideal, gender comparisons were not the main objective of the analyses. The Australian sample took part in this study as part of a course requirement while the Colombian sample participated voluntarily.

### Materials

The questionnaire (see Appendix C1) used in the present study was comprised of two sections: the first section examined Australian and Colombian beliefs about the

differences in behaviour between the two cultures, and the second examined Australian and Colombian stereotypical beliefs about lying and behaviour.

*Beliefs about differences in behaviour.* This section examined Australians' and Colombians' beliefs about how they thought vocal and nonverbal behaviour would differ between the two cultures during a social interaction. In order to do this, Australian and Colombian participants were given a list of 17 nonverbal and vocal behaviours – as shown in Table 5.1, and were asked to indicate whether they thought the other culture would display these behaviours more, less, or no differently to their own culture during a social interaction. These behaviours were chosen because past research has identified them as behavioural correlates of deception or as perceived indicators of deception (DePaulo et al., 2003; Sporer & Schwandt, 2006, 2007; Vrij, 2000). For each behaviour participants were also asked to indicate how confident they felt about their answer: not at all confident, somewhat confident, or extremely confident.

Table 5.1

*List of nonverbal and paraverbal behaviours*

Nonverbal behaviours	Paraverbal behaviours
Smiling	Speech hesitations
Blinking	Speech errors (e.g., stuttering, slips of the tongue)*
Eye contact	Speed of speech
Scratching (e.g., head, wrists)*	Response latency
Meaningful gestures	Number of pauses while speaking
Leg and foot movements	Vocal pitch
Head nods and shakes	Length of pauses while speaking
Fidgeting with hands and fingers	
Trunk movements	
Postural shifts	

\* Most of the behaviours were self-explanatory, but in some cases, examples were also provided.

In this section participants were also asked a series of open-ended and forced choice questions about their thoughts and experiences of the other culture. Firstly, they were asked to indicate whether they had had previous contact with a person from the other culture (i.e., cross-cultural experience). If they responded “yes”, they were asked to indicate how frequently that contact had occurred. Secondly, they were asked to indicate whether they were acquainted with a person from the other culture. If the participant responded “yes”, they were asked to indicate the type of relationship (e.g., partner, friend). Thirdly, participants were asked to indicate whether they had travelled to the country previously and how long they spent there. Fourthly, they were asked to indicate their thoughts about similar cultures (e.g., Australian participants were asked to indicate their thoughts about South America and South American people and Colombian participants were asked to indicate their thoughts about Australians). Finally, they were asked to indicate their thoughts about the other culture and its people (i.e., “*What thoughts come to mind when you think about Colombia or Colombian people?*”).

*Beliefs about lying and behaviour.* The second section of the questionnaire examined Australian and Colombian stereotypical cues of deception. Before commencing this section, participants were given the following definition of lying taken from Vrij (2000) : a “deliberate attempt, without forewarning, to create in another a belief which the communicator considers to be untrue” (p. 6) and were told to keep it in mind while they answered the questionnaire. This was followed by an open-ended question which asked respondents to indicate which behaviours they focus on when they are trying to tell whether someone is lying to them or not (i.e., “*How can you tell when people are lying?*”).

In order to examine participants’ beliefs about cues to deception they were then given the same list of 17 behaviours described in Table 5.1 (first section of questionnaire), and were asked to indicate whether they believed the behaviour would be displayed *more*,

*no differently, or less* while *lying* compared to while telling the *truth*. Again, for each behaviour, participants were asked to indicate how confident they were of their answers. Finally, participants were asked demographic information such as age, gender, cultural group they identified with, and place of birth.

## **Procedure**

The questionnaire was advertised using Charles Sturt University (Australia) and Pontificia Universidad Javeriana (Colombia) electronic forums, noticeboards, and students' personal e-mails. Given that I was located in Australia at the time of data collection, all Colombian participants were asked to complete the questionnaire online. Advertisements at Pontificia Universidad Javeriana provided the online link to the questionnaire. In Australia, however, participants were given the choice of completing either an online or a paper version of the questionnaire. Advertisements for Charles Sturt University provided the online link to the questionnaire and the principal investigator's contact details to arrange an appointment to complete the paper version.

Of the 148 Australian people who visited the website and went past the information page, 65 completed the questionnaires – a 43.24% response rate. A total of 213 Colombian people visited the website and went past the information page. Of these, 86 participants completed the questionnaires – a 41% response rate. A total of 86 Australian participants completed the paper and pencil version.

*Translation of the questionnaire.* Similar to Study 1 and 2 all the questionnaires were translated into Spanish by the principal investigator. Due to limitations on accessibility and availability of bilingual Spanish- English translators, it was decided to use a team approach rather than a back-translation of the materials (Harkness et al., 2004). The translation of the experimental materials was then reviewed by an independent bilingual

(Spanish-English) translator, who was also a native Spanish speaker and a psychologist with knowledge of experimental designs. The independent bilingual translator and the principal investigator worked as a team reviewing and discussing the translation produced, thus, ensuring the highest content and meaning equivalence possible between the original and the translated versions of the material.

*Online version of questionnaire.* The first page of the website informed potential participants of the purpose of the study, the task, and the ethical issues associated with participation. If visitors to the website agreed to participate they were asked to continue to the next page by pressing the “continue” button, and reading the instructions provided. At the end of the questionnaire, participants were thanked for their time and were asked to invite other people they thought would be interested in completing the questionnaire by forwarding the link to their e-mail addresses.

*Paper version of the questionnaire.* Participants who wanted to complete the paper questionnaire were asked to arrange a suitable time with the researcher. The participants were taken into a room with a desk and provided a brief description of the purpose of the study. Those who decided to participate were given the questionnaire and the information sheet (Appendix C2). The sheet contained information about the purpose of the study, the task, and ethical and confidentiality issues associated with participation in the study. The content and order of questions was the same as the online version. At the end of the questionnaire, participants were thanked for their time.

## Results

### Beliefs about differences in behaviour

Participants were asked to indicate whether they thought a number of vocal and nonverbal behaviours would differ between the two cultures during a social interaction. In order to simplify interpretation of the results, responses from Australian participants were re-coded so that scores reflect beliefs about Australians' behaviours relative to Colombians' behaviour. This transformation allows a direct comparison to be made with the scores of the Colombian participants. Thus, when Australian participants reported that Colombians display a behaviour 'less' than Australians their responses were re-coded as 'more', and when 'more' was reported their responses were re-coded as 'less'. For example, if Australian participants reported that they believed that Colombians smile more relative to Australians then it follows that Australians smile less than Colombians.

A Pearson's Chi square<sup>1</sup> was used to examine the relationship between Australian and Colombian responses. A 3 (No difference, Less, More) x 2 (Australia and Colombia) contingency table was created for each item. The percentage distribution of responses, Chi squares, and Cramér's *V* for each item are reported in Table 5.2.

The results indicated a statistically significant difference in the distribution of responses between Australian and Colombian participants for 10 out of the 17 items. As can be seen, Australian participants tended to indicate that there were no differences between cultures in the display of the following behaviours: smiling, scratching, leg and foot movements, fidgeting, trunk movements, postural shifts, response latency, and length of pauses when speaking, whereas Colombian respondents were more likely to believe that

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<sup>1</sup>Even though the scale of measurement may be regarded as ordinal, a Mann Whitney test was not considered appropriate as it has been argued that an excessive number of tied ranks are problematic (Howell, 2007).

Australians display these behaviours less than Colombians. Interestingly, the distribution of responses for the 'speed of speech' item showed a marked contradictory pattern.

Australian participants were more likely to believe that Colombians speak faster than Australians; whereas Colombian participants were more likely to believe that Australians speak faster than Colombians.

The distribution of responses for the head nods and shakes items also showed a contradictory pattern. Colombian respondents were more likely to believe that there are no differences between cultural groups in the number of head nods and shakes displayed during a social conversation, whereas a large proportion of Australian respondents believed that Australians make fewer head nods and shakes than Colombians. Based on Cramer's  $V$ , the effect sizes of the differences in the distribution of Australian and Colombian responses ranged from small to moderate, in terms of Cohen's (1988) guidelines.

The distribution of responses of Australian and Colombian participants for the remaining behavioural items – number of speech errors, pauses while speaking, blinking behaviour and eye contact – was not significantly different. This suggests that Australian and Colombian participants have similar beliefs about how these behaviours differ between cultures. For instance, both cultural groups were likely to indicate that Australians display fewer gestures than Colombians.

Table 5.2

*Percentage distribution of beliefs of Australians' vocal and nonverbal behaviours relative to Colombians' behaviour*

Item/sample		'Less'	'No difference'	'More'	$\chi^2$	Cramér's <i>V</i>
Smiling	Australia	29.7	58.1	12.2	12.97*	.24
	Colombia	53.5	38.4	8.1		
Blinking	Australia	5.4	87.8	6.8	3.25	.12
	Colombia	11.6	83.7	4.7		
Eye contact	Australia	25.7	41.9	32.4	1.44	.79
	Colombia	32.9	38.8	28.2 37.2		
Scratching	Australia	10.8	75.7	13.5	29.96**	.36
	Colombia	41.7	51.2	7.1		
Gestures	Australia	56.1	33.1	10.8	1.90	.09
	Colombia	60.7	25.0	14.3		
Leg and foot movements	Australia	18.2	68.9	12.8	10.79**	.22
	Colombia	37.6	51.8	10.6		
Head-nods and shakes	Australia	45.3	41.2	13.5	6.82*	.17
	Colombia	32.9	58.8	8.2		
Fidgeting	Australia	13.5	64.9	21.6	26.92**	.34
	Colombia	43.5	38.8	17.6		
Trunk movements	Australia	18.9	76.4	4.7	29.39**	.36
	Colombia	50.6	41.2	8.2		
Postural shifts	Australia	15.5	64.9	19.6	8.36*	.19
	Colombia	30.5	58.5	11.0		
Speech hesitations	Australia	29.5	29.5	41.1	2.34	.10
	Colombia	39.3	25.0	35.7		
Speech errors	Australia	18.2	61.5	25.0	4.45	.14
	Colombia	27.4	47.6	20.3		
Speed of speech	Australia	60.1	19.6	20.3	28.69**	.35
	Colombia	25.0	27.4	47.6		
Response latency	Australia	25.7	56.8	17.6	9.43*	.20
	Colombia	42.9	36.9	20.2		
Number of pauses while speaking	Australia	23.6	44.6	31.8	4.47	.14
	Colombia	33.3	46.4	20.2		
Vocal pitch	Australia	31.8	37.2	31.1	2.06	.09
	Colombia	39.3	28.6	32.1		
Length of pauses	Australia	21.6	54.4	24.3	6.06*	.16
	Colombia	36.1	47.0	16.9		

Note: Australia  $n = 148$ ; Colombia  $n = 86$ . \*  $p < .05$ ; \*\*  $p < .01$ .

### **Confidence ratings for vocal and nonverbal behaviour**

A Pearson's Chi square was used to examine Australians' and Colombians' confidence ratings. To do this, 3 (Not confident, somewhat confident, extremely confident) x 2 (Australia, Colombia) contingency tables were created.

It was found that the distribution of confidence ratings for all 17 items were statistically significantly different between Australian and Colombian groups. The percentage distribution of responses for each item, Chi squares, and Cramér's *V* (measure of effect size) are reported in Table 5.3. While a large number of participants tended to report "somewhat confident" ratings for most of the items, there was a tendency for Colombian participants to report that they were "Extremely confident". Cramer's *V* effect size calculations suggest that the differences in confidence ratings between groups ranged from small to medium. Overall, these findings suggest that perhaps Colombian participants tend to hold beliefs about cultural differences in behaviour more strongly than Australian participants.

### **Stereotypical cues to deception**

In the second section of the questionnaire participants were asked to indicate how they thought vocal and nonverbal behaviours are affected by deception. In order to examine whether Australian and Colombian participants hold different beliefs, a 3 (More, No difference, Less) x 2 (Australia and Colombia) Pearson's Chi square test of independence was used. The percentage distribution of responses for all items, Chi squares, and Cramér's *V* are presented in Table 5.4. As can be seen, Australian and Colombian participants' distributions of responses were significantly different for 6 out of 17 items.

