

CULTURAL INFLUENCES
IN
DECEPTIVE COMMUNICATION

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CULTURAL INFLUENCES
IN
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ABSTRACT

Researchers in deceptive communication have suggested that beliefs about deceivers (e.g., Hocking & Leathers, 1980; Ramsey, 1979), the behavioural changes exhibited by deceivers (e.g., Ekman & Friesen, 1972; Feldman, 1979), and the accuracy with which deceptive messages can be detected (Atmiyanandana, 1976; Ekman, 1985) are influenced by cultural factors. To date, there has been no empirical evidence to support these hypotheses.

The purpose of research presented in this thesis was to examine the role of cultural factors in deceptive communication. To this end, Canadian and Chinese students were compared regarding their attitudes towards deception, their beliefs about the behavioural changes exhibited by deceivers, the behavioural changes exhibited during deception, and their judgements of the sincerity of communicators.

The results of this research indicated that, compared to Canadian students, Chinese students rate lying as less morally wrong, and believe people to exhibit significantly fewer behavioural changes when telling lies. Analyses of judges' assessments of the sincerity of Canadian and Chinese communicators revealed that messages by Chinese female communicators were judged more accurately than messages by Chinese male communicators. This gender difference was not apparent in ratings of the messages by Canadian male and female communicators. Differences were also

found in Canadian and Chinese students' assessments of the sincerity of the communicators. Chinese judges rated the sincerity of the communicators as higher than did the Canadian judges, and Chinese judges were less accurate at detecting deceptive messages by Canadian communicators than were the Canadian judges.

Misattributions of insincerity or inappropriate expectations regarding sincerity can promote negative cultural stereotypes and inhibit effective communication between interactants from different cultural backgrounds. Awareness of differences in attitudes and beliefs about deception, and in assessments of the sincerity of communicators may help to facilitate communication and understanding between Canadian and Chinese individuals.

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Chapter 1

INTRODUCTION

"When regard for truth has been broken down or even lightly weakened, all things will remain doubtful." St. Augustine, 'On Lying'

Communication would become impossibly difficult if fear of deceit prevented us from ever trusting the words of others.

Therefore, it is to the benefit of most of the members of social groups to tell the truth most of the time, and to rely on others to do the same. However, human communication serves a more complex function than the mere exchange of verbal information. Communicants engage in social interactions in order to control or manipulate others, persuade others to perform specific behaviours, enhance their own or another's self-esteem, establish or assert dominance, etc. The pursuit of such goals is not always compatible with absolute truth. Consequently, it is not surprising that there exist few, if any, societies in which lying and deceit do not occur with some regularity. In fact, it is a rare individual who has never attempted to mislead or misinform another individual, be it with altruistic or selfish intent. Similarly, most people have experienced doubt concerning the truthfulness of another's statements, or have engaged in lie detection strategies in order to assess a speaker's true intent.

Given the frequency and pervasiveness of deceptive communication, lying should not be viewed as an aberrant or

pathological phenomenon. Rather, if value judgements are put aside, the intentional communication of false information can be seen to be an important and fascinating aspect of human communication. There are many types of lies; many motivations for lying and a wide variety of daily situations in which lies are told. Lies may be purely selfish in intent (i.e., motivated by attempts to preserve one's social image; avoid punishment; attain material or psychological benefits; harm another for reasons of malice or revenge), or altruistically motivated (i.e., an attempt to preserve another's self esteem; facilitate another's mental well being; or protect another from punishment). They may be spontaneous, spur-of-the-moment events, or planned and carefully rehearsed performances. The content of the lie may misrepresent factual information, or conceal or fake emotional responses. The cognitive effort required to create the lie may be great (i.e., the construction of a long and complex story that must be both internally consistent and not contradict known facts or information) or slight (i.e., a single word answer such as one might respond to the question 'Did you finish your homework?'). The lie itself may be communicated in a letter, newspaper or document, over a telephone, via radio or television or in person.

The diversity in types of lies is reflected in the diversity of the terms, at least in the English language, used to describe lying behaviour. Thus, a communicator of deceptive information is said to be misstating or falsifying information, lying, dissembling, exaggerating, prevaricating, fabricating,

fibbing, telling a white lie, or being dishonest, insincere, phony or deceitful.

Assuming that instances of deceptive communication do occur with some frequency in interpersonal interactions, it is reasonable to suppose that the ability to discriminate between true and deceptive messages may have important consequences. People who can accurately discern when someone is lying may be less likely to be deceived or be taken advantage of than people who cannot distinguish between sincere and insincere messages. Note that this is not always true as sometimes we may not want to know that our dinner guests were boxed or that the dinner was not to their liking. However, in many situations, for example buying a new car, deciding which political candidate to support, hiring a new employee, or refereeing in family disputes, the ability to assess whether or not a communicator is being deceptive can be an extremely useful skill.

There are also advantages to being a good or successful liar. People who appear to be sincere, even when being insincere, may be more successful at manipulating others or at achieving their desired goals than people who do not project an image of sincerity and honesty. Conversely, people who appear to be insincere, even when being honest, may be at a distinct disadvantage in their interpersonal interactions. Others may falsely judge these people to be dishonest and therefore not trust or believe them even when they are being sincere.

Given that the ability to detect lies is a useful skill,

Is there any evidence to suggest that people actually can determine whether or not a message is sincerely meant?

From an empirical perspective, there is good evidence to support the contention that individuals can, and do, discriminate true from deceptive communications with some degree of accuracy (Zuckerman, DePaulo & Rosenthal, 1981a).

Whether a liar will succeed in deceiving someone, or a lie detector will succeed in detecting deception in any given situation depends on a number of factors. Some of these factors are the type of lie (e.g., spontaneous or preplanned, cognitively complex or simple, emotional or factual, etc.), specific characteristics of the liar and the lie detector (e.g., age, sex, personality characteristics), and various aspects of the deceptive situation (e.g., publicness of the situation, mode of transmission of the message, relationship between the liar and lie detector). All these variables have all been shown to have a significant influence on the communication of deceptive messages (Zuckerman et al., 1981a).

One other factor which has been suggested as influencing deceptive communication is the cultural background of the liar and the lie detector. For example, Ekman (1985) claims that that lie detection is more accurate if interactants are culturally similar; Feldman (1979) suggests that culture may have an influence on the development of skill in deceptive communication, and Ramsey (1979) states that individuals have culturally specific ideas about how people behave when they lie, and the kinds of things people lie about.

Such influences could have profound effects on intercultural communication. Individuals from different cultural groups could misinterpret or misjudge the sincerity of communication partners because of cultural differences in the behaviours that accompany deception, or in the manner in which people from different cultures tell lies. Such misattributions could impede intercultural communication, exacerbate intercultural tension and undermine trust between members of different cultural groups.

Surprisingly, there has been almost no empirical work investigating the role of interactants' cultural backgrounds on deceptive communication. Although Ekman (1985), Feldman (1979) and Ramsey (1979) all argue for cultural effects in deceptive communication, none of these researchers substantiate these claims with empirical data. Thus, Ekman and Ramsey do not report any theoretical or empirical evidence to support their claims, and Feldman (1979), by including only one cultural group in his study, cannot adequately assess the potential for cultural differences in deceptive communication.

Given both the dearth of experimental data on the question of cultural differences in deceptive communication and the implications such influences could have for intercultural interactions, it is important to investigate the role of cultural factors in deceptive communication. This is the ultimate goal of the present research. More specifically, this thesis examines the questions of whether individuals from different cultural

backgrounds have different attitudes or beliefs about deceptive communication; whether individuals from different cultural backgrounds behave differently when telling lies; whether individuals from different cultural backgrounds judge the sincerity of communicators differently; and whether accuracy at assessing sincerity is influenced by cultural similarity between the communicator and the audience.

The first step towards exploring the role of culture in deceptive communication is to review the current literature on deceptive communication and on cross-cultural communication. However, before examining the empirical data, it is worthwhile to review the historical antecedents of research interests in the area of deceptive communication.

Deceptive Communication - A Historical Overview

Historically, interest in deceptive communication has followed two trends; a concern with the morality or social acceptability of lying, and a basic focus on issues relating to the detection of lies.

1) The Morality of Lying

It is likely that deception in social communication dates back to man's earliest history, and it is not surprising that people in ancient times were concerned about the morality and ethics of lying. One interesting example of moral attitudes towards lying can be found in the books of law that appeared among the Hindus somewhere between 900 and 600 B.C. According to these books, a person who gave false evidence in court was not

considered guilty of any wrongdoing if the life of a man depended on his lying (cited in Trovillo, 1939). This law would seem to suggest that lying in court was considered wrong except when there were extenuating circumstances.

This same attitude was echoed some centuries later in the writings of Sophocles:

"Truly, to tell lies is not honourable. But when the truth entails tremendous ruin, to speak dishonourably is pardonable." Sophocles, 'Creusa' Fragment 323

Concern with the morality of lying is also evident in writings of Aristotle. In his words, "Falsehood is in itself base and reprehensible, and truth noble and trustworthy", (Nicomachean Ethics, Book IV, Chapter 7)

Throughout the subsequent centuries many theologians and philosophers continued to show concern for the moral issues associated with lying. Some condemned lying in any circumstances (e.g., Saint Augustine, Saint Thomas Aquinas, Immanuel Kant). Others argued that lying is acceptable or even commendable in some circumstances (e.g., Plato, Martin Luther, Nietzsche).

Today, people are still intrigued with the ethics and moral judgements associated with lying (e.g., Eck, 1965/1970; Klockars, 1984; Lindskold & Walters, 1983) and writers continue to debate the circumstances under which lying is or is not acceptable (e.g., Bok, 1978; Ludwig, 1965).

ii) Lying and Lie Detection

Interest in the behavioural changes that accompany lying,

and how these cues could be used to discriminate between veridical and deceptive communications, dates back at least as far as 900 B.C. Around this period, the Ayur-Veda, which translated some of the early Sanskrit medical writings, describes the behaviour of a guilty suspect as follows:

"He does not answer questions, or they are evasive answers; he speaks nonsense, rubs the great toe along the ground, and shivers; his face is discolored; he rubs the roots of his hair with his fingers." (Trovillo, 1939, p.849)

As this passage clearly demonstrates, very early in mankind's history there was a belief that lying would evoke emotional responses associated with guilt and anxiety; that these emotional responses would be revealed in the suspect's nonverbal behaviours; and that the presence or absence of guilt could be determined on the basis of these behavioural cues. These same beliefs form the foundation of modern research in behavioural lie detection.

A number of early cultures developed tests to assess the veridicality of individuals involved in various types of disputes (Kleinmuntz & Szucko, 1984; Lykken, 1981). Many of these tests were based on torture or physical ordeal. For example, the Bedouins of Arabia tested suspected liars by having them lick a hot iron; if the iron burned the suspect's tongue, then he or she was judged to be lying. Other cultures had disputants hold their arms in boiling water, or attempt to stop the bleeding from a ritual cut in order to determine truthfulness. However, there were also tests that were more psychological in nature. For

example, the ancient Chinese assessed truthfulness by having a person chew rice powder and then spit it out. If the person could not spit out the powder, he or she was telling a lie. During the Inquisition, a suspected liar was given a piece of bread and cheese to swallow. If the bread stuck to the suspect's throat or palate, he or she was lying.

These early 'lie detection' tests illustrate three important points. First, it is clear that there is concern for lying and for lie detection among these societies. Second, this concern for assessing the veracity of individuals transcends cultural boundaries. Third, some of these early tests, the psychologically-based ones, are precursors to modern polygraph methods of lie detection. Like the polygraph, these tests depend on the individuals' belief in the accuracy of the test, his or her fear and anxiety about being caught lying, and on the physiological responses to such fear. Given that a guilty suspect believed the test could reveal his or her lie and was fearful of detection, this fear could activate the sympathetic branch of the autonomic nervous system controlling salivation and cause changes in the consistency and volume of the suspect's saliva. These changes in saliva would cause the subject to have a dry mouth and could result in the iron burning the subject's tongue, or the rice powder or bread to stick to the inside of the subject's mouth (Lykken, 1981). Thus, these tests may have possessed some degree of validity. However, it should be noted that innocent suspects who were foolish enough to doubt the test's validity may have

experienced similar saliva changes in response to fear and anxiety about the test itself.

In the late 1800s, interest in methods of lie detection started to escalate. One technique that was used to detect deception by criminal suspects was the word association test. In this test, subjects were presented with words, aurally or visually, and asked to respond to each word with the first word that came to mind. When this test was applied in criminal investigations, words that were related to the suspected crime were interspersed among the numerous neutral words. If the suspected criminal was guilty and attempted to reply to the stimulus words using words unrelated to the crime, the resulting mental conflict was expected to produce either delayed or quickened reaction time, repetition of the stimulus words, stereotyped responses, blocking of responses, or uncoordinated physical movements. The quality or informative nature of the response was also predicted to alter as a function of the guilt or innocence of the suspect (Trovillo, 1939).

Both Jung and Wertheimer applied tests based on association-reaction methods to the detection of crime and found that reaction time to critical words lengthened in the case of guilty suspects (cited in Goldstein, 1923).

Yerkes and Barry (1909) published the results of laboratory experiments designed to test the association-reaction method as applied in the detection of liars. Their results, supporting those of Jung and of Wertheimer, showed that reaction

time to critical words increased when the subject was lying. Thus the use of association-reaction time in the detection of deception was shown to have validity. However, qualitative analyses of subject responses were not found to be reliable indicators of deception (Langfeld, 1920).

While these and other researchers were concerned with the effectiveness of the association-reaction method as a lie detection procedure, other investigators were studying physiological responses (e.g., blood pressure, pulse rate, respiration rate, heart rate, galvanic skin response) that might vary as a function of deception. A combination of reaction time techniques and continuous measurement of these physiological responses formed the original basis of the polygraph test.

The polygraph test represents a major development in the area of lie detection. The prototype for the polygraph machine was built in 1930 by Keeler, and measured subjects' pulse rate, relative blood pressure, respiration and perspiration (i.e., galvanic skin response) in order to assess lying (Kleimuntz & Szucko, 1984). Today the polygraph test still makes use of these variable as measures of the stress, guilt and anxiety that are believed to accompany lying but the test is recognized as a psychologically as well as physiologically-based procedure (Waid & Orne, 1981).

It is worthwhile noting that, although the validity of the polygraph as a 'lie detector' and its use in the public domain is highly controversial (e.g., Lykken, 1981; Raskin & Podlesny, 1979);

the polygraph is the most accurate method of detecting lies that has been developed to date, and its development has had a powerful impact on research in the area of lie detection.

Unlike research on the polygraph, scientific interest in the behavioural aspects of lying and lie detection is primarily, although not exclusively, a phenomenon of the last 20 years. It is noteworthy that Sigmund Freud believed lying to be associated with specific physiological and behavioural responses. In an often cited quotation, the belief that nonverbal behaviours reveal information that is not available from the verbal communication channel is graphically stated:

"He who has eyes to see and ears to hear may convince himself that no mortal can keep a secret. If his lips are silent, he chatters with his fingertips: betrayal oozes out of him at every pore" (Freud, 1905, p. 94)

One of the earliest published accounts of the influence of lying on nonverbal behaviour was authored by the noted criminologist Hans Gross (1918, cited in Trovillo, 1939). According to Gross, when a man lies, he has the idea of truth either directly or subconsciously, and Gross believed that this idea has more influence on gestures than the transitory lie. Thus he suggested that the external behaviours of a criminal suspect, particularly hand gestures, could be used to detect deceit. For example, Gross cites a case in which a suspect said he and his neighbour were on friendly terms but the clenched fist of the suspect indicated that the suspect harboured aggressive feelings towards the neighbour.

Two of the first researchers to study the behavioural aspects of lying scientifically were polygraphers John Reid and Richard Arther. Over a five year period, these researchers studied the behaviours, statements and attitudes of 4280 criminal suspects before, during, and after taking a polygraph test (Reid & Arther, 1953). Formal confessions later proved 486 of the 4,280 were guilty of the alleged crime, and 323 of the 4,280 were innocent of the alleged crime.


Using the data from these 809 subjects, Reid and Arther compared the behaviours of innocent and guilty suspects. Their results showed that guilty subjects made attempts to avoid taking the polygraph test and appeared to be very nervous. This nervousness was evident in their aggressive, bitter manner, evasive answers, continuous sighing or yawning, infrequent eye contact with the examiner and frequent moving about the examining room prior to being tested. Guilty subjects also tended to give reasons as to why the test would not give valid results in their particular case, and frequently attempted to distort the physiological recordings by moving their fingers or tapping their toes during the examination.

Innocent subjects, on the other hand, were often anxious to take the test so as to clear their name, and never deliberately attempted to distort the physiological recordings.

Although other researchers interested in the polygraph eventually followed Reid and Arther's lead and incorporated behavioural measures into their lie detection procedures (Cutrow,

Parks, Lucas & Thomas, 1972; Horvath, 1973; Podlesny & Raskin, 1977; Williams & McLeod, 1983), the impetus for research on behavioural lie detection has come from the clinical rather than the legal realm. Thus the classic paper in the area of behavioural lie detection was written in 1969 by two clinical psychologists, Paul Ekman and Walter Friesen. Ekman and Friesen were interested in determining when patients undergoing therapy were not giving truthful responses to questions, and formulated a theory of lie detection based on the use of nonverbal cues to detect deceit. The publication of this paper stimulated interest in the behavioural aspects of deceptive communication, and motivated researchers to initiate empirical investigations into the physiological, psychological and social factors that influence the process of deceptive communication in social interactions. Some of the questions that have intrigued these researchers include: How do people judge whether or not another individual is lying; how accurately can people assess the veracity of a message on the basis of behavioural cues; which behavioural changes do people believe indicate deception; which behavioural changes do people actually use in making judgements of deception, and which behavioural changes actually occur during deceptive communication?

A detailed review of the current empirical research in the area of deceptive communication is presented in Chapter 2.



Chapter 2

LITERATURE REVIEW OF DECEPTIVE COMMUNICATION

The following is an overview of theoretical and empirical investigations in the area of deceptive communication. In the majority of these studies, deceptive communication has been defined as 'an act that is intended to foster in another person a belief or understanding which the deceiver considers false' (Zuckerman, DePaulo & Rosenthal, 1981a, p. 3). By definition then, these studies focus on interpersonal situations in which one individual deliberately attempts to mislead or misinform another or other individuals. Traditionally, situations of self-deception, situations in which the deceiver unintentionally or mistakenly gives out false information, and situations in which the deceiver does not intend the lie to escape detection are not of concern in this research.

Also, it should be noted that some researchers distinguish between the terms 'lie' and 'deceptive communication'. The term 'lie' is used to denote a stated deceptive message (Bok, 1978) or a message that is deceptive through the falsification of information (Miller, in press). Deceptive communication is a broader term that includes both deliberate omission of information and falsification of information. Therefore, lies could be classed as a subcategory of deceptive communication (Miller, in press). However, due partly to difficulty in operationally

defining deliberate omission of information and partly to procedures which emphasize the behaviour of the liar or of the lie detector rather than the interaction between liar and lie detector, researchers in deceptive communication have concentrated almost exclusively on the falsification of information as a topic of investigation. Consequently, the usefulness of distinguishing between the term 'lie' and the term 'deceptive communication' in current empirical research is questionable, and in the context of the present thesis, these terms will be used interchangeably.

Much of the research on the behavioural aspects of deceptive communication derives from four basic premises. First, acts of deception, or even merely the intent to deceive, are phenomena that evoke a variety of cognitive, emotional and/or physiological responses in the communicator. Second, these cognitive, emotional and physiological responses are associated with changes in the frequency or intensity of various nonverbal and verbal behaviours. Third, deceitful communicators will attempt to attenuate or mask the behaviours they believe will reveal their deceptive intent to the audience, and may engage in, or exaggerate, those behaviours they believe will portray an image of sincerity to the audience. Fourth, all behaviours are not equally amenable to conscious control by the communicator and consequently, some behaviours are more likely to betray the deceptive nature of the communicator's message than are other behaviours.

In general, researchers in the area of deceptive

communication have focussed on three basic questions.

First, what behavioural changes accompany deceptive messages, and how do various situational parameters affect these changes?

Second, can people discriminate true from deceptive messages, and how is accuracy at detecting lies influenced by the modality used to communicate the message (e.g., videotape, audiotape, transcript, etc.), by the gender of the deceiver and of the lie detector, and by the personality characteristics of the deceiver and of the lie detector?