Table 5.3

*Percentage distribution of confidence ratings for each item*

Item/sample	Not at all confident	Somewhat confident	Extremely confident	$\chi^2$	Cramér's <i>V</i>
Smiling					
Australia	31.1	56.8	12.2	21.23**	.30
Colombia	11.6	54.7	33.7		
Blinking					
Australia	30.6	51.7	17.7	12.90*	.24
Colombia	14.1	50.6	35.3		
Eye contact					
Australia	33.3	54.4	12.2	23.0**	.31
Colombia	15.1	47.7	37.2		
Scratching					
Australia	44.6	47.3	8.1	19.12**	.29
Colombia	21.4	53.6	25.0		
Gestures					
Australia	27.0	63.5	9.5	31.95**	.37
Colombia	10.7	50.0	39.3		
Leg and foot movements					
Australia	38.8	55.1	6.1	25.89**	.33
Colombia	16.5	56.5	27.1		
Head-nods and shakes					
Australia	31.3	62.6	6.1	13.14*	.24
Colombia	20.0	58.8	21.2		
Fidgeting					
Australia	41.2	53.4	5.4	29.30**	.35
Colombia	15.3	58.8	25.5		
Trunk movements					
Australia	40.8	50.3	8.8	26.50**	.34
Colombia	16.7	51.2	32.1		
Postural shifts					
Australia	41.9	51.4	6.8	30.48**	.36
Colombia	15.5	54.8	29.8		
Speech hesitations					
Australia	35.1	50.7	14.2	21.41**	.30
Colombia	16.7	44.0	39.3		
Speech errors					
Australia	38.1	50.3	11.6	19.83**	.29
Colombia	20.2	45.2	34.5		
Speed of speech					
Australia	27.0	58.8	14.2	23.34**	.32
Colombia	10.7	48.8	40.5		
Response latency					
Australia	40.5	53.4	6.1	15.94**	.26
Colombia	17.9	65.5	16.7		
Number of pauses while speaking					
Australia	39.9	55.4	4.7	22.58**	.31
Colombia	19.3	57.8	22.9		
Vocal pitch					
Australia	38.5	54.1	7.4	27.86**	.35
Colombia	13.3	57.8	28.9		
Length of pauses					
Australia	42.6	52.0	5.4	21.61**	.30
Colombia	17.9	61.9	20.2		

Note: Australia *n* = 148; Colombia *n* = 86; \* *p* < .05; \*\**p* < .01.

Interestingly, the distribution of responses for 'vocal pitch' and 'gestures' showed a contradictory pattern. Australian participants were more likely to indicate that liars display higher vocal pitch, whereas Colombian respondents were more likely to believe that liars display lower vocal pitch. For the item 'gestures', the distribution of responses indicated that Colombian participants believed that liars make more gestures than truth tellers, whereas Australian respondents reported that there is no difference. Based on Cramer's  $V$  calculations the differences between Australian and Colombian responses ranged from moderate to large. The distribution of responses for the 'eye contact' item showed that Australian and Colombian participants were likely to indicate that liars display less eye contact than truth tellers; however, a proportion of Colombian respondents were also likely to indicate that liars have more eye contact than truth tellers. Moreover, the majority of Australian and Colombian respondents were likely to believe that liars make more postural shifts and fidget more than truth tellers, yet a significant proportion of Colombians were also likely to indicate that there is no difference. Australian and Colombian participants reported that liars display no differences in body (trunk) movements in comparison to truth tellers; however, a significant proportion of Colombian respondents were also likely to indicate that liars display more body movements.

Table 5.4

*Australians' and Colombians' percentage distribution of responses for stereotypical cues to deception*

Item/Sample	'Less'	'No difference'	'More'	$\chi^2$	Cramér's <i>V</i>
Smiling					
Australia	28.5	18.8	52.8	1.90	.09
Colombia	35.3	12.9	51.8		
Blinking					
Australia	15.1	15.1	69.9	4.72	.09
Colombia	9.3	25.6	65.1		
Eye contact					
Australia	88.8	3.4	8.3	16.82**	.27
Colombia	66.3	7.0	26.7		
Scratching					
Australia	2.7	19.2	78.1	4.30	.13
Colombia	1.2	30.6	68.2		
Gestures					
Australia	31.5	43.2	25.3	23.99**	.32
Colombia	17.6	24.7	57.6		
Leg and foot movements					
Australia	5.5	33.6	61.0	0.07	.02
Colombia	4.7	34.1	61.2		
Fidgeting					
Australia	0.7	6.2	93.2	6.92*	.17
Colombia	2.4	15.7	81.9		
Head nods and Shakes					
Australia	11.7	49.0	39.3	2.28	.10
Colombia	10.6	40.0	49.4		
Body (trunk) movements					
Australia	13.1	63.4	23.4	8.20*	.19
Colombia	11.8	47.1	41.2		
Postural shifts					
Australia	2.8	10.3	86.9	18.71**	.28
Colombia	8.2	29.4	62.4		
Speech hesitations					
Australia	7.5	8.9	83.6	1.62	.08
Colombia	3.5	10.6	85.9		
Speech errors					
Australia	6.9	17.2	75.9	5.56	.15
Colombia	1.2	11.8	87.1		
Speed of speech <sup>b</sup>					
Australia	12.2	17.0	70.7	5.00	.14
Colombia	16.5	27.1	56.5		
Response latency					
Australia	16.4	8.2	75.3	3.00	.11
Colombia	16.7	15.5	67.9		
Number of pauses					
Australia	18.4	20.4	61.2	0.17	.03
Colombia	20.5	20.5	59		
Vocal pitch					
Australia	9.5	29.3	61.2	67.93**	.54
Colombia	53.0	33.7	13.3		
Length of pauses					
Australia	21.2	28.8	50.0	1.52	.08
Colombia	28.2	24.7	47.1		

Note: Australia *n* = 148; Colombia *n* = 86; \* *p* < .05; \*\* *p* < .01.

The results also indicated that the distribution of responses between cultures for the remaining behavioural items were not significantly different. This suggests that participants from Australia and Colombia hold similar beliefs on how these behaviours are affected by deception. Participants from both groups indicated with more frequency that liars smile more, blink more, scratch more, display more head nods and shakes, make more hesitations, more speech errors, speak faster, have longer response latencies, make more pauses, and have longer pauses when speaking compared to truth tellers.

### **Confidence ratings for stereotypical beliefs**

As with previous analyses, a 3 (Not confident, somewhat confident, extremely confident) x 2 (Australia and Colombia) Chi square test was conducted.

As shown in Table 5.5, the results indicated that there were statistically significant differences in the distribution of confidence ratings between Australian and Colombian respondents for 15 out of the 17 items. As can be seen, the results suggest that Australians were more likely to feel “somewhat confident” about their choice, whereas Colombians tended to report feeling “extremely confident” about their answers. Furthermore, the proportion of Australians who reported feeling ‘not at all’ confident with their choice was significantly higher than the proportion of Colombian respondents also feeling not at all confident. Moreover, measurements of effect size suggest the magnitude of these differences ranged from small to moderate. Similarly to the first section of the questionnaire reported above, the results suggest that Colombian participants have a tendency to endorse their beliefs about cues to deception more strongly than Australian participants.

Table 5.5

*Australians' and Colombians' percentage distribution of confidence ratings for stereotypical cues to deception*

Item/sample	Not at all confident	Somewhat confident	Extremely confident	$\chi^2$	Cramér's V
Smiling					
Australia	8.4	72.7	18.9	26.89 **	.34
Colombia	4.7	43.5	51.8		
Blinking					
Australia	9.0	64.8	26.2	19.22**	.29
Colombia	3.5	41.9	54.7		
Eye contact					
Australia	4.9	44.4	50.7	10.28*	.21
Colombia	3.5	24.4	72.1		
Scratching					
Australia	8.3	64.8	26.9	14.63**	.25
Colombia	7.1	41.2	51.8		
Gestures					
Australia	22.9	64.6	12.5	39.86**	.41
Colombia	7.1	43.5	49.4		
Leg and foot movements					
Australia	20.1	56.3	23.6	15.15**	.26
Colombia	7.1	47.1	45.9		
Head-nods and shakes					
Australia	23.6	61.8	14.6	19.66**	.29
Colombia	8.1	54.7	37.2		
Fidgeting					
Australia	10.4	43.8	45.8	4.28	.14
Colombia	4.8	36.9	58.3		
Trunk movements					
Australia	27.1	62.5	10.4	29.13**	.36
Colombia	8.1	54.7	37.2		
Postural shifts					
Australia	9.6	61.6	28.8	1.95	.09
Colombia	8.2	54.1	37.6		
Speech hesitations					
Australia	7.5	56.2	36.3	22.08**	.31
Colombia	4.7	27.1	68.2		
Speech errors					
Australia	11.0	54.5	34.5	21.82**	.31
Colombia	3.5	30.6	65.9		
Speed of speech					
Australia	17.1	62.3	20.5	10.85*	.22
Colombia	9.4	50.6	40.0		
Response latency					
Australia	4.8	71.0	24.1	16.36**	.27
Colombia	8.3	44.0	47.6		
Number of pauses while speaking					
Australia	16.4	67.1	16.4	17.03**	.27
Colombia	8.3	51.2	40.5		
Vocal pitch					
Australia	17.8	61.6	20.5	11.70*	.23
Colombia	4.8	59.5	35.7		
Length of pauses					
Australia	19.9	61.6	18.5	13.11**	.24
Colombia	8.3	53.6	38.1		

Note: Australia  $n = 148$ ; Colombia  $n = 86$ . \*  $p < .05$ ; \*\* $p < .01$ .

## **Cultural perceptions**

Participants were also asked to report the level of contact they have had with the other culture, and provide a brief description of their thoughts and feelings towards that culture. However, only a very small number of participants from Australia and Colombia reported having frequent contact or being acquainted with a person from the other culture (Australia:  $n = 11$  and Colombia:  $n = 20$ ). Therefore, the results obtained in this section did not allow for significant group comparisons to be made.

Content analysis was performed on participants' open-ended responses about their perceptions of the other culture or cultural group. Participants' responses were categorised into two types of words: evaluative words describing the culture and its members, and stereotypical descriptive words of the socio-economic features of the nation. Overall, Australian respondents were more likely to describe Colombians and/or South American people with evaluative words such as "lively", "passionate", "warm", "generous", "emotional", "expressive", "happy", "vibrant", "colourful" and "energetic". Also, they were likely to mention descriptive words such as "drug use and trafficking", "crime", "corruption", "cocaine production", "coffee production", "soccer", "dancing", "partying", "hygiene", and "poverty". Colombian participants were more likely to describe Australians and/or people with an English speaking background with descriptive words such as "organised", "rational", "reasonable", "cold", "friendly", "unaffectionate", and "polite". They were also likely to include descriptive words such as "order", "organisation", "economic development", "technological advancement", and "multiculturalism". Therefore, it appears that people have certain perceptions and ideas about a culture regardless of whether they have had previous contact with the cultural group or not. In sum, these findings suggest that there are two key themes in the way participants described the characteristics attributed to the people and their culture: namely, Australian participants

were likely to describe Colombians in terms that characterised them as emotional or expressive, whereas Colombian participants were likely to describe Australians in terms that characterised them as rational or emotionless.

### **Stereotypical cues used in lie detection**

Participants were also asked to describe “*How can you tell when someone is lying?*”. The frequencies of their responses were coded according to whether they mentioned vocal or nonverbal behaviours (i.e., eye contact, body movements, fidgeting, speech errors and hesitations, etc.), verbal behaviour (i.e., lack of detail, inconsistency in story, duration of answers, etc.), emotional or arousal cues (i.e., nervous, uncomfortable, physical changes- sweating, increased heart beat and breathing, etc.) or other (i.e., gut feeling, or knowledge) in their open- ended responses. The results indicated that Australian and Colombian participants reported using, with more frequency, vocal and nonverbal cues as a way to determine whether someone is lying or not (89% Australian, and 69.8% Colombian participants). Participants reported using verbal cues (23% Australian and 12.8% Colombian) and emotional/arousal cues to detect deception with less frequency (14.8% Australians vs. 29% Colombians). Only 5.4% of Australian participants and 3.49% of Colombian participants reported using ‘other’ cues such as ‘gut instinct’ or knowledge. These results suggest that participants from Australia and Colombia may be more likely to look for nonverbal cues than verbal or emotion/arousal cues when making judgments of credibility.

## Discussion

The first aim of the present study was to investigate participants' knowledge about the differences in nonverbal and vocal behavioural patterns between Australians and Colombians. The results indicate that, for the majority of behaviours, Australians tended to believe that there were no behavioural differences between the two cultural groups. However, Colombian participants were more likely to indicate that there were some behavioural differences in the display of a number of nonverbal and verbal behaviours such as smiling, scratching, and fidgeting. Moreover, confidence ratings indicated that Colombian participants hold these beliefs more strongly than Australian participants.