Third, what behavioural changes do people believe accompany deceptive presentations, and how do these beliefs compare with both the behaviours that people use in assessing speaker veracity, and with the behavioural changes that occur during deceptive messages?

Research into these three questions has produced some interesting findings. First, many of these studies have found that people do behave differently when they are lying as opposed to when they are telling the truth. In other words, the frequency and intensity of various verbal and nonverbal behaviours do alter when people engage in deceptive communication.

Second, there are no behavioural changes that invariably accompany lying. Rather, the behavioural changes that occur in a deceptive situation vary as a function of the type of lie, the type of deceptive situation, and specific demographic and personality characteristics of the liar and the lie detector.

The sensitivity of these behavioural changes to a variety of factors is not surprising considering that the behavioural changes associated with lying are not a result of the lie per se, but are due to emotional and cognitive processes associated with the act of lying. If emotional or cognitive aspects of the situation change for the deceiver, then, to some extent, the behavioural changes exhibited by the deceiver may also be expected to change.

Third, in a laboratory environment at least, people can and do discriminate truthful from deceptive messages. Accuracy rates for this task are only slightly better than chance, but this finding is a reliable one. Thus in a typical experiment in which there are equal numbers of truthful and deceptive messages, judges discriminate truthful from deceptive messages with accuracy rates ranging from approximately 45. - 60% (Zuckerman et al., 1981a), with a mean accuracy of approximately 57% (Kraut, 1980). (Note that if judges were randomly guessing 'true' or 'lie', accuracy rates of approximately 50% would be expected.) The robustness of this effect across a wide variety of experimental paradigms suggests two conclusions. First, communicators exhibit some verbal and/or nonverbal behavioural changes when presenting their deceptive messages, and second, judges in these studies are attending to, and utilizing, at least some of these behavioural cues when making judgements about the sincerity of communicators' messages.

Fourth, accuracy at detecting lies is partly a function of which informational channel or channels are made available to the judge. Judges tend to be least accurate at detecting lies on the

basis of facial information alone, and most accurate at detecting lies on the basis of verbal content (i.e. text) and body language. Note that although judges can detect deceptive messages in the absence of verbal content, accuracy rates tend to be higher when judges have access to the verbal content of a message. This suggests that both nonverbal and verbal information channels contain cues to the truth value of a message, but that verbal channels may contain more salient or more frequent cues for assessing message veracity.

Although research in the area of deceptive communication has produced some general findings, empirical work has been hampered by the lack of a strong, unifying theory capable of integrating the numerous isolated and inconsistent findings in the area. However, there are at least two main theoretical approaches to investigation of deceptive communication that have had a major impact on directing research in the area. One approach is associated with Miron Zuckerman and his colleagues (1981a), and the other is associated with Paul Ekman and Walter Friesen (1969). These two theories are not mutually exclusive, but rather focus on different aspects of the deceptive communication process. The Four Factor Model of deceptive communication proposed by Zuckerman et al. (1981a) is primarily concerned with understanding why a liar may behave differently than a truth teller. In other words, Zuckerman and his colleagues attempt to elucidate the underlying processes that cause deceptive communication to differ from honest communication.

Ekman and Friesen's (1969) Nonverbal Leakage theory is primarily concerned with investigating how to discriminate a truthful from a deceptive message. Consequently, these researchers focus on the process of lie detection, and attempt to identify the behavioural cues that provide the most reliable indicators of deception.

In addition to these two theories, there is one other theory which has received little attention in the literature, but which has interesting implications for the study of deceptive communication. This theory was proposed by John Hocking and Dale Leathers (1980), and, although based on a similar rationale as Ekman and Friesen's theory, makes slightly different predictions as to the behavioural changes that can be expected to reveal the deceptive intent of a communicator.

In the present chapter, these three theoretical positions are reviewed in conjunction with an overview of current research findings in the area of deceptive communication. The purpose of this chapter is to provide a general summary of the issues and foci of research in this area, and to establish a foundation for examining the role of cultural factors in the deceptive communication process.

Theoretical Perspectives in Deceptive Communication

1) The Four Factor Model of Deceptive Behaviour

Why might a person's behaviour alter when attempting deceit?

Zuckerman et al. (1981a) addressed the question of why a

person's behaviour may change when he or she is being deceptive and proposed four factors that could influence behaviour under conditions of deception. These four factors are: the deceiver's level of arousal, the specific emotional state of the deceiver, the degree and complexity of cognitive processing required in formulating and presenting the deceptive message, and the degree to which the liar attempts to control and conceal various behaviours in order to create an appearance of sincerity. A description of the influence of each of these four factors on a deceiver's behaviour is presented below.

i) Arousal Factor

The first factor that Zuckerman et al. (1981a) propose as an important determinant of behavioural change during deception is the degree of arousal associated with the deception.

Psychophysiological data indicate that lying is typically accompanied by a general increase in autonomic responding (Wald & Orne, 1981). A number of hypotheses have been suggested to account for this increased physiological arousal during deception.

One theory that has been proposed is the conditioned response theory (Davis, 1961). This theory suggests that people show increases in arousal when they are telling lies because, in the past, either lying, or the questions evoking the lies, have been punished or in some other manner associated with traumatic events. As a consequence of this pairing of deception with negative events, increased arousal could become a conditioned response to some aspect of the deceptive situation. This could

account for the increased level of arousal that frequently accompanies lying.

Another theory that has been proposed is the conflict theory of arousal (Davis, 1961). This theory suggests that people who are in a situation in which they are contemplating telling a lie, have conflicting tendencies to tell the truth and to lie. It is this conflict which causes the increased arousal levels seen in deceptive communicators.

A third theory that has been proposed is the fear of punishment theory of arousal (Davis, 1961). Unlike the conditioned response theory, which is based on past experience, the punishment theory suggests that it is anticipation of future punishment or traumatic occurrences that causes the increased level of arousal in a deceptive individual. In other words, when a person tells a lie, he or she may be fearful of being punished if the lie is discovered, and therefore will be more aroused when lying than when telling the truth.

A fourth theory that has been proposed to account for the increased levels of arousal that frequently accompany deceptive responses is the motivation to succeed theory (Gustafson & Orne, 1963). According to this theory, when people tell the truth, they assume others will believe them. Consequently, they usually are not deeply concerned with convincing others of their sincerity. However, when people tell lies, they are often highly motivated to convince the audience of their sincerity and to avoid being detected in the lie. This state of heightened motivation during

deceptive communication causes people to be more aroused when lying than when telling the truth.

A fifth theory suggests that deceivers are more aroused than nondeceivers because information that is especially salient to an individual is associated with higher levels of arousal (Lykken, 1974). According to this theory, lying about events can cause the deceptive information to be especially salient to the liar. Not only is the deceiver concentrating on concealing and falsifying relevant information, thereby making this information highly salient, but because deceptive information is usually a much less frequent event than truthful information, the relative rarity of lies can make a deceptive message more salient for the communicator.

These five theories provide some possible explanations for why lying is frequently accompanied by an increased level of physiological arousal. Although these theories are not mutually exclusive, which of them are likely to be operating at any one time has not been established. For the moment, it is sufficient to note that, regardless of its specific origin, an increase in arousal frequently accompanies deception.

Given that lying is associated with increased levels of arousal, is there any evidence that this increased arousal may manifest itself in a liar's behaviours?

A number of behavioural changes have been found to accompany increases in physiological arousal. These behavioural changes include increased blinking (Meyer, 1953), increased voice

pitch (Scherer, 1980), increased speech errors (Kasi & Mahr, 1965), and increased pupil dilation (Nunnally, Knott, Duchnowski & Parker, 1967). If lying is associated with high levels of arousal, then these behavioural changes may accompany the delivery of deceptive messages.

11) Affective Factor

The second factor that Zuckerman et al. (1981a) hypothesize as influencing the behavioural concomitants of deception is the liar's specific emotional reactions to telling the lie. In other words, lying may be associated with specific emotional responses rather than, or in addition to, general increases in overall level of physiological arousal.

In North American culture, two of the emotions that frequently accompany lying are guilt and anxiety. In other words, sincerity in most interpersonal interactions is a highly valued trait, and people are strongly socialized towards honest communication. Consequently, when an individual tells a lie, he or she may experience guilt or shame about telling a lie, and may feel anxious about the consequences of getting caught in this socially unacceptable behaviour.

A third emotion, 'duping delight' may also accompany the telling of a lie (Ekman, 1981). Unlike guilt and anxiety, which are negative emotions, 'duping delight' is a positive emotion associated with the thrill or challenge of successfully deceiving someone. This particular response to lying may occur if the deception is perceived more as a game than as a serious breach of

ethics.

The specific emotions evoked by deception depend on the context and the purpose of the deception, as well as on the personality characteristics of the deceiver. However, if negative emotions such as guilt or anxiety are aroused by the deception, then specific behavioural changes that accompany these emotional states may be exhibited by the deceitful individual. Some of these behavioural changes include adaptors or self-manipulative behaviours such as scratching, rubbing or grooming movements (Ekman & Friesen, 1972), decreased use of illustrators or hand movements that accompany and accentuate speech (Ekman & Friesen, 1972), and distancing behaviours (Wiener & Mehrabian, 1968) indicative of withdrawal from the situation (e.g., using fewer self references, using indirect or nonimmediate speech such as I like her company versus I like her, etc.).

Although Ekman (1981) does not speculate on the behaviours that may be associated with 'duping delight', one might expect this emotional state to be accompanied by increased smiling or facial pleasantness, and perhaps exaggerated or overexpansive movements.

If lying is associated with guilt, anxiety, and/or duping delight, then the behaviours associated with these emotional responses may also accompany deceptive communication.

iii) Cognitive Factor

The third factor that Zuckerman et al. (1981a) suggest influences the behaviours that accompany deceptive communication

Is the cognitive effort required to formulate and transmit the deceptive message.

Telling the truth entails retrieving the events or facts as they exist in memory, or at most, recreating the events as they occurred. There is little need to edit potentially damaging information when being honest, or to remember what the audience already knows in order to keep the message consistent with previous information.

Lying, on the other hand, frequently involves the active fabrication of a plausible and internally consistent set of facts or statements. As a consequence of its highly creative nature, lying often requires more cognitively complex processing than does truth-telling.