There are three plausible explanations for why the participants, and especially the Australian ones, tended to believe that there are no behavioural differences between the two cultural groups. First, it is plausible that participants were more likely to *assume* that there are no cultural differences in the vocal and nonverbal behavioural patterns of Australians and Colombians because they lacked familiarity with the other culture's communication pattern. This explanation is consistent with the fact that only a small number of participants reported having contact or being acquainted with a person from the culture. A second explanation is that social desirability played a role in the way they responded to the questionnaire. It is plausible that participants, in particular Australian students, felt that the 'no difference' option was the 'politically correct' choice. Third, given that the "don't know" option was not available to respondents, participants may have been forced to choose the 'no difference' alternative. As a result, it is difficult to conclude whether the higher percentage of responses in the "no difference" alternative was due to an actual belief that there are no differences in the communication pattern of the culture, or due rather to a lack of familiarity with that culture.

However, the general tendency to indicate that there are no differences in the behavioural patterns of Australians and Colombians suggests that participants had limited conceptions of the potential differences in behaviour across cultures. In fact, the findings of Study 1 (as shown in Table 3.3 page 103) suggest that these beliefs contradict actual differences in the behavioural patterns between the two cultural groups. For instance, whilst Australians believed that there was no difference in the smiling behaviour and eye contact between the two cultural groups, it was found that Colombians, in fact, smile less and make less eye contact than Australians. Therefore, even though participants had some stereotypical beliefs about how behaviour differed across cultures, some of those beliefs were inaccurate or contradictory to the actual behavioural differences found in Study 1.

The beliefs people hold about normative behavioural patterns of a culture may have significant implications for cross-cultural communication, particularly communications where judgments of deception are made. According to Gudykunst (2004) errors and misinterpretations during cross-cultural communication often occur because interactants assume that the communicator shares similar norms and values to the observer. As discussed in Chapter 2, Bond, Omar et al. (1990) argued that during cross-cultural judgments of credibility a lack of familiarity with the culture's communication patterns may increase the likelihood of bias. Therefore, the notion that participants seem to have limited knowledge of the behavioural differences existent between the two cultural groups suggests that during a social conversation observers from both cultures perhaps assume the communicator shares similar norms and values. These beliefs may create expectancies in the observer of how a person from that cultural group should behave during a social conversation. Thus, according to the expectancy violation model (Bond et al., 1992) and norm violation model (Levine et al., 2000), when such expectancies or norms are violated by the communicator, the observer may be more likely to attribute deception as the cause

of the violation. For instance, in the present study it was found that Australian participants believe that there are no differences in eye contact behaviour between Australians and Colombians. Therefore, in an interaction between Australian and Colombian citizens, Australians may be more likely to expect ‘no differences’ in eye contact behaviour from the Colombian communicator. However, findings of Study 1 indicated that Colombians’ baseline behavioural pattern is to display less eye contact, regardless of the veracity of the message (see Table 3.3 page 103). As a result of an expectancy violation, a Colombian participant displaying their culture’s baseline eye contact behaviour may be seen by an Australian observer as deceptive. In sum, the beliefs or expectancies that people hold about differences in baseline behaviour between cultures may be an important determinant for errors and misinterpretations during cross-cultural judgments of credibility.

There are also a number of plausible explanations for the finding that Colombians were generally more confident in their ratings than Australian participants. Firstly, it is possible that their confidence ratings illustrate the strength of their beliefs. Thus, Colombians were generally more likely to hold strong beliefs. However, it is also likely that Australians and Colombians differ in the usage of the terms “extremely confident” vs. “somewhat confident”. Thus, this seeming difference in confidence ratings between cultures could also be attributable to differences in word usage. Another possibility is that there were subtle differences in the verbal labels used in the English vs. the Spanish versions of the questionnaire. These differences may have prompted Colombian participants to respond more often as “Extremely confident”.

The second aim of the present study was to examine participants’ stereotypical cues to deception. Consistent with previous literature, it was found that there were a number of stereotypical cues of deception that are commonly shared by both cultural groups. It was found that Australian and Colombian participants believe that liars blink

more, smile more, scratch more, make more speech errors and hesitations, and have longer response latencies and pauses than truth-tellers. However, contrary to the cross-cultural consensus found by the Global Deception Research Team (2006), there were also a number of culture-specific stereotypical cues to deception. Australian and Colombian participants had opposite beliefs about how gestures, trunk movements, and vocal pitch are affected by deception. Specifically, it was found that Australian participants were more likely to believe that liars display higher vocal pitch whereas Colombian respondents were more likely to believe that liars display lower vocal pitch. Furthermore, Australian participants were more likely to believe that there are no differences in the number of gestures and trunk movements between liars and truth-tellers, whereas Colombian participants were more likely to believe that liars make more gestures and more trunk movements than truth-tellers. It was also found that relative to Colombian respondents, Australians were more likely to believe that liars avert their gaze, make more postural shifts, and fidget more than truth-tellers. Consistent with the literature, it was found that these stereotypical beliefs often contradict actual behavioural differences between liars and truth-tellers (e.g., Granhag & Stromwall, 2004a, 2004b; Granhag & Vrij, 2005). In particular, the findings of Study 1 indicated that there were only two significant predictors of veracity: head nods and pauses (see Table 3.4 page 105).

The finding that there are culture-specific stereotypical cues to deception has significant practical implications for cross-cultural deception. It is plausible that in a situation where the communicator and the observer are from different cultures, a communicator who is behaving consistently with his/her cultural behaviour, but 'fits' the stereotype of a liar for the observer's culture, might be more likely to be judged as deceptive. In the present study it was found that Australians associate deception with an increased number of pauses, however, the findings of Study 1 indicated that Colombians

typically display more pauses while speaking compared to Australians regardless of the veracity of the message. As a result, Colombians' baseline behaviour may fit the stereotypical view of Australians of how a liar behaves and thus increase the potential for bias or errors.

Furthermore, the results of the content analysis of the cues people often use to detect deception indicated that participants rely on nonverbal cues when trying to detect deception. Both cultures typically reported a number of nonverbal behaviours when asked 'How can you tell when someone is lying'. This is consistent with previous literature that has found observers often associate deception with a number of body movements, facial expressions and vocal expressions (Global Deception Research Team, 2006). However, it is important to note that even though participants were given a chance to freely indicate the cues that they would use when assessing veracity before rating more specific cues, responding to the first section of the questionnaire (beliefs about cultural differences in baseline behaviour) may have primed them to respond in a certain way.

The results of the content analysis of participants' perception of the other culture indicated that people hold stereotypes towards members of a cultural group, regardless of whether they have had previous experience with the culture or not. The results indicated that a large proportion of Australian and Colombian participants reported not being in contact or being acquainted with a person from the other culture; however, when asked to provide a description of the other culture they were able to provide a series of evaluative and descriptive words about members of the cultural group. As discussed in Chapter 2, the stereotypes people hold regarding members of a cultural group are particularly relevant during cross-cultural communication because they can affect the information that is noticed, remembered, stored and recalled (Stephan & Stephan, 2002; Wiseman et al., 1989). According to Jussim et al. (1987) negative stereotypes regarding a group and

negative attitudes towards members of that group often result in discriminatory behaviours. It is plausible then that the stereotypical views people hold about a culture may also play an important role during cross-cultural credibility judgments. If observers have a negative view of the communicator's culture, he or she may be more likely to infer the communicator is being deceptive. However, it may also go the opposite way: if the observer has a positive view of the communicator's culture, s/he may be less likely to infer deception. It is, therefore, important to examine the stereotypical and evaluative attitudes people hold towards member of a cultural group because these may be important determinants for the way attributions of credibility are made. This issue is examined in the next chapter.

In conclusion, the present study has provided information on the stereotypical cues people use when trying to determine whether someone is lying or not and their knowledge about the way culture influences behavioural communication patterns. As discussed above, these beliefs and familiarity with a culture's behavioural pattern may increase the likelihood of errors or bias when making credibility judgments in cross-cultural environments.



## **Chapter 6**

### **Study 4: Cultural and cross-cultural factors in judgments of credibility**

*“Everyone’s quick to blame the alien”*

Aeschylus (525 BC- 456 BC)

As has been mentioned previously, people’s ability to detect deception has been relatively unexplored from a cross-cultural standpoint. The limited research that has been conducted in this area suggests that accurate lie detection in a cross-cultural context may be possible (e.g., Bond & Atoum, 2000; Bond et al., 1990). However, a number of cultural and cross-cultural factors, which have been largely ignored by the literature, may complicate this process. Accordingly, the present study aimed to investigate the impact of a number of these cultural and cross-cultural factors on judgments of deception. The first part of this introduction discusses factors that may affect the properties of the context in which credibility judgments are made. These include factors such as cultural and language behavioural variability, which may increase the potential for bias or errors when interpreting a communicator’s behaviour. However, there may also be individual characteristics of the observer that might moderate the extent to which these potential biases operate. Thus, the second part of this introduction discusses the effect that a number of individual factors such as stereotypes, prejudice attitudes, and ethnocentrism may have on cross-cultural judgments of credibility.

### **Cultural and language factors in judgments of credibility**

The literature reviewed thus far has consistently shown that cultures have different behavioural norms and patterns that stem from the nature of culture itself (e.g., Vrij, 1993; Vrij & Winkel, 1991, 1992, 1994). Study 1 of the present research program provided further evidence for this variability in behaviour across cultures. Specifically, it was found that Australian and Colombian behavioural patterns differed considerably. Furthermore, Study 2 of the present research program indicated that participants' baseline behaviour when communicating in their first language was different compared to when speaking in their second language. Specifically, it was found that Colombian participants speaking in their second language (i.e., English) displayed vocal and nonverbal behaviour that suggested cognitive load, nervousness, and anxiety compared to when they were speaking in their first language (i.e., Spanish). The cultural and language variability in behaviour found in these two studies have significant implications for cross-cultural lie detection. First, if observers attribute deception based on norm or expectancy violations, as proposed by the expectancy violation (Bond et al., 1992) and norm violation (Levine et al., 2000) models, a person who is behaving consistently with their cultural norms but inadvertently violates the norms of the observer may be more likely to be judged as deceptive. In other words, cultural and language-based variability in behaviour may have the potential to create bias when cross-cultural judgments of deception are made. Accordingly, the first aim of the present study was to investigate whether behavioural differences in patterns and norms between cultures would result in misinterpretations of a culture's baseline behaviour, and consequently, in more dishonest judgments being made (i.e., deception bias).

The perceived indicators of deception literature discussed in Chapter 1 suggests that lie detectors often look for behavioural signs which indicate that the person is thinking hard (i.e., cognitive load), is anxious, or nervous. One reason for this is because these behaviours are often associated with the cognitive demands of lying. Therefore, if observers attribute deception based on the presence of behavioural cues that suggest cognitive load, anxiety or nervousness, an individual speaking in a second language and who is displaying signs of cognitive load that stem from language based cognitive demands (and not message veracity) may be more likely to be judged as deceptive than someone who is speaking in their first language. It is plausible, then, that the display of these language-dependent behaviours may increase the likelihood of the observer attributing deception as an explanation for ‘unusual’ behaviour. Accordingly, the second aim of the present study was to examine whether second language use results in deception bias.

### **Signal detection framework**

In order to examine cultural and language bias in this study, observers’ lie/truth classification judgments were analysed using a signal detection framework. A signal detection framework allows for a more comprehensive understanding of credibility judgments because it provides a measure of discrimination ( $d'$ ) between two groups of items (i.e., signal and noise trials), and also provides information about response bias ( $c$ ) (Stanislaw & Todorov, 1999). Discrimination accuracy refers to participants’ sensitivity to correctly detecting a “signal” (i.e., in the present study’s context, deceit) when it is presented and correctly rejecting “noise” (i.e., truth) when the signal is not presented

(Green & Swets, 1966). Response bias ( $c$ )<sup>1</sup> estimates the extent to which observers are biased to ascribe more “deceitful” than “truthful” judgments.

Based on the literature reviewed above, it was expected that Australian participants would show a cultural bias in that they would ascribe more deception judgments to Colombian video clips than Australian video clips. Similarly, it was expected that Australian participants would show a language bias and would ascribe more dishonest judgments to those video clips that depict Colombians speaking in their second language (English) than when the clips depict Colombians speaking in their first language (Spanish). Alternatively, Australians would favour their own language (English) and thus ascribe more deceptive judgments to those video clips that depict Colombians speaking in Spanish than those that depict Colombians speaking in English. Furthermore, given that the effect of the behavioural indicators of deception found in the present research program (Study 1 and 2) were weak, it was expected that participants’ discriminability would also reflect this and that discriminability would be around chance levels for all video clip types.