This difference in the complexity of cognitive processing associated with lying and truth-telling leads to predictions of behavioural changes during deception that reflect high cognitive effort. Some behaviours that have been found to be associated with increased cognitive effort include increased latency to respond and increased hesitations in speech (Goldman-Eisler, 1968), decreased response length and decreased use of illustrators (Ekman & Friesen, 1972), and increased pupil dilation (Kahneman, 1973). If lying is more cognitively difficult than telling the truth, these same behavioural changes may be associated with deceptive communication.

iv) Control Factor

The fourth factor that Zuckerman et al. (1981a) hypothesize

as influencing the behaviours that will be exhibited during deception is the degree to which the liar controls his or her behaviour while presenting the deceptive message. When people tell lies, they may have to conceal behaviours that reveal their true feelings (e.g., hiding a smile to conceal joy), fake behaviours consistent with the false message (e.g., faking a smile when wishing to appear joyous), and inhibit behavioural responses that are consequences of the arousing, emotional and cognitive aspects of the deceptive response itself (e.g., inhibit behaviours associated with feeling guilty about telling the lie). Therefore, although the other three factors are primary in the sense that arousal, emotional and cognitive responses are directly evoked by the deceptive situation, this fourth factor of behaviour control is not only evoked by the deception itself (i.e., by the need to conceal or fake responses) but is also a consequence of the need to conceal the behavioural changes evoked by these other factors.

There are three ways in which behavioural control can influence a deceiver's behaviour.

First, it is difficult to monitor all aspects of behaviour simultaneously and therefore some behaviours may escape the deceiver's attention and/or control and reveal information not consistent with the message being portrayed by the controlled behaviours. This behavioural 'leakage' may cause the deceiver's message to appear contradictory or discrepant.

Second, in consciously attempting to prevent behaviours from revealing concealed information, the liar may overly inhibit

movement. As a result of this excessive control, the liar's behaviour may appear to be unnaturally rigid or as lacking in spontaneity.

Third, when forced to simulate different emotional responses, a liar may err in a number of ways. He or she may maintain a specific facial expression for too long, initiate an expression too early, utilize exaggerated and overly expansive gestures, respond to questions either too quickly or too slowly, or speak too quickly and too smoothly to portray the normal patterns of behaviour convincingly.

In summary then, the answer to the question of why behavioural changes may be expected to accompany deceptive messages, is that deception is associated with increased levels of physiological arousal, with specific emotional responses such as guilt or anxiety, and with increased cognitive processing. These changes may be reflected in specific behavioural responses. It is these behavioural responses, and the deceiver's attempts to control or inhibit them, that provide cues to the fact that a communicator is not being truthful.

It is important to note here that this four factor model of deceptive behaviour does not address the question of what behavioural changes actually will occur when a person tells a lie. It merely attempts to explain why behavioural changes may occur during deceptive communication, and to identify what some of these behavioural changes are likely to be. However, the physiological, emotional and cognitive concomitants of a given message vary from

one individual to another, and from one situation to another. Consequently, the behavioural changes that will be evoked in any given situation, and the behaviours that the deceiver will successfully inhibit, alter or conceal, are not clear from the model. Empirical data are needed to ascertain exactly what behavioural changes do occur when a person tells a lie, and to examine how these behavioural changes influence people's assessments of the sincerity of a communicator's message.

II) Nonverbal Leakage Theory of Deceptive Communication

Much of the current experimental research on behavioural lie detection originated from the work of two clinical psychologists, Paul Ekman and Walter Friesen. These researchers were interested in discovering a way to determine the veracity of statements made by patients during therapy sessions. In their search for cues that would indicate the deceptive nature of a message (i.e., deception cues), or reveal the emotions being concealed (i.e., leakage cues), they investigated the idea that nonverbal behaviours may reveal deceptive intent on the part of a communicator.

In a classic paper published in 1969, Ekman and Friesen proposed a theory asserting that nonverbal behaviours contain cues to deception not available from the verbal content of a message, and also that some nonverbal behaviours are more likely to reveal the presence of deception than are others.

According to their theory, a successful deceiver must know which behaviours or actions to perform in order to project the

desired impression to the audience. This implies that the deceiver have knowledge of the behaviours associated with specific affective states by the audience. In addition, the deceiver must be able to monitor and adjust his or her verbal and nonverbal behaviours continuously throughout the delivery of the deceptive message. This control of relevant behaviours requires internal feedback from the different parts of the body such that the communicator is aware of the position and activity of different bodily parts, and can control their activity consciously.

The basis of Ekman and Friesen's theory is that parts of the body differ in degree of internal feedback (i.e., neural feedback on muscle positions) and in degree of conscious controllability. Behaviours that are easy to control are less likely to reveal cues about the deceptive nature of a message than are behaviours that are difficult to control.

Which parts of the body are predicted to be low in internal feedback or controllability and therefore likely to reveal cues to deception?

According to Ekman and Friesen (1969), the degree of internal feedback associated with a given behaviour is determined by two main factors; sending capacity and external feedback.

a) Sending Capacity

The sending capacity of a bodily part is measured by three indices: average transmission time, number of discriminable stimulus patterns, and visibility (Ekman & Friesen, 1969, p. 93).

Average transmission time refers to the time it takes to

transmit a message using that bodily part; number of discriminable stimulus patterns refers to how many different, meaningful messages can be transmitted using a specific body part; and visibility refers to the general accessibility of a given body part to the audience.

A high sending capacity is associated with short transmission times, a large number of discriminable stimulus patterns, and a high degree of visibility.

A low sending capacity is associated with long transmission times, few discriminable stimulus patterns, and a low degree of visibility.

On the basis of these three criteria, Ekman and Friesen contend that various bodily parts differ in terms of their overall sending capacity.

The face is considered to have a very high sending capacity. Its intricate neuromuscular structure permits a high number of stimulus patterns to be transmitted in fractions of seconds. Except in cultures where the face is veiled or masked, the face is also a highly visible source of information during most social interactions.

Compared to the face, the hands have a lower sending capacity. The time it takes for the hands to formulate and transmit a given message is much longer than for the face (i.e., often longer than a second) and unlike the face, the hands are not always visible. However, hands are like the face in that independent movement of the ten fingers, a variety of possible

spatial patterns, differing degrees of movement acceleration, and the numerous body locations with which the hands can make contact, combine to make the hands capable of a wide variety of stimulus patterns.

The feet and legs have a lower sending capacity than either the face or the hands. The time it takes to transmit a message using the feet or legs is relatively long, and the number of possible stimulus patterns using these body parts are restricted by support and balance requirements of the individual. Visibility, at least in Western society, is limited because the feet and legs are frequently covered by clothes and hidden by furniture. As a result, the feet and legs in North American culture tend to have a low sending capacity.

b) External Feedback

The second main determinant of internal feedback is external feedback. External feedback is defined as verbal or nonverbal behaviour that is perceived by a communicator to be a direct or indirect response by the audience to his or her behaviour.

Much of external feedback consists of verbal comments made by the audience to the communicator regarding the communicator's behaviour. Thus, a mother might tell a child to "wipe that smirk off your face", or to "stand up straight". However, external feedback can also take the form of nonverbal communication such as prolonged eye contact, smiling or body postures which can convey information to the communicator about how the audience is

responding to his or her behaviour. Regardless of whether it is verbal or nonverbal in nature, external feedback aids the communicator in learning how to associate specific internal states with the external expressions of these states.

Of all the body parts, the face typically receives the most attention from the audience, and elicits the most verbal and nonverbal feedback. Hands, legs and feet receive much less attention during interpersonal interactions, and consequently, are less likely to receive much external feedback. As a result of the relative lack of external feedback, people do not learn to attend to hand, leg and leg positions during social interactions and therefore are less aware of the messages that are being transmitted through these informational channels.

Based on differences in sending capacity and external feedback, Ekman and Friesen (1969) argue that various parts of the body differ significantly in their degree of internal feedback. Parts of the body that are low in internal feedback are difficult for the deceiver to monitor and control, and therefore, are predicted to be good sources of information about the occurrences of deception. Parts of the body that are high in internal feedback are easy for the deceiver to monitor and control, and therefore, are not predicted to be good sources of information about the occurrences of deception.

Specifically, Ekman and Friesen (1969) suggest that the face is associated with a high degree of internal feedback and therefore people become aware of the various internal cues that

correspond to particular facial expressions. As a consequence of this awareness, individuals are very good at regulating and controlling facial expressions so as to transmit the messages they wish to transmit, and to conceal or mask the messages they don't wish to transmit. In general, this ability makes the face a poor channel in which to detect signs of deceit. However, there are some deception cues that Ekman and Friesen predict do occur in the face. Because of the extremely fast transmission time of the facial muscles, some facial expressions may be exhibited for a fraction of a second before the deceiver can inhibit or mask them. These microexpressions can provide cues to the deceptive nature of a message.

Hands tend to be lower in degree of internal feedback than the face, and, during interpersonal interactions in Anglo North American society, typically provide a less salient source of information than does the face. Because communicators pay little attention to hand movements, and because it is difficult for deceivers to inhibit or control hand movements effectively, hand movements may reveal cues to the deceptive nature of a communication.

Compared to both the hands and the face, parts of the lower body receive even less attention by communicators, and tend to be the least under a liar's control. Because people are not usually aware of what their feet and legs are doing, Ekman and Friesen suggest that legs and feet will escape a deceiver's attempts at control more often than will the face or hands.

Consequently, they predict that the lower body will leak information about occurrences of deception, or about true underlying affects, more often than either the face or hands.

The idea that some of the behavioural changes associated with deception are more likely to be controlled by the liar than are other behavioural changes suggests that behavioural cues to deception can be ranked according to their likelihood of being effectively controlled by an individual during a deceptive message.

The most controlled channel of communication is the verbal channel. People speak with the intention of transmitting specific messages, and generally are very aware of what they say. Therefore, if there is an inverse relationship between channel controllability and cues to deception, then the verbal content of a message should contain very few cues as to the deceptive nature of a message.

Another highly controlled channel of information is the face. Given people's competence in controlling facial expression, an individual's face, like his or her words, should not contain many cues which will betray occurrences of deception.