The nature of the stimulus materials used in this study allowed participants to have access to verbal and nonverbal cues. Isolating the effects of nonverbal cues by showing all participants clips with no audio is problematic because it could potentially make judges focus on nonverbal cues to a greater extent than if verbal content was available (i.e., audio). However, providing all participants with both nonverbal and verbal cues could also potentially confound the results due to the language manipulation. In particular, when making judgments of credibility of those speaking in Spanish the participants would not have access to verbal content cues despite the inclusion of the audio track. Thus, if we

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<sup>1</sup> Although  $\beta$  (beta) is the most common measure of response bias in signal detection analysis, some scholars now recommend the use of  $c$  (e.g., Macmillan & Creelman, 1990; Stanislaw & Todorov, 1999). One reason for this is that  $c$  is generally unaffected by changes in  $d'$  as it is based directly on the decision variable and thus results in a more consistent index of bias compared to  $\beta$ .

were to find differences in judgments between the Spanish clips and the English speaking clips, it would be hard to determine whether the difference was the result of the additional nonverbal cues presented by those speaking in a second language, or the result of participants having no access to verbal content. Thus, in order to isolate those effects, the presence or absence of audio on the clips was manipulated between subjects and thus participants were randomly assigned to view all the clips with audio or all without audio. This was done in order to investigate whether response bias and discriminability can, in fact, be accounted for by behavioural differences when speaking in a second language. Thus, if access to verbal and nonverbal cues had an effect, one would expect to see a difference in response bias and discriminability between audio and no audio conditions.

### **Individual factors in judgments of credibility**

While cultural and language based variability in behaviour may create the potential for bias and errors, there are a number of individual factors that may moderate the extent of such biases. As discussed in Chapter 2, rigidly held stereotypes and prejudiced attitudes towards an out-group have been consistently found to result in discriminatory behaviours (e.g., Hilton & von Hippel, 1996; Jussim et al., 1987). These negative stereotypes and prejudiced attitudes not only have a pervasive influence on the information that is attended to, but also on the way information about an individual from a group is interpreted and judged (Gudykunst, 1997). Accordingly, these inter-group perceptions may increase the potential for bias during cross-cultural credibility judgments. Therefore, the third aim of the present study was to examine whether holding negative stereotypes and prejudiced attitudes towards a cultural group would result in greater response bias.

In order to examine the impact of stereotypes and prejudiced attitudes in cross-cultural judgments of credibility, the present study used an Implicit Association Task (IAT) (Amodio & Devine, 2006; Greenwald & Banaji, 1995; Greenwald et al., 2002; Greenwald, McGhee & Schwartz, 1998). The IAT was chosen because it has been found to be a reliable measure of implicit race bias and it has been widely used in the race bias literature (e.g., Devine, 1989, 2001; Greenwald, Nosek & Banaji, 2003; Greenwald, Poehlman, Uhlmann & Banaji, 2009; Lane, Banaji, Nosek & Greenwald, 2007). Unlike measures of explicit attitudes, the IAT measures implicit attitudes that are not influenced by social desirability or self-presentation bias and allows the examination of attitudes that people are not likely to express overtly (Aberson, Shoemaker & Tomolillo, 2004). The IAT is based on the assumption that speed of categorisation is faster for categories that are consistent with attitudes. As such, the IAT is based on measures of latencies of responses for two tasks: a compatible and a non-compatible task. Accordingly, a positive *D* score would indicate faster reaction times for compatible tasks and a negative *D* score would indicate faster reaction times for incompatible tasks.

Amodio and Devine (2006) argued that even though most expressions of race bias reflect a combination of affective and cognitive processes, there is a conceptual distinction between these components that is important for the understanding of implicit race bias and its influence on behaviour. They contended that while prejudice refers to the “negative affective responses toward out-group members”, the term stereotype refers to “cognitive representations of culturally held beliefs” (Amodio & Devine, 2006, p. 652). Thus, these two forms of implicit bias are predictive of different types of discriminatory behaviour. They argued that stereotyping implicit biases are often associated with instrumental responses (e.g., endorsement of stereotypes and support for policies that disadvantage an out-group), whereas evaluative implicit biases are often associated with consummatory

race-behaviours (e.g., avoidance, negative affective responses). Based on this, the present study used an evaluative IAT and a stereotyping IAT task to assess implicit evaluative bias and implicit stereotyping respectively. Given the nature of the judgment task, it was predicted that individuals/observers with negative evaluative views of Colombians would be more likely to show a response bias.

Another individual factor that may affect the way cross-cultural judgments of credibility are made is ethnocentrism. Ethnocentrism has been considered the perceptual window in which individuals interpret and judge each other (Samovar et al., 2005), and often results in misunderstandings of the other culture's intentions, values and behaviours. The concept of ethnocentrism, which was first introduced by Sumner (1906 cited in Stephan & Stephan, 2002, p. 130), thus highlights a strong relationship between: (i) the positive attitudes towards the in-group, and (ii) the negative attitudes towards the out-group. However, more recent approaches argue that Sumner's notion should be refined and the relationship between these two concepts should be differentiated (Calavita, 2005). Consequently, it has been argued that the concept of ethnocentrism alone was perhaps too simplistic and should differentiate between two concepts: Nationalism and Patriotism (Calavita, 2005; Ellemers, Spears & Doosje, 1999). While nationalism has been defined as "the view that a person's country is superior and should be dominant over all other nations" (Kosterman & Feshbach, 1989, p. 261), patriotism has been defined as "the feelings of attachment to one's country" (Kosterman & Feshbach, 1989, p. 261). Nationalism is, therefore, viewed as inherently related to out-group derogation, whereas patriotism is expected to reveal a positive relation to own group independent of out-group derogation (Mummendey, Klink & Brown, 2001). Based on this literature, it was predicted that individuals with more strongly held nationalistic views would show a greater response bias towards communicators from the other culture than to their own culture.

## Method

### Participants

A total of 71 Australian students (20 males and 51 females) from Charles Sturt University, Bathurst, with a mean age of 21.3 years ( $SD = 5.98$ ) participated in this study as part of a course requirement.

### Materials

*Evaluative IAT.* The first IAT measured evaluative associations which reflect affective (or emotional) bias towards a group (Amodio & Devine, 2006). The stimuli consisted of eight pleasant and eight unpleasant words used by Greenwald, McGhee, and Schwartz (1998) which rated high in affect based on the norms reported by Belleza, Greenwald and Banaji (1986). The pleasant words were: *freedom, health, peace, paradise, love, lucky, miracle* and *loyal*, and the unpleasant words were: *poverty, poison, death, murder, sickness, rotten, agony* and *abuse*. South American names<sup>2</sup> consisted of eight male names drawn and modified from Aberson et al. (2004). These names were chosen for their typicality in Hispanic/South American and not in Anglo- Saxon cultures. Names that were culturally ambiguous, and names that could be easily be mistaken as Anglo-Saxon due to spelling similarities were avoided (e.g., Robert- Roberto). The South American names were: *Juan, Andres, Ricardo, Carlos, Pedro, Jose, Miguel* and *Alejandro*, and the Australian names were: *George, Andrew, Peter, David, Anthony, John, Michael* and *Paul*.

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<sup>2</sup> The literature on implicit race bias has commonly used faces as stimuli for racial IATs (Amodio & Devine, 2006; Greenwald & Banaji, 1995; Greenwald et al., 2002). However, a search for an available database of Caucasian and Latin American faces that could be used as stimulus subjects produced no results, and it was not possible to generate such a set of stimuli within this research program. Given that previous work using the IAT had demonstrated effects using names that were stereotypical of particular racial groups or age groups in a similar manner to effects using facial stimuli, and also that it was relatively straightforward to generate names that could be distinguished as typically Caucasian or typically Latin American, the approach of presenting names to represent the cultural groups was chosen (e.g., Greenwald et al., 2002; Greenwald et al., 1998; Greenwald et al., 2003).

*Stereotyping IAT.* The second IAT measured stereotypes which reflect cognitive representations (beliefs) about the target groups (Amodio & Devine, 2006). The stimuli consisted of eight emotional and eight rational words. These two categories were chosen because in Study 3 they were found to be the most frequent evaluative words and stereotypical descriptions for Australian and Colombian cultures. As described in Study 3, the words that were commonly used to describe South Americans were those words associated with the “expressiveness of emotions” and the words that were most used to describe Australians were words associated with “rationalism”. The words used in the “emotional” category were: *expressive, passion, exuberant, lively, animated, enthusiasm, spirited* and *colourful*, and the words used as “rational” were: *logical, intelligent, organised, sensible, reasonable, wise, thoughtful* and *judgment*.

*Video clips.* Of the 221 video clips created in Study 1 and 2, 36 video clips were selected and presented to participants in a pilot study. The random selection of video clips was made according to the type of clip. That is, for each type of clip a total of 6 videos were randomly selected: six were Australian participants lying (three males and three females) and six were telling the truth (three males and three females) in their native language (English), six were of Colombian participants lying (three males and three females) and six were telling the truth (three males and three females) in their native language (Spanish), and six were of Colombian participants lying (three males and three females) and six were telling the truth (three males and three females) in their non-native language (English). The duration of the video clips ranged from 45 seconds up to 2 minutes. A pilot study was conducted to ensure that the video clips selected for the credibility judgment task did not differ significantly in terms of attractiveness, friendliness, interestingness, and likeability, characteristics thought to affect attributions of deception. Fifteen (five males and ten females) community members from Bathurst, Australia, with a

mean age of 29.53 years ( $SD = 9.11$ ) volunteered to participate in this preliminary study. Participants were asked to rate each video on 6 point rating scales (1 = *not at all* to 6 = *extremely*) of how attractive, friendly, likeable and interesting they thought the person depicted in the video clip was. From each video clip type, those video clips with the highest or lowest rating mean scores (e.g.,  $M = 6.0$  or  $M = 1.0$  respectively) on any of the four rating scales were excluded for use in the credibility judgment task. Based on this, a total of 12 clips were excluded from the task.

The remaining 24 video clips were used in the credibility judgment task. These video clips included four Australian participants lying and four telling the truth (four male and four female) in English, four Colombian participants lying and four telling the truth (four male and four female) in Spanish, four Colombian participants lying and four telling the truth (four male and four female) in English.

The selected videos were also edited so that each video clip type would have a sound and a no sound version. The audio of the clips was manipulated between subjects to ensure that response bias and discriminability were the direct result of non-verbal cues (i.e., no audio), or a combination of verbal and non-verbal cues (i.e., audio).

*Lie/truth judgments and confidence ratings.* Participants were asked to indicate whether they thought the person depicted in each video was either lying or telling the truth (dichotomous answer). They were also asked to answer on a 5 point rating scale how confident they were of their choice (1 = *not confident* to 5 = *very confident*).

*Trustworthiness scale.* The trustworthiness scale from the ethos/credibility measure developed by McCroskey and Teven (1999) was used in this study. The scale is a 7 point rating scale consisting of 6 bipolar adjective items: honest/dishonest, trustworthy/untrustworthy, moral/immoral, honourable/dishonourable, ethical/unethical, genuine/phoney. The trustworthiness scale has been shown to be internally reliable

(Cronbach's alpha of .92) and to correlate highly  $r = .92$  with an overall credibility score (McCroskey & Teven, 1999).

*Inquisit Computer Software (Version 3.0)*. The Evaluative and Stereotyping IATs, the credibility judgment task, and trustworthiness scale were presented using the Inquisit program ("Inquisit 3.0," 2007). For the IATs, the software recorded participants' reaction time and randomly selected the order of presentation of the IATs (i.e., whether participants were asked to complete the Evaluative IAT or Stereotyping IAT first). For the credibility judgment task the software recorded participant's responses for each video clip and their responses on the trustworthiness scale, and also automatically randomised whether participants watched the video clips either with sound or no sound. In addition, the program randomised the presentation of the video clips (gender and veracity).

All participants (regardless of audio condition) had a set of headphones next to the computer which they had to use to use to avoid interruption and the distraction of other videos on nearby computers.

*Nationalism and Patriotism scales (Appendix D1)*. To measure these constructs, 18 items were taken from Kosterman and Feshbach's (1989) Nationalism/Patriotism Questionnaire. One item from each of the original scales developed in the United States was dropped as they were considered inappropriate for an Australian context, while several others were adapted to suit. For example, the question "I am proud to be an American" was changed to "I am proud to be an Australian". This resulted in 11 items measuring patriotism – a positive disposition toward one's homeland that includes feelings such as love and appreciation of one's country (items 2, 3, 4, 6, 7, 10, 11, 12, 13, and 15), and 7 items measuring nationalism – a belief in the material and moral superiority of one's homeland relative to other countries (Kosterman & Feshbach, 1989). All items were rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A high score

indicates highly nationalistic or patriotic attitudes. Negatively worded questions were reverse-scored prior to conducting analyses. The original Patriotism and Nationalism scales were found to be reliable with Cronbach's alpha of .87 and .80 respectively.

## **Procedure**

Participants were recruited by posting advertisements on the Psychology Department noticeboard at Charles Sturt University (Bathurst). Those participants who were enrolled in a first year psychology subject were given credit for their participation.