Relative to his or her words and facial expression, the body of a deceiver is less likely to be a focus of attention, and less likely to be effectively monitored and controlled. As a result, body behaviours may provide more reliable cues to deception than either facial expression or verbal information. Furthermore, among body behaviours, foot movements should be less

likely to be controlled by a deceiver than hand movements. Consequently, foot and leg movements should contain more cues to deception than either manual or facial behaviours.

Ekman and Friesen (1969) did not speculate on the controllability of paralinguistic behaviours (e.g. voice pitch, tempo, vocal intonations, pause length) in interpersonal interaction. However, DePaulo, Zuckerman and Rosenthal (1980) extended the concept of a leakage hierarchy of behaviour based on channel controllability to include paralanguage.

According to DePaulo and her colleagues, the spoken word or the verbal content of a message is very salient to both the speaker and the listener, has a high degree of both internal and external feedback, and is easy to control. Therefore, consistent with Ekman and Friesen's theory, the actual words a deceiver uses should be easily controlled and consequently not provide many cues to deception.

Paralinguistic information, on the other hand, may be more likely to reveal cues that betray the deceptive nature of a message. Although paralanguage is similar to the face in that it is characterized by a high sending capacity and high external feedback (i.e., people frequently comment on, and hold communicators responsible for the way something is said), people seem less able to control their vocal expressions than their facial expressions (DePaulo, Zuckerman & Rosenthal, 1980). As a consequence, paralanguage may be more revealing of deception than facial expression.

To summarize, Ekman and Friesen's (1969) theory of behavioural lie detection states that there are differences in the saliency and controllability of various behaviours in different communication channels. Based on these differences, communication channels can be ranked according to the likelihood of behaviours in that channel evading the liar's control, and leaking information about the deceptive nature of a given communication. Channels that are easy to control (i.e., facial behaviours, verbal information) are at one end of the continuum, and channels that are difficult to monitor and control, are at the other end of the continuum (i.e., body behaviours). Vocal tones are expected to fall somewhere in between these two.

The easily controlled channels are carefully monitored and controlled by the potential deceiver and therefore are predicted to leak little information about deceptive intent. The difficult-to-control channels are not as carefully monitored or controlled by the potential deceiver and therefore, are predicted to leak information that reveals the deceptive intent of the message.

To be specific, Ekman and Friesen (1969) predict that adaptors (e.g., scratching, grooming, rubbing etc.) will increase during deception, leg positions will show increased tenseness and shifting, and feet and legs will exhibit repetitive actions. Other bodily movements such as illustrators are predicted to decrease during deception (Ekman & Friesen, 1972).

In the facial channel, microexpressions and changes in normal patterns of eye contact are predicted to accompany deceptive

messages (Ekman & Friesen, 1969).

III) Hocking and Leathers's Theory of Deceptive Communication

Another theory concerned with nonverbal behavioural cues to deception was postulated by John Hocking and Dale Leathers (1980). Like Ekman and Friesen's (1969) theory, their theory is based on individuals' ability to monitor and control nonverbal behaviours during deception. However, Ekman and Friesen's theory states that the behavioural changes that accompany deception are a function of two main factors; internal feedback and controllability. Hocking and Leathers' theory states that three factors are important in determining which behavioural changes will accompany deception; beliefs about deceivers' behaviours, ease of monitoring specific behaviours, and ease of controlling specific behaviours.

The first factor, beliefs about deceivers' behaviours, reflects the notion that a deceiver will consciously attempt to control those behaviours which he or she believes are 'important, defining features of the cultural stereotype for deceivers.' (Hocking & Leathers, 1980, p.122). In other words, if a person believes that low levels of eye contact are associated with deception in society, then he or she will be particularly attentive towards maintaining or perhaps increasing eye contact when presenting deceptive messages.

The second factor, ease of monitoring specific behaviours, reflects the contention that a deceiver will attempt to control those behaviours which are the easiest to monitor during delivery

of the deceptive message.

The third factor, ease of controlling specific behaviours, reflects the contention that the deceiver will effectively control those behaviours which are most susceptible to conscious control.

Note that this first factor, beliefs about deceptive behaviour, is not an explicit part of Ekman and Friesen's theory, but the second and third factors, ease of monitoring and ease in consciously controlling the behaviour, are important components in both theoretical approaches.

Hocking and Leathers maintain that, in North American society, there exists a cultural stereotype of how people behave when telling lies. They suggest that one general aspect of this stereotype is that deceivers are believed to exhibit more overall movement than are nondeceivers. Because North Americans believe that a high degree of body movement is associated with deceptive communication, when individuals present deceptive messages, they attempt to inhibit or modify excessive body movement.

According to Hocking and Leathers (1980), if a deceiver is to inhibit and modify specific behaviours effectively, these behaviours must be easily monitored and easily controlled. Facial expression is considered to very controllable (i.e., an individual can consciously simulate or inhibit various facial expressions) but cannot be directly monitored by the deceiver during deception (i.e., a deceiver can rarely see his or her own face). As a consequence of the inability to monitor one's facial expression directly, Hocking and Leathers suggest that facial expression is

not managed effectively during deception.

Note that this position is somewhat contrary to that of Ekman and Friesen. Ekman and Friesen maintain that, even though the face may be a 'confusing source of information during deception' (1969, p. 98), internal feedback from the facial muscles, and frequent feedback from other people teaches individuals how to monitor and modify facial expression. According to their theory then, the face provides few cues to deception because it is so well controlled that behavioural changes that could betray the deception are effectively concealed, inhibited or modified by the deceiver.

Like Ekman and Friesen, Hocking and Leathers maintain that the face provides few cues to deception. However, their rationale is very different. According to Hocking and Leathers, even though the face is a highly controllable channel, it is not an easily monitored one. Therefore, deceivers may attempt to control their facial expressions, but because they can't visually monitor these expressions, they are not always aware of when or how an expression should be modified. The result is a lack of clear differences between the facial expressions of deceivers and the facial expression of nondeceivers. In other words, Hocking and Leathers maintain that if a behavioural channel is very easily controlled, cues to deception will lie in the behavioural changes that reflect excessive behavioural control (e.g., an overly rigid body posture). If a behaviour is very difficult to control, cues to deception will lie in behavioural changes reflecting the

processes accompanying deceptive communication (e.g., cognitive difficulty, anxiety, etc). If a behaviour is neither effectively controlled nor completely uncontrolled, it will contain few cues to deception because cues associated with excessive behavioural control will be attenuated, as will cues associated with underlying emotional or cognitive factors. Facial expression belongs to this third category of behaviours.

Compared to facial expression, Hocking and Leathers consider body behaviours such as leg movement or illustrators to be easy to monitor and amenable to conscious control. Consequently, they believe that bodily behaviours will be controlled more effectively during deception than will either facial or vocal expressions. Because of this high degree of control, Hocking and Leathers predict that deceivers will successfully inhibit those body behaviours that they believe reveal the occurrence of deception to their audience. For example, if people have a stereotypic image of deceivers such that deceivers are believed to exhibit increased movement, then a deceiver will attempt to control or inhibit behavioural movements in order to avoid appearing deceptive. Given that bodily behaviours are easily monitored and easily controlled, it is Hocking and Leathers's contention that the deceiver will be successful in inhibiting bodily movement. The result is that deceivers may exhibit significantly less bodily movement during deception than their truth-telling counterparts.

With regard to paralinguistic behaviour, Hocking and

Leathers suggest that subtle changes in one's vocal behaviours are difficult for a deceiver to monitor and to control.

Vocal behaviour is difficult to monitor because it is almost impossible for individuals to listen to themselves while in the process of speaking.

Vocal behaviour is difficult to control for two reasons:

1) The anxiety accompanying lying may cause persistent increases in vocal nervousness and tension that are extremely difficult to control or suppress.

2) Changes in "microtremors" of the voice that have been found to accompany deception are thought not to be controllable by the central nervous system (Goodwin, 1975, cited in Hocking & Leathers, 1980).

Given the difficulty of ~~monitoring~~ monitoring and controlling vocal behaviours, Hocking and Leathers hypothesized that deceivers will be unable to inhibit or modify these vocal indicators of deception effectively. As a consequence of the inability to control vocal behaviour, paralanguage is predicted to contain cues to the deceptive nature of a message.

In summary, Hocking and Leathers' theory predicts that bodily behaviours will be controlled the most effectively during deception; facial expression will be controlled less effectively, and paralinguistic behaviours will be the least effectively controlled. As a result of these differences in controllability, it is hypothesized that deceit is more likely to be revealed in the body behaviours (i.e., an easily monitored and controlled

channel) and in the paralanguage (i.e., a poorly monitored and poorly controlled channel) of the deceiver than in his or her facial expression (i.e., an easily controlled but poorly monitored channel). The basis for this hypothesis is that the behaviours the deceiver cannot monitor or control may leak the information that the deceiver is attempting to conceal. For example, a deceiver's vocal tones may betray an underlying anxiety.

Behaviours which are easily controlled and easily monitored may be suppressed effectively by the deceiver, and therefore, may reveal the existence of deception by their relative lack of occurrence. For example, if a deceiver believes that excessive movement is associated with dishonesty, he or she may attempt to inhibit bodily movement. To the extent to which these behaviours are controllable and easily monitored, the deceiver will be successful in inhibiting these behaviours. The result is that a deceiver may exhibit significantly fewer body movements than a truth-teller.

Behaviours which are controllable but not easily monitored will not provide unambiguous cues associated with either a lack of control or with excessive control by the deceiver.

Note that the rationale underlying Hocking and Leathers's theory differs from Ekman and Friesen's contention that the more controllable the channel, the less likely the channel is to contain cues to deception. Furthermore, Hocking and Leathers predict bodily behaviours to show decreased movement as a consequence of their high controllability, and Ekman and Friesen

expect bodily behaviours to show increased movement as a consequence of their low controllability. However, the ordering of the face and body channels with respect to ease of detecting deception is identical in the two theories. Thus, the body is predicted to reveal cues to deception more often than the face.

One other point of difference in the two theories is that Hocking and Leathers contend that people's beliefs about the behavioural concomitants of deception play a major role in determining which behaviours deceivers will attempt to control during deception. Thus, they suggest that Americans have a stereotypic belief about how people behave when deceiving. Part of this stereotype includes a generalized belief that deceivers exhibit more bodily movement than do nondeceivers. Hocking and Leathers postulate that individuals attempting deceit are aware of this 'deceiver stereotype' and consequently try to inhibit any signs of increased body movement.

Ekman and Friesen's theory does not include any factor relating the influence of the deceiver's beliefs about deceptive behaviour to behavioural control during deception.

On the basis of Hocking and Leather's theory then, what behavioural changes are predicted to accompany lying?

First, if people do attempt to inhibit general movement during deception, and if body behaviours are easily and effectively controlled, then when people tell lies they should exhibit less body movement than truth-tellers. Specifically, Hocking and Leathers (1980) hypothesize that an decrease in head

movements, illustrators, foot movements, and bodily nervousness will accompany deceptive communication.

Second, difficulty in visually monitoring one's own facial expression results in the deceiver not always knowing how or which expressions should be inhibited or camouflaged. As a consequence of this poor facial monitoring, facial expression is predicted to be a confusing source of information when one is attempting to assess the sincerity of a message. In other words, a deceiver may believe that liars typically smile more than truth-tellers, and therefore attempt to inhibit smiling when being deceptive. If the face was easily monitored, then the deceiver might succeed in inhibiting smiling, and perhaps end up smiling less than a truthful communicator. In this case, decreased smiling could become a relevant cue in detecting the deceptive intent of a communicator.

Similarly, if the face was very difficult to control, and if the anxiety associated with lying caused deceivers to smile more than nondeceivers, then the deceiver may not be able to inhibit this behaviour. As a consequence, increased smiling could provide a good cue to the deceptive intent of a communicator.

However, because the face is easy to control but difficult to monitor, Hocking and Leathers assert that facial expression is not likely to contain many cues that can reveal the deceptive nature of a message. Thus, the face cannot be relied upon to show cues indicative of excessive control or cues indicative of excessive lack of control.

Third, because paralanguage is difficult to monitor and difficult to control, paralinguistic behaviours which have been found to accompany anxiety (e.g., increased speech rate, increases in speech disfluencies such as stuttering and hesitations, increased voice pitch) are also predicted to increase in frequency and/or intensity during deceptive communication.

Note that the behavioural changes that Hocking and Leathers predict will accompany deceptive messages are a function of both the deceiver's beliefs about the behavioural cues that accompany deception, and of the ease of monitoring and controlling these behaviours.

In summary, the theoretical basis for predicting behavioural changes to accompany the delivery of deceptive messages, is that the act of deception is expected to be accompanied by physiological, emotional and cognitive responses. In turn, these responses are expected to be associated with changes in the deceiver's behaviour. Specifically, behaviours associated with guilt, increased arousal, cognitive difficulty or inappropriate or excessive behavioural control may accompany deceptive messages and thereby serve as potential cues to the deceptive nature of a message. Ekman and Friesen (1969) and Hocking and Leathers (1980) were interested in predicting which of the potential behavioural changes would be most likely to be exhibited by the deceiver. These researchers suggested that the extent to which a behaviour was controllable by the deceiver, and the extent to which different behavioural changes were visible and

salient during the interaction, influenced the behavioural changes that would be exhibited during deception. Hocking and Leathers (1980) also postulated a third factor as being important in influencing the behavioural changes that would accompany deceptive communication, and that third factor was the deceiver's beliefs about which behavioural changes would be associated with deception by the audience. Hocking and Leathers further hypothesized that individuals' beliefs about deceiver behaviour constitute a cultural stereotype and therefore, deceivers from the same cultural group have similar ideas about which behaviours should be controlled or inhibited to avoid creating an impression of insincerity.

Empirical Research in Deceptive Communication

In the remainder of this chapter, the question of whether empirical evidence supports the hypothesized behavioural changes is addressed. However, before examining the results of empirical research in the area of deceptive communication, a brief description of the typical procedures employed in these studies will be presented.

i) Experimental Paradigms in Deceptive Communication Research

The paradigm used in most investigations of how behaviour alters when people are being deceptive is to have subjects come into the lab, and videotape them while they present a number of truthful and deceptive messages.

The messages used in these studies vary, but frequently involve presenting personal opinions on controversial issues

(e.g., Knapp, Hart & Dennis, 1974), describing a friend or acquaintance (e.g., DePaulo & Rosenthal, 1979a), discussing details of an emotional film (e.g., Ekman & Friesen, 1974), or making factual statements (e.g., Fay & Middleton, 1941).

These first three messages are emotionally-based messages in that the subject is describing how he or she feels about something or someone. For example, a subject who was strongly against abortion could be asked to give an honest opinion about this issue, or to convince an audience that he or she was strongly in favour of abortion. In either case, the message has a strong emotional significance for the subject.

In a similar manner, a subject might be asked to describe a liked friend either truthfully or deceptively, or a disliked acquaintance either truthfully or deceptively. These types of messages, like the messages involving controversial issues, are intended to be emotionally involving for the subject.

In contrast, if subjects make factual statements, or describe some past event or experience, the message evokes little emotional involvement on the part of the speaker. Examples of the topics that subjects are asked to discuss include the location of their last vacation, or their work experience.

It is worth noting that most of the research reviewed in the present chapter uses emotional rather than factual communications. This bias is evident in much of the deceptive communication literature excluding polygraph research. One reason for this bias is that emotional lies are considered to be more

difficult to tell, and easier to detect, than are factual lies.

When a person tells a factual lie, he or she need inhibit only the behavioural cues associated with the act of lying per se (e.g., behavioural cues associated with feeling guilty about the deception). There is little emotional involvement with the message, so there are few emotionally-related behaviours that will be aroused by the message content, and consequently, few behaviours to inhibit or control apart from the ones associated with the act of lying per se.

However, in the case of emotional lies, the liar must inhibit or camouflage all the behavioural changes evoked by the specific content of the message, as well as any behavioural changes evoked by engaging in the act of deception.

It is important to be aware of the distinction between emotional and factual lies because these two types of deceptive message are known to differ in their susceptibility to detection depending on the information channel available to the detector (DePaulo et al., 1980). This point will be expanded later when channel effects on detection accuracy are discussed.

Apart from the emotionality of their content, messages used in deceptive communication research may differ in degree of preparation, amount of rehearsal, average length and level of cognitive difficulty. Thus, subjects in some studies have the opportunity to plan and rehearse their messages before presenting them. In other studies, subjects are told to tell the truth or to lie only seconds before presenting their messages. In some

studies, subject's messages are long and detailed descriptions, and in others, these messages are simple, one-word responses.

Other important aspects of the experimental situation which vary from study to study, and which have been shown to influence both the behavioural concomitants of deception and the ability of judges to detect lies, include how motivated the subject is to convince others of his or her sincerity, and to whom he or she presents the messages.

In some studies, subjects are highly motivated to lie successfully by being told that the ability to lie successfully is related to intelligence or social competence. In other studies, subjects are merely asked to lie by the experimenter. In this case, subjects' motivation to lie successfully may not be very high. In still other studies, subjects don't really lie at all, but are asked to role play a liar in a particular situation.

Studies also differ in how subjects present their messages.

In some studies, subjects are asked to transmit their messages through a microphone or speaker. Although subjects may be videotaped in these studies, they are led to believe that the audience has access only to vocal and verbal channels of information. Presumably subjects in these studies do not attempt to control or manage their visual behaviours during presentation of the messages.

In other studies, subjects are aware of being videotaped and know that the audience will be able to observe their face,

hands, torso, legs and feet during the presentations of the messages. In these studies, subjects are expected to attempt to control visual as well as verbal and vocal channels during message presentation.

In a few studies, subjects present their messages live to their audience, and can adjust their behavioural performance in accordance with the audience's behaviours.

ii) Behavioural Changes Accompanying Deceptive Messages

How is research into the behavioural changes accompanying deceptive communication typically conducted?

Researchers who are interested in the behavioural concomitants of deception use videotapes to record subjects' facial, body, vocal and verbal behaviours while the subjects are presenting their truthful and deceptive messages. Then the videotapes are given to trained coders who rate the types and durations of various verbal and nonverbal behaviours. These data are analyzed separately for honest and deceptive messages so that the behavioural changes that liars exhibit during deceptive communication can be identified, and compared to the behaviours exhibited during honest communications.

Do the data support the contention that communicators' behaviours differ as a function of message veracity?

In an extensive review of the literature on deceptive communication, Zuckerman and Driver (1985) summarized the results of 45 studies that had investigated behavioural concomitants of deception. They concluded that, of the 24 behaviours that had

been investigated in a minimum of two studies, 14 behaviours (i.e., 58%) differed either in frequency of occurrence or in intensity, during deceptive and nondeceptive messages. These 14 behaviours include pupil dilation, blinking, facial segmentation, adaptors, bodily segmentation, response length, speech errors, speech hesitations, voice pitch, negative statements, irrelevant information, immediacy of speech, verbal leveling, and general discrepancy between channels of information. Of these behaviours, only facial segmentation, response length and immediacy of speech decreased in occurrence during deceptive messages. The other 11 behaviours significantly increased during deceptive messages.

Behaviours that were not found to change as a function of message veracity include eye gaze, smiling, head movements, gestures, shrugs, foot or leg movements, postural shifts, response latency, speech rate, and frequency of self-references.

Two main conclusions can be drawn from these data.

First, there is strong support for the hypothesis that communicators' behaviours vary as a function of message veracity.

Second, at least some of these behavioural changes appear to occur in a variety of deceptive situations indicating that these changes are fairly robust.

How do these behavioural changes relate to the changes predicted by the Four Factor Model of deceptive behaviour (Zuckerman et al., 1981a)?

Zuckerman et al. (1981a) predicted that, if lying is accompanied by increased levels of arousal, then people presenting

deceptive messages should exhibit increases in pupil dilation, blinking, speech errors, speech hesitations, and voice pitch compared to people presenting truthful messages.

As shown by the results of Zuckerman and Driver's review (1985), all of these behavioural changes did occur. This finding supports the contention that deception is associated with higher levels of arousal than is truth-telling.

If lying is associated with negative emotional responses such as guilt or anxiety, then the behavioural changes that Zuckerman et al. (1981a) predicted to occur during deception are behaviours that reflect negativity, anxiety and dissociation from the message. These behaviours include increased use of adaptors, decreased use of illustrators, fewer self references and increased nonimmediacy of speech.