The experimental sessions were conducted in groups of approximately six participants. When they arrived, I welcomed participants and asked them to sit in front of a computer. I then asked participants to read the information sheet and complete the consent form (see Appendix D2 and D3, respectively). Once this was completed, I provided a brief description of the aims of the study and the tasks they were going to be asked to complete.

All participants were asked to complete three tasks and were given the following instructions:

Ok, so as you see on the information sheet, the purpose of this study is to examine people's ability to make cross-cultural credibility judgments. Therefore, you will be asked to complete 3 tasks in this study. Two of these tasks will be completed on the computer in front of you, while the other one will be a pen and paper questionnaire. The order in which you will do these 3 tasks is random. So, I may ask you to complete the questionnaire first and then move on to the computer tasks or vice-versa.

One of the tasks you will do on the computer is the credibility judgment task. In this task you will be asked to watch 24 short videos (approx 1-2min each) of Australian and Colombian people lying or telling the truth about whether they broke into a student's e-mail account and read confidential e-mail messages. So, the interviews are about what they did while they were in the computer room. Your task is to determine whether they are telling the truth or lying. There is no right or wrong answer. We want to know whether you believe the person was lying or not and why you believe so.

After watching each video you will be asked to indicate whether you thought the person was lying or not, the reasons for your answer, and how confident you were

of your judgment. You will also be asked a number of questions about your impression of the person depicted in the video. **Some of these videos may depict people speaking in another language, and some may have no sound at all. So please be aware of that and continue with your task.**

When you have finished, the computer will automatically direct you to your next task. Another task that you will be asked to complete will be a categorisation task. In this task the computer will show you a number of words that you will have to classify into groups or categories by pressing two keys on the keyboard. Your task is then to try to classify these words into the groups as quickly as you can while making as few mistakes as possible. You will be asked to do this a number of times. The computer will give you feedback on whether your answer is correct or not and it will not let you continue to the next trial unless you have answered correctly. This task will take approximately 20-30 min and the computer will give you further instructions.

Another task you will be asked to do is to complete a political attitudes questionnaire. This questionnaire will examine people's perceptions and connections to their own country and others. Specifically, it will examine political attitudes towards Australia and its role in international affairs. It will take approximately 10 minutes to complete. All you have to do is circle whether you agree or disagree with the statement and answer some demographical questions. Do you have any questions?

Participants were then randomly assigned to complete the questionnaire or complete the computer tasks (i.e., credibility judgment task and categorisation task) first by alternating the order of the tasks. Those participants that were randomly assigned to the computer task first were directed to read the instructions on the computer screen. The computer welcomed participants to the study, provided a brief outline of the two computer tasks (i.e., categorisation and credibility judgment task) and asked them to put on the set of headphones next to the computer screen. Once they were ready, they were asked to click continue. When the participant clicked continue the computer program randomly assigned the order of tasks – whether the categorisation task or the credibility judgment task was presented first. Those participants that were randomly assigned to complete the questionnaire first were received by the experimenter and were asked to complete the Nationalism/Patriotism scale first. Once the questionnaire was completed, participants were directed to the computer where they followed the instructions on the computer screen. It is important to note that all participants (regardless of audio condition) wore headphones

to avoid interruption and distraction.

*IAT Scoring.* Responses to both the Evaluative and Stereotyping IATs were scored using the “improved algorithm” outlined by Greenwald et al. (2003) which produced the *D* statistic. There were no responses with latencies greater than 10,000 ms and thus no cases were removed as recommended by Greenwald et al. (2003). Means were then computed separately for correct raw response latencies on compatible and incompatible blocks. Error responses within each block were replaced by the mean correct reaction time for that block, plus a 600-ms error penalty. *D* was calculated as the difference between incompatible and compatible mean reaction times divided by the pooled standard deviation of reaction time in compatible and incompatible blocks (Amodio & Devine, 2006).

## Results

Participants’ lie and truth classifications for each clip type were analysed using a signal detection framework, in which the ‘signal’ was the occurrence of a lie.

Table 6.1 shows the proportion of hits (i.e., deceptive messages correctly classified as deceptive) and false alarms (i.e., truthful messages incorrectly classified as deceptive) as well as the overall accuracy rate in classifying lies and truths for each of the three clip types.

As can be seen, participants were poor at correctly classifying lies and truths across all clip types. Participants’ overall accuracy rates were only slightly above the level of chance, and participants had a higher proportion of incorrect classifications than correct ones. A signal detection analysis was conducted to examine whether participants’ truth and lie accuracy rates were significantly different across clip types and conditions.

Table 6.1

*Proportion of classification rates across video clip types*

	Clip type		
	Australian Clips	Colombian English Clips	Colombian Spanish Clips
Hits	.25(0.26)	.58 (0.29)	.40 (0.24)
False alarms	.49 (0.24)	.58 (0.22)	.33 (0.24)
Overall accuracy rate	.38 (0.17)	.50 (0.16)	.54 (0.17)

Note: standard deviation shown in parentheses.

**Signal detection analysis**

In order to analyse participants' lie detection performance, signal detection statistics were calculated. The statistic  $d'$  provides a measure of discriminability –which refers to the extent to which the participant could discriminate between 'signal' trials (lies) and 'no signal' trials (truths). If the rate at which a participant classified clips as being lies was the same for clips that were actually lies as for clips that were truths – in other words, if the hit rate and the false alarm rate were similar to one another – then discriminability would be poor and  $d'$  would tend towards zero. On the other hand, if a participant tended to classify as lies a greater proportion of the clips that actually were lies than they did clips that actually were truths – in other words, if the hit rate was higher than the false alarm rate – then discriminability would be good and  $d'$  would tend to have a positive value. The greater the disparity between hit and false alarm rates, the larger  $d'$  would become.

The statistic  $c$  provides a measure of response bias, that is, the general tendency of the participant to classify trials as 'signal' trials (lies) or as 'no signal' trials (truths), independent of the actual presence or absence of the signal. If a participant tended to classify more clips as lies than as truths (a 'lie bias'), then the value of  $c$  would be

negative, whereas if a participant tended to classify more clips as truths than lies (a ‘truth bias’), the value of  $c$  would be positive. The magnitude of  $c$  indicates the degree of response bias, with a value of zero indicating a neutral approach to judgment.

The signal detection statistics for each combination of clip and audio condition are presented in Table 6.2.

Table 6.2

*Mean (SD) rates of discriminability and response bias across clip types and audio conditions*

Audio Condition	Clip type		
	Australian Clips	Colombian English Clips	Colombian Spanish Clips
Audio			
<i>Discriminability (<math>d'</math>)</i>	-0.43 (0.86)	0.17 (0.66)	0.16 (0.80)
<i>Response bias (<math>c</math>)</i>	0.36 (0.44)	-0.17 (0.53)	0.38 (0.43)
No Audio			
<i>Discriminability (<math>d'</math>)</i>	-0.73 (0.78)	-0.16 (0.86)	0.16 (0.77)
<i>Response bias (<math>c</math>)</i>	0.27 (0.41)	-0.21 (0.45)	0.24 (0.41)

To examine whether participants’ discrimination between lies and truths or response bias differed across clip and audio conditions, a series of planned contrast analyses<sup>3</sup> were performed based on a 2 (audio, no audio) x (3) (Australian English, Colombian English, Colombian Spanish) mixed model design. The same contrast analyses were applied to each of the dependent variables in turn: discriminability ( $d'$ ) and response bias ( $c$ ).

For each dependent variable, contrast coefficients of clip condition were defined to test (i) whether participants’ results for the dependent variable differed between Australian

<sup>3</sup> Given the theoretical direction of our predictions a series of planned contrast analyses were considered more appropriate than a post hoc analysis of variance. Wilcox (1987) argued that the “procedure chosen depends on what the researcher wants to know and the type I error that is allowed” (p.36).

video clips and Colombian video clips (contrast coefficients: 2, -1, and -1 for the Australian-English, Colombian-Spanish and Colombian-English clip conditions respectively) and (ii) whether participants' results for the dependent variable differed between Colombian video clips in English and Colombian video clips in Spanish (contrast coefficients: 0, 1, -1). Thus, the two contrasts tested for differences in lie detection judgments based on the culture of the person depicted in the video clip and, where the person was of a different culture, whether that person was speaking in his or her first or second language. As a dichotomous independent variable, the main effect of audio condition was examined as a between-subjects pairwise comparison. Therefore, for each set of planned contrasts on clip type (i.e., across nationalities and language use), the corresponding interaction between that contrast and audio condition was examined.

Bonferroni adjustments were used in order to keep the family wise Type I error rate at .05 (i.e., an alpha of .025 was used) for each family of two contrasts. All contrast analyses were conducted using the computer program PSY developed by Bird, Hadzi-Pavlovic, and Isaac (2000). Effect sizes ( $d$ ) for each contrast analysis were also calculated (see Appendix E1 and E2 for PSY outputs).

#### *Discriminability ( $d'$ )*

The analysis of the first contrast comparing discriminability across clip condition showed that participants' overall ability to correctly discriminate between liars and truth tellers varied significantly as a function of culture,  $F(1, 69) = 30.94, p < .025$ , and that this effect was large,  $d = 0.84$ . On average, participants' ability to discriminate between lies and truths was considerably poorer for clips depicting Australians than for clips depicting Colombians. However, it should be noted that this difference appears to result from participants performing below chance levels (mean  $d' = -0.58$ ) with Australian clips,

whereas the overall discriminability for Colombian clips remained close to chance levels (mean  $d' = 0.08$ ).

The analysis of the second contrast comparing discriminability across clip conditions showed that participants' discrimination abilities did not significantly differ across language conditions within the Colombian clips,  $F(1, 69) = 1.56, p > .025$ . That is, participants' capacity to discriminate between the lies and truths told by Colombians did not appear to depend on whether the person was speaking in his or her first or second language. The main effect of audio condition was also not statistically significant,  $F(1, 69) = 3.79, p > .025 (d = 0.27)$ , nor were the audio condition's interactions with the clip condition contrasts statistically significant ( $F_s \leq 1.71, p_s > .025, d \leq 0.4$ ), indicating that the presence or absence of verbal cues did not appear to influence participants' ability to discriminate between lies and truths in the clips. .

#### *Response bias (c)*

The first contrast analysis comparing response bias across clip conditions indicated that participants had a greater truth bias (positive  $c$ ) when judging Australian than Colombian clips,  $F(1, 69) = 24.70, p < .025$ , and that the effect was large  $d = 0.58$ . Overall, as shown in Table 6.2, participants were likely to ascribe more truthful than deceptive judgments to the Australian clips than to the Colombian clips (mean  $c = 0.32$ , and mean  $c = 0.06$  respectively).

The analysis of the second contrast comparing response bias across language conditions suggested that participants showed a lie bias (negative  $c$ ) for the Colombian – English clips, whereas for the Colombian – Spanish clips they showed a truth bias,  $F(1, 69) = 48.72, p < .025$ , and the effect was large  $d = -1.12$ . The results of both contrast analyses (language and culture) suggest that even though there was a significant difference

in response bias across clip conditions this may have been largely due to the lie bias shown in the Colombian – English video clips. The Colombian – Spanish video clips actually showed a similar truth bias to that seen in the Australian – English video clips.

The main effect of audio condition was not statistically significant,  $F(1, 69) = 1.73$ ,  $p > .025$  ( $d = 0.22$ ), nor were audio condition's interactions with the clip condition contrasts statistically significant ( $F_s \leq 0.49$ ,  $p_s > .025$ ), indicating the presence or absence of verbal and nonverbal cues did not seem to influence their tendency to classify lies and truths ( $d \leq 0.22$ ).

### **Trustworthiness**

A reliability analysis indicated that the trustworthiness scale was internally consistent, Cronbach's alpha of .97. Therefore, scores for the 6 items were combined to calculate a trustworthiness score for each participant.

In order to assess whether lying and truth telling videos were rated differently in terms of the perceived trustworthiness of the actor, a series of planned contrast analyses were performed using 2 (audio, no audio) x 2 (lies, truths) x 3 (Australian – English, Colombian – English, Colombian – Spanish) mixed model design. Table 6.3 shows the means and standard deviations for the trustworthiness scale across a combination of video clip type, veracity, and audio conditions. Higher scores indicated that participants perceived the person in the video clip as more trustworthy.