As is evident from Zuckerman and Driver's (1985) review, people presenting deceptive messages do use significantly more adaptors and significantly higher levels of nonimmediacy in speech than do people presenting honest messages. Also, although not specifically predicted, there is a nonsignificant trend for people to smile less, and to make more negative statements when lying than when telling the truth. These results are consistent with the contention that presenting deceptive messages is associated with negative affect.

Although Zuckerman and Driver (1985) did not find gestures or self-references to decrease during deception, evidence that deceptive messages are also associated with withdrawal or

dissociation from the message content comes from a study by Zuckerman, DeFrank, Hall, Larrance and Rosenthal (1979). In this study, subjects were asked to rate the degree of involvement of communicators in their messages. Subjects rated people telling lies as significantly less involved in their messages than people telling the truth.

The contention that deception may be accompanied by a positive emotional response such as duping delight received no empirical support in Zuckerman and Driver's (1985) review. Duping delight was predicted to produce an increase in facial pleasantness or in smiling during deception. In fact, there was a tendency for smiling to decrease during deceptive messages suggesting that negative rather than positive emotional responses accompany lying. This finding indicates that lying, at least in the typical laboratory study, does not seem to involve duping delight.

If cognitive factors influence the behaviours exhibited during a deceptive message, then, according to Zuckerman et al. (1981a), the cognitive difficulty associated with creating a lie was predicted to evoke a decreased use of illustrators, increased pupil dilation, increased speech hesitations, increased response latency and decreased response length during deception.

Some, but not all, of these predictions are borne out by Zuckerman and Driver's (1985) data. Thus, pupil dilation, speech hesitations and response length show significant increases during deception. However, contrary to Zuckerman et al.'s predictions

(1981a), there are no significant changes in use of illustrators, or in response latency. As increases in both pupil dilation and speech hesitations were predicted on the basis of another factor (i.e., increased level of arousal), decreased response length is the only behavioural change that was predicted on the basis of cognitive difficulty alone, and that was supported by the data. Therefore, it might be concluded that the empirical evidence lends little support to the contention that lying is more cognitively difficult than truth-telling.

However, there is a problem with using the combined results of a variety of studies to assess behavioural changes during lying, and this problem is particularly salient when assessing the evidence for an increased cognitive difficulty during lies. The problem is that not all lies are more cognitively difficult than truths, and therefore collapsing results over a number of different studies may obscure any influence of cognitive difficulty in the individual studies. For example, if a lie requires the deceiver to create a long and involved story with little or no preparation, it might be expected that this lie entails more cognitive effort than would a similar truthful response. On the other hand, if a deceiver is given time to prepare and rehearse his or her deceptive message, or if the lie requires only a 'yes' or 'no' answer, then lying and truth-telling might entail equal degrees of cognitive difficulty.

To address this problem, Zuckerman and Driver (1985), divided studies according to whether the response involved a low,

medium or high level of planning. Single-word messages, or messages that the communicators could prepare beforehand were considered to have a high level of planning. Messages in which communicators were given some prior knowledge of the message to be presented, but could not practice or rehearse their presentation, were considered to have a medium level of planning. Messages that communicators had to present spontaneously were considered to have a low level of planning.

For the most part, this classification did not alter the behaviours that were found to change significantly during deceptive messages. However, in studies with a low level of planning (i.e., a high level of cognitive difficulty), there was a significant increase in response latency, as well as increased pupil dilation, increased speech hesitations, and decreased response length during deceptive messages. Because increased response latency is predicted to accompany increased cognitive difficulty, this finding strengthens the argument that an increase in cognitive difficulty accompanies deceptive messages.

Finally, is there empirical evidence that lying is associated with a higher degree of behavioural control than is truth-telling?

Zuckerman et al. (1981a) predicted that behavioural control during deception would produce discrepancies between the different channels of communication; cause a liar's presentation to appear lacking in spontaneity; and cause behaviours to appear phony or exaggerated.

In Zuckerman and Driver's (1985) review, ratings of perceived message discrepancy were examined to ascertain whether deceptive messages are characterized by discrepancies in the message being transmitted. According to Zuckerman et al: (1981a), deceivers may be unable to control all behaviours simultaneously and consequently some behaviours may slip by the deceiver's control and contradict or negate the message the deceiver is attempting to convey. This process could result in the message appearing contradictory or discrepant.

This hypothesis was supported by Zuckerman and Driver's (1985) finding that, based on a combination of the results of the four studies that examined channel discrepancy, deceptive messages were rated as significantly more discrepant than truthful messages.

In addition to evidence that deceptive messages appear more discrepant than do nondeceptive messages, there is some evidence that deceptive communicators appear to lack spontaneity, and the deceptive message may seem rehearsed.

In a study by DePaulo, Lanier and Davis (1983), subjects rated videotapes of honest and deceptive speakers as to how spontaneous or rehearsed the messages appeared. Regardless of whether messages were rehearsed or spontaneous, subjects in this study rated deceptive messages as significantly less spontaneous than truthful messages.

With regard to the question of whether a liar's behaviour is more exaggerated or appears more artificial than a

truth-teller's behaviour, there exists little information.

However, there is one verbal behaviour, leveling, that may relate to exaggeration. Leveling refers to the use of all-encompassing terms such as everybody, all or none, to make overly generalized statements. (An example of leveling might be the statement, 'Everyone likes baseball.'). As might be expected, people use significantly more leveling terms when lying than when telling the truth (Zuckerman & Driver, 1985).

These findings support the contention that people attempt to control their behaviours during deceptive communication, and that these attempts at control cause the deceiver's behaviour to appear discrepant, nonspontaneous, and perhaps, exaggerated.

In summary, the empirical evidence suggests that each of the hypothesized factors (i.e., arousal, affective response, cognitive difficulty, behavioural control) may be influencing behaviour during deceptive communication. However, the hypothesis that lying is associated with increased levels of arousal received the strongest empirical support. This is not a surprising finding because arousal is the most general of the four factors, and therefore, is most likely to be evoked in a broad range of deceptive situations.

It should also be noted that there is not a one-to-one correspondence between specific behavioural changes and the individual factors, and consequently, the same behavioural changes may be predicted on the basis of two different factors. For example, pupil dilation was predicted to increase during deception

as a function of the increased arousal associated with deception as well as of the increased cognitive difficulty associated with deception. Even when the empirical findings support the behavioural changes predicted on the basis of one of the factors, it is difficult to ascertain which of the four factors is influencing a deceiver's behaviour during specific deceptive messages.

Zuckerman and Driver (1985) have suggested that some of these behavioural changes may be multidetermined and therefore have more than one causal antecedent. This seems a reasonable hypothesis, and emphasizes the need for exploring how these four factors interact with each other, as well as how they relate to specific aspects of the deceptive situation:

Before turning to the other side of deceptive communication, that is, the lie detector's perspective, it is interesting to compare the behavioural changes that have been found to occur during deception with the changes predicted on the bases of Ekman and Friesen's and Hocking and Leathers' theories.

According to Ekman and Friesen (1969; 1974), deceptive communication should be characterized by increases in adaptors, body shifting, and feet and leg movements, and by decreased use of illustrators. They also predict that facial microexpressions and changes in patterns of gaze will accompany deceptive messages.

Comparing these behavioural predictions to the behaviours that Zuckerman and Driver (1985) found change significantly during deceptive communication, it is apparent that the empirical

evidence supports only an increased use of adaptors during deception. Thus, there were no significant changes in body shifts, feet and leg movements, illustrators or pattern of gaze as a function of message veracity. Whether or not microexpressions accompany deceptive messages is unknown because this issue has been subject to little empirical investigation.

Although these findings do not provide much support for Ekman and Friesen's hypotheses, there is some evidence supporting their hypothesis that deceivers control their facial behaviour more than their body behaviour. This evidence comes from studies that investigated facial or bodily segmentation during deceptive messages (Zuckerman & Driver, 1985). In these studies, segmentation is defined as the number of meaningful units of behaviour that judges perceive to exist in a stream of behaviour. A high number of segments is consistent with the increased levels of arousal associated with presentation of deceptive messages. A low number of segments is consistent with deceivers' attempts to control and suppress spontaneous behaviour (Zuckerman, Kernis, Driver & Koestner, 1984).

The results from Zuckerman and Driver's (1985) review show that facial segmentation is significantly lower during deceptive messages than during honest messages. Bodily segmentation is significantly higher during deceptive messages than during honest messages.

These findings suggest that facial behaviours but not body behaviours are well controlled by a liar. The low number of

facial segments associated with deceptive messages, as opposed to honest messages, is consistent with the hypothesis that the deceiver controls and suppresses facial behaviour when presenting deceptive messages. The relatively high number of bodily segments associated with deceptive messages, as opposed to honest messages, is consistent with the hypothesis that the deceiver's increased level of arousal results in increased body movements, and that the deceiver is not very successful in suppressing these movements. Thus this evidence supports Ekman and Friesen's contention that during deception, a deceiver is better able to control facial behaviours than body behaviours.

How do these behavioural changes compare to the behavioural changes predicted to accompany deceptive messages by Hocking and Leathers (1980)?

According to Hocking and Leathers, deceptive communication is accompanied by general decreases in body movement including decreased head movement, foot movement, body nervousness and illustrators. Note that, unlike other body behaviours, Hocking and Leathers do not consider adaptors (e.g. scratching or rubbing) to be under the conscious control of the deceiver. As a result of the low controllability of adaptors, and of the increased anxiety experienced by a deceiver, adaptors are predicted to increase in frequency and/or duration during deception. For similar reasons, increases in speech disfluencies such as stuttering, pausing and use of ahs and uhms, vocal nervousness, and speech rate are also predicted to accompany deceptive messages.

The empirical data generated by Hocking and Leathers' (1980) study provided little support for these hypotheses. Thus, although there was a significant decrease in foot movements and a significant increase in vocal nervousness during deception, none of the other predicted behavioural changes occurred. However, it is important to note that the data from this study were primarily exploratory, and were based on the responses of only 16 subjects. This is a very small sample size when multiple dependent measures are being evaluated. In addition to this small sample size, methodological flaws (e.g., there was no test of whether or not subjects actually believe that deceivers exhibit increased movement during deception; also the results for both factual and emotional lies appear to have been combined in the study) and statistical problems (e.g., multivariate tests using more dependent measures than subjects) make these results highly suspect.