Table 6.3

*Means and standard deviations for trustworthiness ratings across clip type, veracity, and audio conditions*

Condition	Clip type		
	Australian clips	Colombian Spanish clips	Colombian English clips
<i>Audio</i>			
Lying	29.35 (5.26)	27.15 (4.30)	21.65 (4.75)
Truth-telling	25.00 (4.28)	28.51 (4.16)	23.10 (4.17)
<i>No Audio</i>			
Lying	29.00 (4.96)	25.27 (3.67)	22.44 (5.20)
Truth -telling	23.29 (3.89)	26.97 (4.77)	22.84 (4.53)

**Note:** Higher scores indicate that participants perceived the actor as trustworthy.

Contrast coefficients of clip type and veracity conditions were defined to test (i) whether trustworthiness ratings differed for truths versus lies across all clip types (contrast coefficients: -1, 1, -1, 1, -1, 1, lying Australian clips, truthful Australian clips, lying Colombian–Spanish clips, truthful Colombian – Spanish clips, lying Colombian – English clips, truthful Colombian – English clips respectively) , (ii) whether ratings differed for Australian versus Colombian clips (contrast coefficients: 2, 2, -1, -1, -1, -1) and Spanish versus English clips (contrast coefficients: 0, 0, 1, 1, -1, -1), and (iii) whether the differences between ratings for truths versus lies vary depending on culture/language in the clip (contrast coefficients for veracity x culture interaction: -2, 2, 1, -1, 1, -1, and for the veracity x language interaction: 0, 0, -1, 1, 1, -1). Thus, the three families of contrasts tested for differences in trustworthiness ratings based on whether the person in the clip was either lying or telling the truth, the culture of the person depicted in the video clip, and (when the person was of a different culture) whether that person was speaking in his or her first or second language. As a dichotomous independent variable, the main effect of audio condition was examined as a between-subjects pairwise comparison. Bonferroni adjustments were made to keep the family wise Type I error rate at .05 such that each pair

of contrasts for clip type and for the veracity x clip type interaction was made using alpha levels of .025. All contrast analyses were conducted using the computer program PSY developed by Bird, Hadzi-Pavlovic, and Isaac (2000). Effect sizes ( $d$ ) for each contrast analysis were also calculated (See Appendix F1 for PSY outputs).

The analysis of the first contrast comparing trustworthiness ratings between truthful and deceptive clips across all clip type conditions showed that participants' trustworthiness rating significantly differed as a function of veracity,  $F(1, 69) = 5.60, p < .05$ , and that the effect size was small,  $d = 0.20$ . Interestingly, as can be seen in Table 6.3, participants rated lying clips as more trustworthy than truth-telling clips (mean lying = 25.81, and mean truth-telling = 24.95).

The analysis of the second family of contrasts examining whether trustworthiness ratings varied depending on the culture or language condition of the clip showed that participants' ratings were significantly different as a function of culture,  $F(1, 69) = 20.66, p < .025$ , and that the effect size was medium,  $d = 0.43$ , and language,  $F(1, 69) = 83.77, p < .025$ , with a large effect size,  $d = 1.00$ . These results suggest that observers were likely to perceive Colombian video clips as less trustworthy than Australian clips (mean for Australian clips = 26.66 and mean for Colombian clips = 24.74), and also likely to perceive Colombian – English clips as more untrustworthy than the Colombian –Spanish clips (mean = 22.51 and mean = 26.98, respectively).

The analysis of the third family of contrasts examined whether participants' trustworthiness ratings of truthful and deceptive clips varied depending on the culture or language condition of the clip. They showed that participants' ratings were significantly different as a function of a veracity x culture interaction,  $F(1, 69) = 55.27, p < .025$ , and that the effect size was large  $d = 0.68$ , but not as a function of a veracity x language interaction,  $F(1, 69) = 0.72, p > .025$ . These results indicated an interesting pattern with

truth-telling Australian clips being judged as less trustworthy than lying Australian clips but Colombian lying clips showing the opposite pattern and were perceived as more untrustworthy than Colombian truth-telling clips (see Table 6.3).

The main effect of audio condition was not statistically significant,  $F(1, 69) = 1.79$ ,  $p > .025$  ( $d = 0.19$ ), nor were audio condition's interactions with the clip condition contrasts statistically significant ( $F_s \leq 3.52$ ,  $p_s > .025$ ), indicating that participants' trustworthiness ratings did not differ as a function of the presence or absence of audio ( $d \leq 0.18$ ).

### **Confidence ratings**

For each video clip participants were also asked to rate on a 5 point rating scale (1 = *not very confident*; 5 = *extremely confident*) how confident they were of their lie/truth judgments. To create a scalar measure of participants' judgment about the credibility of each clip, these confidence scores for each clip were combined with participants' dichotomous truth/lie judgments as follows: (i) dichotomous credibility judgments were coded so that +1 = *lying* and -1 = *telling the truth*; (ii) credibility ratings were transformed by subtracting one from each rating, to produce a 0-4 scale; and (iii) these two values were multiplied, resulting in a nine-point scale in which -4 indicated *extremely confident the person is telling the truth*, +4 indicated *extremely confident the person is lying*, and zero (0) indicated that the person was not very confident of whichever dichotomous judgment was chosen.

The same three families of contrasts used in the trustworthiness analyses were used to examine: (i) whether scalar credibility ratings for lies versus truths differed across all clip type conditions, (ii) whether scalar credibility ratings differed as a function of culture or language, and (iii) whether the difference between scalar credibility ratings for lies and

truths varied as a function of a culture or language. As with the previous analysis, Bonferroni adjustments were made to keep the family wise Type I error rate at .05 such that contrasts and interactions the alpha level was kept at .025. The mean and standard deviations for confidence ratings across clip type, audio and veracity conditions are reported in Table 6.4. Higher positive scores indicate that the participants were confident that the person depicted in the video clip was definitely lying, negative scores indicate that the participants were confident that the person was definitely telling the truth, and scores closer to zero indicate that the participants were not very confident whether the person was either lying or telling the truth.

Table 6.4

*Mean and standard deviations of confidence ratings across clip type, audio and veracity conditions*

Condition	Clip Type		
	Australian clips	Colombian – Spanish clips	Colombian – English clips
<i>Audio</i>			
Lying	-1.63 (1.57)	-0.75 (1.46)	0.60 (1.68)
Truth-telling	-0.26 (1.34)	-1.24 (1.27)	0.29 (1.27)
<i>No Audio</i>			
Lying	-1.56 (1.33)	-0.43 (1.13)	0.44 (1.50)
Truth-telling	0.29 (1.12)	-0.76 (1.30)	0.69 (1.25)

Note: Positive scores indicate confidence that the actor was lying and negative scores indicate confidence that the actor was telling the truth.

As can be seen in Table 6.4, overall, participants were not particularly confident of their judgments. However, the first contrast analysis showed that participants' confidence ratings varied as a function of veracity  $F(1, 69) = 8.94, p < .05$ , with participants being generally more confident that actors in truth-telling clips were telling the truth. The effect size for this difference was small ( $d = 0.28$ ).

The second analysis showed that participants' ratings differed as a function of culture  $F(1, 69) = 27.58, p < 0.25 (d = 0.48)$ . As can be seen in Table 6.4, participants were generally more confident that the actors in the Australian clips were telling the truth compared to Colombian actors, thus providing further evidence of the truth bias seen in the response bias measure and trustworthiness scale. The second analysis also showed that the participants' ratings differed depending on the language spoken in the Colombian clips  $F(1, 69) = 65.32, p < 0.25 (d = 0.96)$ . The participants were more confident that Colombians speaking in English were lying, whereas they were more confident that Colombians speaking in Spanish were telling the truth. The large effect size indicates that language was a major influence on these perceptions.

The third family of contrast analyses indicated that participants' confidence ratings for truth and lies significantly varied as a function of a veracity x culture interaction  $F(1, 69) = 56.11, p < 0.25 (d = 0.67)$ , but not as a function of a language x culture interaction. The veracity x culture interaction indicates that Australian participants were generally less confident of their judgments for both truth-telling and lying clips. However, when judging truth-telling Colombian clips participants were more confident that the actors were telling the truth.

The main effect of audio was not statistically significant  $F(1, 69) = 2.50, p > 0.25 (d = 0.20)$ , nor were the audio condition's interactions with the clip condition contrasts statistically significant ( $F_s \leq 2.43, p_s > .025$ ), indicating that participants' confidence ratings did not differ as a function of the presence or absence of audio ( $d \leq 0.3$ ).

### **Stereotyping and prejudice attitudes**

Responses to the Stereotyping and Evaluative IATs were calculated according to Greenwald et al.'s (2003) *D* statistic – as described in the procedure section. The mean and

standard deviation for the  $D$  scores of the stereotyping and evaluative IATs were .02 ( $SD = .31$ ) and .51 ( $SD = .30$ ) respectively. A positive  $D$  score indicates that participants had a positive evaluative and stereotypic trait association with Australian names relative to South American names and thus had an implicit negative bias towards South American names. Conversely, a negative  $D$  score indicates that participants had a positive evaluative and stereotypic trait association with South American names relative to Australian names and thus an implicit negative bias towards Australian names. A  $D$  score of zero suggests no preference.

Evidence of implicit evaluative and stereotyping bias was examined using one-sample  $t$ -tests of  $D$  scores. Stereotyping  $D$  scores were not significantly different from zero,  $t(70) = 0.62, p = .54$ , indicating that participants did not exhibit a pattern of stereotypic trait associations with South American names relative to Australian names. The evaluative IAT was significantly greater than zero  $t(70) = 14.40, p < .001$ , and an effect size of  $d = 1.7$ , suggesting a large negative evaluative association with South American names relative to Australian names.

### **Nationalism/Patriotism**

The means and standard deviations for Nationalism and Patriotism scores were 3.95 ( $SD = 0.62$ ) and 2.60 ( $SD = 0.50$ ) respectively, with higher scores indicating stronger nationalist or patriotic views.

Cronbach's alpha for the 11 item Patriotism scale was .84, and .78 for the 7 item Nationalism scale. This suggests that both the Nationalism and Patriotism scales were reliable measures. A Pearson's bivariate correlation indicated a moderate positive relationship between the two measures,  $r(69) = .47, p > .001$ . This correlation was not considered strong enough to indicate that the two dimensions were measuring the same

construct. Both scores were thus used as predictors in the following analysis.

### **Predicting cultural bias**

Whilst previous analyses examined differences in discriminability ( $d'$ ) and response bias ( $c$ ) across clip types and audio condition, the present analysis aimed to examine whether individual differences in stereotyping, prejudice, nationalism and patriotism could predict differences in discriminability ( $d'$ ) and response bias ( $c$ ) across cultures – i.e., Australian versus Colombian clips. Two sequential multiple regression (MR) analyses were conducted. The first model estimated the proportion of variance in discriminability ( $d'$ ) that can be accounted for by evaluative IAT, stereotyping IAT, patriotism, nationalism and audio condition variables. In Step 2, an interaction between the predictor variables and audio condition were entered into the model. The second model was identical except that the criterion variable was response bias ( $c$ ).

The criterion variables for each regression analysis were measures of the difference between participants' credibility judgment performance (discriminability or response bias) for Australian video clips and Colombian video clips. Participants'  $d'$  and  $c$  statistics for the three clip types were combined to produce contrast scores for each individual participant, corresponding to the contrasts that were used to test for overall cultural bias among the sample (1 -0.5 -0.5; i.e., the average of each participant's  $d'$  statistics for Colombian – English and Colombian – Spanish clips was subtracted from the participant's  $d'$  statistic for Australian clips, and likewise for  $c$  statistics).

In order to avoid multicollinearity when testing interaction effects, all predictor variables were centred<sup>4</sup> as advised by Tabachnick and Fidell (2007) and Keith (2006). The

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<sup>4</sup> This involves subtracting the mean for a given variable from each individual's score on that

cross-products between the centred individual differences variables<sup>5</sup> and audio condition were then calculated to test for these interaction effects. These interaction terms were entered in Step 2 for both models.

The relevant assumptions for multiple regression were tested prior to conducting the analyses. First, stem-and-leaf plots indicated that all predictor variables in the regression, except Patriotism, were normally distributed and free of univariate outliers. The departure from normality for the Patriotism variable was small and not considered a cause for concern as suggested by Allen and Bennett (2010). Second, an inspection of the scatter plot of standardised residuals against standardised predicted variables showed that the assumptions of linearity and homoscedasticity of residuals were met. Third, a multicollinearity diagnostic indicated that collinearity between variables was not an issue with VIF values well below 3.27 and tolerance values greater than .27 (see Appendix I for VIF and tolerance values). Finally, a multivariate outlier diagnostic was conducted. Mahalanobis distance exceeded the critical  $\chi^2$  for  $df=5$  (at  $\alpha = .001$ ) of 20.51 for one case in the sample, indicating that this multivariate outlier might bias the model. The case was identified and excluded to ensure that it was not biasing the models. After exclusion, the Mahalanobis distance did not exceed the critical value and no other multivariate outliers were identified.

In Step 1 of the discriminability ( $d'$ ) model, the combination of audio, stereotype IAT, evaluative IAT, nationalism and patriotism variables could not account for a significant amount of the variance in the discriminability scores,  $R^2 = .03$ , adjusted  $R^2 = -.05$ ,  $F(5, 64) = 0.35$ ,  $p = .878$ . Addition of the interaction terms in Step 2 also did not lead

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variable; thus, people who are above average will have positive scores and people below average will have negative scores.

<sup>5</sup> This involves multiplying participants' scores on each of the four centred predictors by their value of audio condition (1 or 0).

to a significant amount of variance being explained,  $R^2 = .04$ , adjusted  $R^2 = -.10$ ,  $F(9, 60) = 0.28$ ,  $p = .979$ .

The results for the response bias ( $c$ ) model were similar, with neither the predictor variables nor the predictor variables and interaction being able to account for a significant amount of the variance in the response bias scores:  $R^2 = .08$ , adjusted  $R^2 = .01$ ,  $F(5, 64) = 1.31$ ,  $p = .353$  and  $R^2 = .16$ , adjusted  $R^2 = .03$ ,  $F(9, 60) = 1.25$ ,  $p = .281$  respectively.

### **Predicting language bias**

In order to examine whether individual factors could predict a language bias, two Sequential Multiple Regression analyses were conducted. The models examined whether participants' discrimination ability and response bias could be predicted from a combination of audio condition, stereotyping, prejudice, and nationalism and patriotism scores. The criterion variables for each model were measures of the difference between participants' credibility judgment performance (discriminability or response bias) for Colombian – English clips and Colombian – Spanish video clips. Participants'  $d'$  and  $c$  statistics for the two clip conditions were combined to produce contrast scores for each individual participant, corresponding to the contrasts that were used to test for overall language bias among the sample (0 1 -1; i.e., the average of each participant's  $d'$  statistics for Colombian–English was subtracted from the participant's  $d'$  statistic for Colombian–Spanish clips, and likewise for  $c$  statistics). The predictor variables were the same for both models: audio, Stereotyping IAT, Evaluative IAT, Nationalism and Patriotism. These predictor variables were all entered in Step 1, and the interaction terms between variables and audio condition were entered into the model in Step 2. The relevant assumptions for multiple regression were also met, given that the predictor variables were the same as previous models.

The combination of the predictor variables was unable to account for a significant amount of the variance of discriminability ( $d'$ ),  $R^2 = .09$ , adjusted  $R^2 = .02$ ,  $F(5, 64) = 1.26$ ,  $p = .294$ . The addition of the interaction terms between the predictor variables and audio condition also did not significantly explain any of the variance of discriminability,  $R^2 = .18$ , adjusted  $R^2 = .05$ ,  $F(9, 69) = 1.42$ ,  $p = .200$ .

As was the case for the discriminability analysis, neither the predictor variables alone or combined with the interaction were able to explain a significant amount of the variance in the response bias scores ( $R^2 = .06$ , adjusted  $R^2 = -.02$ ,  $F(5, 64) = .75$ ,  $p = .591$  and  $R^2 = .13$ , adjusted  $R^2 = -.00$ ,  $F(5, 64) = .97$ ,  $p = .474$  respectively).

## Discussion

The present study sought to investigate whether (i) participants' ability to discriminate between liars and truth-tellers (i.e., discriminability) differed as a function of culture and language, and (ii) whether participants' general tendency to assign truthful or deceptive judgments (i.e., response bias) was influenced by culture and language. The study also investigated whether prejudice, stereotypes and ethnocentrism predicted the extent to which discriminability and response bias differed as a function of culture or language.

### Discriminability

Consistent with the literature (e.g., Bond & DePaulo, 2006; Vrij, 2008), the findings of the signal detection analysis indicated that participants' discriminability was poor across all video clip types. Overall accuracy rates were slightly below the level of

chance with an average correct classification rate of 47.3% across all clip types. This poor lie detection performance could be explained by the lack of reliable indicators of deception identified in the video clips. The results of Study 1 and 2 of the present research program indicated that there were only two significant behavioural predictors of veracity and these only explained a small percentage of the variance of veracity. If the actual behavioural indicators of deception were weak then it is likely that observers' discrimination ability may have been hampered by the lack of reliable cues. Consistent with previous literature, this poor level of performance further highlights the unreliable nature of lie detection (e.g., Bond & DePaulo, 2006; Ekman et al., 1999; Vrij, 2008).

The signal detection analysis also showed that culture had a significant impact on lie detection performance. It was found that individuals were particularly poor at discriminating lies and truths from their compatriots – i.e., Australian video clips compared to Colombian clips. Specifically, it was found that participants' discrimination ability for Australian clips was significantly below the level of chance, but remained close to chance levels for Colombian clips.

Interestingly, the results indicated that Australian clips depicting truth-tellers were more likely to be perceived as deceptive compared to Australian clips depicting liars. This tendency to judge Australian truth-telling clips as deceptive increased the number of false alarms and, therefore resulted in overall poor lie detection accuracy for Australian clips. This finding was unexpected and raised the possibility that a particular clip (or several clips) in the Australian truth-telling condition may have skewed the results by appearing particularly suspicious. However, this does not appear to be the case. As described in the method section of this chapter, the video clips included in this task were carefully selected to be equivalent on a number of factors, i.e., attractiveness, friendliness, interestingness and likeability, all thought to possibly confound judgments. In light of the unexpected

results for Australian clips, individual responses to those video clips were inspected again, and the clips were checked for possible peculiarities in the communicator's behaviour. There was nothing obvious or peculiar noted about any person's behaviour that could have confounded the results. Moreover, examination of participants' responses to those clips did not suggest that any particular clips were overwhelmingly regarded as highly suspicious or more credible than the others. Therefore there were no grounds to indicate that one or more clips needed to be excluded from the study. Whilst this discriminability issue remains difficult to account for, it should be noted that discriminability and response bias are essentially independent measurements. Therefore, even though there were differences in the way lies and truths were judged for Australian clips, the main focus of this study was cultural and language effects on response bias and that should not be compromised by these findings with respect to discriminability.

The analysis of the second contrast indicated that an individual's capacity to discriminate between liars and truth-tellers was not influenced by language. In other words, participants' ability to discriminate between liars and truth-tellers was not significantly different when video clips depicted Colombians speaking in English compared to when the clips depicted Colombians speaking in Spanish. It was also found that audio did not have a significant impact on lie detection performance. Both these findings suggest that presence or absence of verbal cues did not seem to affect the observers' capacity to discriminate between liars and truth-tellers. More importantly, it suggests that the presence of verbal cues made no contribution to either improving or worsening performance (i.e., discriminability). These results suggest that the observers may have relied on behavioural cues rather than the verbal content of the clips to make their judgments of credibility. This is consistent with the literature on stereotypical cues to deception, which has shown that observers often associate deception with a number of behavioural cues (e.g., gaze aversion,

body movements) and rely to a much lesser extent on verbal content when making judgments of credibility (e.g., Global Deception Research Team, 2006; Granhag et al., 2004; Vrij, 2008).

### **Response bias**

Central hypotheses of the present study were that culture and language would have an impact on response bias. The hypothesis that observers would ascribe more deception judgments to Colombian video clips than Australian video clips was partially supported. The analysis indicated that, overall, observers were more likely to ascribe truthful judgments to Australian clips than Colombian clips. This general tendency, which is often referred as truth bias, is consistent with the literature on lie detection, particularly by laypersons, within cultures contexts (Bond & Atoum, 2000; Bond & DePaulo, 2006; Bond & Rao, 2004; Levine et al., 2006; Levine et al., 1999). However, 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. Therefore, even though the literature and the current findings for the Australian clips showed that there is a general tendency to make more truthful than untruthful judgments, this truth bias was attenuated and the tendency to suspect deception heightened for people of another culture.

It was also hypothesised that observers would perceive as more deceptive video clips that depicted stimulus subjects speaking in a second language. As expected, observers were more likely to ascribe deceptive judgments to clips depicting Colombians speaking in English compared to Colombians speaking in Spanish. This also suggests that own-language favouritism was not observed in Australians' judgments of Colombian video clips. Interestingly, the results showed that whilst observers had a tendency to judge more

Colombian – English clips as dishonest (i.e., lie bias) they also had a tendency to judge more Colombian – Spanish clips as truthful (i.e., truth bias).

There are two plausible explanations for a difference in response bias based on which language participants were speaking. The first explanation is based on verbal content; in particular, it is possible that observers would be less suspicious when they are aware that communicators are speaking in their first language, which the observer cannot understand. According to Bond and Atoum (2000) hearing someone speak in an unfamiliar language encourages observers to acknowledge their ignorance of the speaker's culture, and thus increases the tendency to give the communicator the benefit of the doubt. Coupled with a cross-cultural bias in deception judgments, this notion is consistent with the finding of a general tendency to be more suspicious of Colombians and with a lower suspicion of Spanish-speaking than English-speaking Colombians. However, the language difference was not dependent on the participants being able to hear that the person was speaking in their first language (i.e., the interaction effect with audio was not significant), which suggests that an explanation that relies on participants' access to verbal content cannot account for these findings.

The second explanation is that there are nonverbal behavioural differences associated with speaking in a second language, perhaps resulting from additional cognitive load or nervousness associated with speaking in a language in which one does not have great fluency. These behavioural differences may have prompted observers to believe that the communicator was being deceptive, and thus caused participants to ascribe more deceptive judgments to Colombian – English clips than Colombian – Spanish clips. The findings of the present study are consistent with this explanation. As demonstrated in Study 2, there were substantial behavioural differences between Colombians who were speaking Spanish and those who were speaking English. These differences would have been

available as cues to judgment irrespective of the participant's audio condition. Therefore, the difference in response bias appears likely to have been the result of perceptions of nonverbal behaviour and not verbal content or language familiarity.

It is important to note that a mediation analysis could potentially provide a clearer indication of whether, in fact, behavioural differences in second language use results in a lie bias. However, the nature of the design of the present study did not allow for such an analysis to be conducted. Appropriately designed future research can explore this mediating relationship.

### **Ratings of credibility**

In addition to the dichotomous credibility judgments, a number of continuous scales were used to assess participants' evaluations of the actors in the clips. These measurements were used in order to assess whether dichotomous judgments were not sufficiently fine-grained to identify significant cultural and language effects in the present study. However, these measures produced a similar general pattern of results to the dichotomous judgments, such that overall, Colombian clips were regarded as more suspicious than Australian clips, and within Colombian clips those depicting people speaking in their second language were regarded as more suspicious than those depicting people speaking in their first language. These measures also tended to show the unexpected result in which Australian truth-tellers tended to be regarded as more suspicious than Australian liars.

### **Individual difference factors**

The second aim of the present study was to investigate a number of individual factors that might moderate the extent to which cultural and language biases in deception judgments operate. The results of the Stereotyping and Evaluative Implicit Association Tests (IAT) showed that, on average, participants tended to have a negative implicit evaluative bias towards South Americans, but generally did not display implicit stereotypic associations with South American names. The finding that there was an overall effect on the evaluative IAT suggests that prejudice could be an explanation of why there was a response bias effect, particularly bias towards individuals of the other culture. This is particularly important given that the effect of evaluative implicit bias was large ( $d=1.7$ ). It is plausible that observers with higher implicit prejudice scores tended to be more suspicious of people from another culture or those speaking in a second language. However, the regression results appear to indicate that people who were higher in prejudice did not tend to be more suspicious compared to people who were lower in prejudice; that is, participants higher on prejudice attitudes towards South Americans did not show more of a response bias.

Another individual factor that was examined in the present study was ethnocentrism. The results of the nationalism and patriotism scale suggested that, on average, participants were not highly patriotic or nationalistic. The fact that there were not high nationalism and patriotism scores probably contributes to the fact that in the regression analysis these scores did not predict the response bias that was hypothesised.

Whilst these findings do not support the research hypotheses, they suggest that the response bias effect is possibly best explained not as the result of prejudiced attitudes or ethnocentric views but as the result of behaviour differences that trigger suspicion in observers. More importantly, the results suggest that rather than being an issue that only

affects individuals with ethnocentric views or prejudiced attitudes, it seems to be more of a general pattern – i.e., any individual could have shown this cross-cultural and cross-language bias. Therefore, it may be an issue of the nature of cross-cultural communication itself.

## Chapter 7 General discussion

*“Cultural differences are a nuisance at best  
and often a disaster”*  
(Hofstede, 2001)

The aim of the present research program was to contribute to existing knowledge of deception, and in particular lie detection in cross-cultural contexts. Specifically, this program of research aimed to extend current theorising that suggests the potential for bias in cross-cultural judgments of deception due to norm violations. Moreover, it sought to extend the current literature by examining the impact of a number of cognitive and affective factors that may play a role in the way cross-cultural judgments are made. This was done in order to arrive at an understanding of the factors that shape deception and credibility judgments in cross-cultural environments. In this final chapter, I discuss the major theoretical and practical implications of this program of research, and also highlight important limitations and provide suggestions for future research.

Existing literature has tended to regard deception as a ‘one size fits all’ phenomenon, whereby individuals from all over the world are thought to share a set of universally specific psychological processes that lead to similar behavioural cues to deception (e.g., Vrij, 2008; Zuckerman, DePaulo et al., 1981). In Chapter 2 I challenged this view and argued that deception research needs to move away from this “*cultural vacuum*” perspective (Kim et al., 2008, p. 24) and recognise the cultural and cross-cultural factors that may impact deceptive communication and lie detection in multi-ethnic contexts. I argued that this view is problematic because it largely ignores the influence of culture in the communication process, particularly given that contemporary research has shown that culture has a significant impact on the way an individual communicates, and

that deceptive communication is not exempt from such influence (e.g., Gudykunst, 2004; Sabourin, 2007; Vrij & Winkel, 1991, 1994). Thus, the role of culture in deception and lie detection has been under researched. Accordingly, the current program of research conducted a series of experimental and non-experimental studies to address this issue.

In order to investigate the role of culture in deceptive communication, Study 1 employed an experimental design in which participants were either asked to lie or tell the truth about a mock computer crime. Contrary to expectations, the findings of Study 1 indicated that there are only two significant predictors of veracity but these were not dependent on the culture of the communicator. Thus the results are consistent with a view that suggests the behaviours associated with deception are relatively similar whatever the ethnic origin of the communicator. However, a possible alternative explanation for these findings is the impact of the artificial nature of the experimental task used. In this study, participants were asked to lie about an activity in an artificial context and thus the stakes may not have been high enough for liars to display clear deceptive cues. As a result, the experimental situation used in this study could have limited the chances of seeing real cultural differences in deceptive communication emerge. Despite an attempt to increase the motivation of participants by informing them that if they were not convincing enough the interviewer would terminate the interview, this may not have been sufficient to create the same emotional arousal or cognitive load that is likely to occur in real life situations. However, this lack of ecological validity is evident in much experimental deception research (Bond & DePaulo, 2006). Therefore, even though the findings indicate a pattern of deception cues that was consistent across the cultural groups, they should be taken as cues that are specific to the nature of the participants' task used in the study.

An important challenge for future research is to continue examining the empirical potential of cultural and language bias in cross-cultural lie detection in more applied and

naturalistic settings. Also, the present thesis did not examine the effect of moderator variables such as planning of the lie, motivation, and complexity of the lie, which are thought to affect the display of deceptive cues (e.g., Bond & DePaulo, 2006; Sporer & Schwandt, 2006, 2007). Therefore, future research could examine whether cues of deception are culture-specific while controlling for such moderator variables. For instance, it is possible that the lack of motivation of the liar in the experimental situation used in this thesis limited the possibility of seeing culturally dependent deceptive cues.

Although the findings of Study 1 indicated that there are no culture-specific cues to deception, the results provided evidence of strong behavioural variations between Australian and Colombian cultures. In Chapter 2, I argued that these behavioural variations may increase the potential for bias in cross-cultural judgments of credibility. Specifically, based on the premises of the norm (Levine et al., 2000) and expectancy violation (Bond et al., 1992) models, I argued that differences in behavioural norms between the observer and the communicator would increase the likelihood of deception judgments (i.e., lie bias) during cross-cultural judgments of credibility. In order to test this, the final study presented a selection of video clips recorded in Studies 1 and 2 to Australian participants, who made credibility judgments of the clips. However, contrary to expectations, the response bias ( $c$ ) findings of Study 4 only partially support my lie bias prediction. Specifically, the average response bias (Mean  $c = 0.06$ ) for Colombian clips indicated that participants took a neutral approach to judgment, whereas the average response bias for Australian clips indicated a truth bias (Mean  $c = 0.32$ ). The truth bias found for Australian clips is consistent with the literature on the detection of deception in mono-cultural contexts (e.g., Bond & Atoum, 2000; Bond & DePaulo, 2006; Bond et al., 1990) and highlights the presence of an ethnocentric bias. However, whilst it was found that observers did not rate Colombian clips as significantly more suspicious than Australian clips, the absence of a truth bias for

the Colombian clips suggested that, at the very least, participants' tendency to make more truth judgments was attenuated for clips that depicted someone from another culture.

The results further indicated that access to verbal content (i.e., audio condition) did not have a significant impact on observers' judgments. The non-significant effect of the audio condition highlights the impact of nonverbal behavioural cues and supports the notion that norm violations could potentially contribute to misunderstandings and errors. It is also consistent with the previous literature that suggests that lie detectors typically associate deception with nonverbal behavioural cues rather than verbal cues (Akehurst et al., 1996; Global Deception Research Team, 2006). Overall, based on these findings, it is not possible to conclude that normative behavioural violations between the observer and the communicator result in a lie bias, but they do appear to have the potential to arouse suspicion.

Current deception literature also largely ignores the role of second language use in deceptive communication and lie detection. Accordingly, Study 2 addressed this issue. The results indicated that participants' baseline behaviour differed markedly when communicating in their second language compared to when communicating in their first language regardless of message veracity. More importantly, it was found that the significant behavioural predictors of second language use were consistent with those behavioural cues that are commonly associated with cognitive load. Building on these findings, I argued that differences in a communicator's baseline behaviour that are mediated by second language use may increase the potential for errors, particularly as these behavioural differences correspond to the stereotypical cues individuals often associate with deception (e.g., cognitive load and nervousness). The final study of the current program of research investigated this issue. Consistent with my predictions, the results indicated that the behavioural differences associated with speaking in a second language

made observers more likely to believe that the communicator was being deceitful. Interestingly, participants' response pattern for Colombian English speaking clips was quite different to the Colombian Spanish clips. Specifically, a truth bias was observed for the Colombian Spanish clips (Mean  $c = 0.31$ ) whereas a lie bias was observed for the Colombian English clips (Mean  $c = -0.19$ ). Moreover, it was found that having access to verbal cues (i.e., knowledge that the person was speaking in a second language) did not have an impact on observers' responses. The non-significance of the audio manipulation indicates that the difference in response bias was due to the nonverbal behavioural differences associated with speaking in a second language and not language unfamiliarity. It also suggests that the additional behavioural cues that arise from second language cognitive demands may have aroused suspicion in observers particularly because these behaviours are often stereotypical cues of deception (Global Deception Research Team, 2006; Vrij, Edward & Bull, 2001) and thus resulted in an increased number of deception judgments for English speaking clips. Thus, based on these findings, it is possible to conclude that behaviours associated with the cognitive demands of speaking in a second language hinder the lie detection process by producing bias in judgments of deception. This bias may, in turn, lead to cross-cultural misunderstandings or conflicts, with potentially serious consequences.

Another area that has been under studied in the deception literature is the ability to detect deception in cross-cultural contexts. The final study of the present program of research addressed this issue. The discriminability ( $d'$ ) findings of Study 4 indicated that overall accuracy rates were below the level of chance (47.3%). Interestingly, it was also found that culture had a significant impact on lie detection performance. Specifically, it was found that accuracy rates were particularly poor within culture (mean  $d' = -0.58$ ), and discriminability rates across cultures remained close to chance levels (mean  $d' = 0.08$ ).

Observers had a tendency to judge Australian truth-telling clips as deceptive, which increased the amount of false alarms and resulted in overall poor lie detection accuracy for Australian clips. As discussed in Chapter 6, this finding was unexpected and raised questions about the nature of Australian clips. However, a closer inspection of the Australian clips indicated that participants' tendency to judge Australian truth-telling clips as deceptive cannot be accounted by the nature of one or more particular clips. Despite not being able to account for this finding, the discriminability results in Study 4 have contributed to current deception research by showing that, similar to lie detection in mono-cultural contexts, the detection of deception in cross-cultural contexts is, at best, slightly better than chance (e.g., Bond & Atoum, 2000; Bond et al., 1990).

The clear difficulties associated with accurately distinguishing truthful from deceptive messages in a cross-cultural context and the potential for biases that result from culturally and linguistically based behavioural differences have important implications for many social, legal, business and national security settings. For instance, the tendency toward bias in cross-cultural judgments of deception could contribute to miscarriages of justice in which immigrants, asylum seekers or foreign visitors are wrongly suspected of deception because their behavioural pattern when speaking in a second language is indicative of cognitive load and thus misinterpreted as an attempt to hide the truth.

The present program of research also examined the role of cognitive and affective factors in cross-cultural lie detection. In Chapter 2, I argued that a number of individual difference characteristics could influence the way cross-cultural judgments of credibility are made. In particular, I argued that individual factors such as prejudice may predict the extent of cross-cultural or second language use bias displayed by participants. Specifically, I predicted that individuals with implicit prejudiced attitudes and those with strong nationalistic views would likely be more suspicious of individuals from other cultures and

those speaking in a second language. Contrary to expectations, the findings of Study 4 indicated that individual differences in prejudiced attitudes and nationalistic views did not predict cultural and language bias. That is, those participants with higher implicit prejudice scores and those with high nationalistic scores did not tend to be more suspicious of people from another culture and those speaking in a second language compared to people who were lower in prejudice and nationalism. However, according to Cohen's (1988) conventions, there were small effect sizes for both regression models ( $R^2 = .08$  for the culture model and  $R^2 = .06$  for the language model), which indicates that a possible explanation for the non-significance was a lack of power.

Despite the lack of power, the notion that individual factors cannot account for the response bias effect found across cultures and language has significant implications for cross-cultural lie detection. First, it suggests that the response bias effect can be better explained as the result of nonverbal behavioural differences that trigger suspicion in observers rather than the individual characteristics of the observer (e.g., prejudiced or ethnocentric views). Secondly, it suggests that the tendency to bias is more of a general pattern and is not restricted to individuals with particular views or attitudes. Thus, it appears that the presence of cultural and language bias is an issue of the nature of cross-cultural communication itself rather than an issue of individual characteristics of the lie detector. This suggests that in settings where cross-cultural lie detection is important, reducing bias is not so much about screening individuals to rule out those who are more likely to be biased, but rather about educating observers as to the presence of this bias and, ultimately, in attempting to alleviate them.

It has been argued that a possible way to minimise the potential for errors and misunderstandings during intercultural communication is familiarisation with the culture's communication style and patterns (Gudykunst, 2004). The aim of Study 3 was to

investigate participants' knowledge of behavioural differences between the two cultural groups. The findings suggested that observers have limited knowledge of the behavioural differences that exist between Australian and Colombian cultures. Thus, it is possible that the presence of cultural and, in particular, language bias found in Study 4 can be explained by the observers' lack of familiarity with cross-cultural differences in behavioural patterns and norms between Australian and Colombian cultural groups. However, the present research program did not experimentally manipulate familiarity or extent of knowledge with a culture's behavioural pattern and thus it can only make assumptions of the influence this may have had on observers' tendencies to make lie and truth classifications.

Nevertheless, it is plausible to argue that familiarisation or sensitisation to cross-cultural issues of individuals who are performing cross-cultural judgments of credibility may also be the key to prevent or attenuate the presence of such biases. Theoretically, based on the expectancy and norm violation models (Bond et al., 1992; Levine et al., 2000), it is possible that providing observers with an explanation for norm and expectancy violations could attenuate observers' tendency to judge any violations as attempts to hide the truth. Whilst the research in this area has been limited, a preliminary investigation (Castillo & Mallard, 2010) has suggested that providing lie detectors with specific normative information about the communicators' behaviour did not improve accuracy but did counteract/alleviate cultural bias. Future research in the prevention of such biases could therefore benefit from examining whether familiarity with a culture's communication style and normative behavioural patterns moderate the extent to which these biases operate (i.e., result in a greater or lesser degree of bias). For instance, future studies could examine cultures with closer geographical proximity (e.g., two European cultures) and familiarity. The prevention of such biases has significant implications for a number of settings of social importance (e.g., legal, immigration, etc.)

In sum, the findings of the present research program should be taken as an initial demonstration of the potential for cultural and second language use bias in cross-cultural judgments of deception. As such, more research is essential in order to arrive at a clear understanding of the process of cross-cultural lie detection. Despite the preliminary nature of this work, the results of the present research program inform current lie detection theorising that, in cross-cultural situations, observers need to be cautious of culturally and linguistically mediated behavioural differences in order to avoid the presence of bias during such judgments. More importantly, the findings highlight the need to revisit current lie detection methods to account for the impact of this cross-cultural and second language use bias and possibly find ways to prevent or attenuate them. Future research should also work towards the development of a comprehensive theoretical account of cross-cultural lie detection. In particular, such a theory should work towards providing an explanation for the presence of cultural and language bias.



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## **Appendices**

For appendices please see CD attached.