Comparing the behavioural changes predicted by Hocking and Leathers with the behavioural changes found to differentiate truthful and deceptive communication in the Zuckerman and Driver review, it can be seen that speech disfluencies and adaptors do show the predicted increases during deception. However, contrary to Hocking and Leathers' hypotheses, head movement, illustrators and foot and leg movements do not decrease significantly, and speech rate does not increase significantly, during deception. Body and vocal nervousness are not well defined in Hocking and Leathers' paper, and therefore it could not be ascertained whether

Zuckerman and Driver's data support the predicted changes in these behaviours.

Overall, neither Ekman and Friesen's nor Hocking and Leathers' predicted behavioural changes received much empirical support. However, changes in single behaviours are not a good test of either of these theories. Lying and the detection of lying typically involve more global behavioural change, and both these theories focus more on the role of channels of information in the deceptive communication process than on individual behaviours.

In the next section, empirical findings on the accuracy with which judges can detect deceptive messages on the basis of behavioural cues are reviewed.

ii) Accuracy in Behavioural Lie Detection

According to both Ekman and Friesen's, and Hocking and Leathers', theories, there should be more cues to deception in a deceiver's body than in his or her face.

With regard to paralinguistic cues, Hocking and Leathers predict a deceiver's vocal behaviour will contain more cues to deception than will his or her face. Ekman and Friesen (1969) do not directly address this issue, but as was discussed previously, an extension of their theory to paralanguage would suggest that vocal behaviour should be an easily controlled channel of information because of its high sending capacity and the high frequency with which it elicits external feedback. On this basis then, Ekman and Friesen's theory would predict that the vocal

channel would be controlled by a deceiver and therefore not contain many cues to deception. However, as DePaulo, Zuckerman and Rosenthal (1980) note, it appears that individuals have difficulty controlling or managing vocal behaviours. Therefore, based on the general concept of behavioural control proposed by Ekman and Friesen, (i.e., that channels that are difficult to control will leak cues to deception), the vocal channel may be expected to contain more cues to deception than facial or verbal channels.

Finally, Ekman and Friesen consider the verbal channel to be highly controlled during communication, and therefore, their theory would predict that the verbal content of a message should not differ between true and deceptive messages.

Unfortunately, Hocking and Leathers never address the question of verbal cues to deception. However, if verbal content is considered to be an easily controlled channel of information, then Hocking and Leathers might predict verbal content to contain cues to deception reflective of excessive control. This is highly speculative of course, especially because Hocking and Leathers' theory emphasizes the importance of beliefs about deceiver behaviours in determining which behaviours will be controlled during deceptive communication. Whether people have specific beliefs about the role of word choice, type of argument or various other aspects of verbal content in deceptive communication is unknown. Consequently, it is not clear if deceivers monitor their verbal messages in any systematic manner other than to avoid

contradicting themselves or making false statements that can be easily verified.

One way to test some of these hypotheses is to examine how accurately judges can detect lies on the basis of information from different information channels. Judges who are assessing message sincerity in poorly controlled channels might be predicted to be more accurate at this task than judges who are assessing message sincerity in easily controlled channels.

Of course, even if one channel produces a higher accuracy rate than another channel, it doesn't necessarily mean that one channel contains more cues to deception than the other channel. Assuming that the cues are available to be used, judges must both attend to them, and interpret them as cues to deception, in order to take advantage of them in discriminating between truths and lies. However, if judges can detect lies based on the information contained in any single channel, then there must be some valid cues to deception contained in that channel. Also, given that judges can discriminate true from deceptive messages, it is likely that judges who are given access to channels that contain many cues to deception will be able to detect lies better than judges who are given access to channels that contain few or no cues to deception.

Is there empirical evidence to support the Ekman and Friesen's contention that information channels can be ranked along a continuum which ranges from high control/low leakage (i.e., face or verbal content) to low control/high leakage (i.e., body or

para language)?

Ekman and Friesen (1974) tested the hypothesis that the body is an easier channel in which to detect deception than is the face. Specifically, this study was designed to test two hypotheses.

First, if after presenting deceptive messages, people are asked what behaviours they tried to control during the presentation, their replies will include facial behaviours more often than body behaviours. This hypothesis is based on the belief that, in honest communication, facial expression is a highly salient source of information and consequently, people tend to be more aware of, and to pay more attention to, facial expression than bodily expression.

The second hypothesis was that judges given access to speakers' body behaviours would be more accurate at identifying deceptive messages than would judges given access to speakers' facial behaviours. This hypothesis is based on the premise that the face is easier to control than the body, and therefore will tend to leak fewer cues to deception than will the body.

These hypotheses were tested in the following manner. Stimuli for the rating task were made by videotaping 22 student nurses while they presented honest and deceptive messages. These messages were created by having subjects view two pleasant and two stressful film clips. During the viewing of these clips, the subjects were interviewed as to the content of each film. All subjects told the truth about the first two films (i.e., the

pleasant films), lied about the content of the third film (i.e., saw a stressful film but described it as if it was a pleasant film), and told the truth about the fourth film (i.e., saw a stressful film and described it honestly). At the end of the four interviews, subjects were asked what behaviours should be controlled or suppressed when lying in order to escape detection.

Segments of interviews from the second segment (i.e., where speakers respond truthfully about the pleasant film), and the third segment (i.e., where speakers respond deceitfully about the unpleasant film) formed the stimuli for the judgement task.

Two hundred and thirty-four judges viewed either the faces or the bodies of speakers, and then rated whether or not the speaker was being deceptive. Approximately half the judges saw a sample of part of an honest interview (i.e., a segment from the second interview) for each speaker before judging the target segment for that speaker. Thus judges in this condition were familiarized with a sample of the honest behaviour of the speakers before making their judgements about the target segments. The remaining judges viewed these sample segments as well, but were not informed that these represented speakers' honest behaviours. Instead, judges in this second group rated the sample segments as well as the target segments for veracity.

Did the results provide support for the two hypotheses?

With regard to the first hypothesis, the results from the study provided some support for the notion that the face is a more salient source of information than the body. Thus, significantly

more subjects mentioned the face as being an important channel to control during deception than mentioned the body.

With regard to the second hypothesis, the results show only partial support for the prediction that deceptive interviews would be more easily detected from the body than from the face of the speakers. Thus, if judges knowingly viewed an honest interview of the speaker prior to rating the target segment, then judges viewing the bodies of the speakers made more accurate judgements than did judges viewing the faces of the speakers. However, if judges did not knowingly view a sample of the speakers' honest behaviour prior to making judgements of speaker veracity, there was no difference in accuracy regardless of whether judges viewed the face or the body of the speakers.

This finding suggests that judges were capable of discriminating deceptive messages by an individual only when they had a sample of the individual's honest behaviour. However, an alternative explanation is that judges could not discriminate deception cues at all but were merely comparing the sample segments to the test segments and making their judgements based on the overall similarity of these two segments. Unfortunately, as Ekman and Friesen note, the methodology of this study makes it impossible to distinguish between these two alternatives.

In fact, there are a number of methodological problems with this particular study. For instance, speakers told the truth about a pleasant film or lied about an unpleasant film. This makes it difficult to separate speakers' responses to the negative

content of the film from their responses to presenting deceptive messages.

Also the interviews always followed the same order (i.e., two honest interviews with the pleasant films, then the deceptive interview with the unpleasant film, and finally an honest interview with the unpleasant film), confounding behavioural changes during deceptive and honest messages with order of the interviews.

Finally, the interviewer was not blind to the experimental conditions for at least the last third of the speakers. As a consequence of this methodological flaw, some bias may have been introduced into the interviews.

In spite of these problems, the results of the study provide some support for Ekman and Friesen's contention that body and facial channels are differentially informative as to the deceptive content of a communication. Thus, provided they are given a sample of the speaker's honest behaviour first, judges can detect deceptive messages of the speaker more accurately from body than from facial information. Furthermore, when telling lies, people appear to be more aware of the importance of controlling facial expressions than of controlling bodily expressions, supporting the contention that the face rather than the body is a more salient source of information in North American society.

The hypothesis that, compared to the body channel, the facial channel is a poorer source of cues to deception has received support from a number of other studies.

Zuckerman et al. (1981a) summarized the results of 35 studies that examined the relationship between channel of information on accuracy at detecting deception. Of all the single channels (i.e., head, body, paralanguage, verbal content), and combinations of channels, the face was the only channel in which lies could not be detected with better-than-chance accuracy. Also, in multiple channel detection, deception accuracy in the absence of facial cues was higher than in their presence. Thus, these data are consistent with Ekman and Friesen's theory that the face leaks less information about the occurrence of deception than does the body.

However, other aspects of Ekman and Friesen's theory (1969) are not supported by the empirical data.

First, their theory is based on the premise that nonverbal behavioural channels should be more revealing of cues to deception than verbal channels. This suggests that judges given access to nonverbal channels should be better at detecting lies than judges given access to the verbal channel.

This prediction has not received much support in the literature. In fact, transcripts (i.e., verbal content alone) turn out to be one of the best means by which to detect lying (Zuckerman & Driver, 1985). Thus, contrary to Ekman and Friesen's contention that nonverbal behaviour should be the major source of cues to deception, liars frequently appear to betray themselves in the verbal content of their messages.

Whether these cues to deception reside in deceivers'

choices of words, their use of semantic structure, or the specific content of the message is not yet known. A number of variables related to verbal content (i.e., nonimmediacy of speech, use of negative statements, amount of irrelevant information, and leveling) have been found to increase during deceptive communication (Zuckerman & Driver, 1985), but more research on verbal and semantic correlates of deception are needed before the differentiating features of honest and deceptive messages can be clearly identified. In any event, contrary to Ekman and Friesen's claim that uncontrolled, nonverbal behaviours leak the most cues to deception, the verbal content of a liar's message appears to reveal deception as well as, if not better than, the liar's nonverbal behaviours.

Second, although it is not clear exactly where paralinguistic information lies on Ekman and Friesen's continuum of controllability, it is consistent with their theory to expect the paralinguistic channel to contain more cues to deception than the facial channel, and to contain fewer cues to deception than the body channel.

This prediction is consistent with the empirical data showing that judges are able to detect deceptive messages on the basis of vocal tones alone (Zuckerman et al., 1981a). Also, average detection accuracy based on paralinguistic information appears to be slightly better than accuracy based on facial information and somewhat lower than accuracy based on either transcript or body channels. These data suggest that paralanguage

may be a more controllable single channel than either verbal or body channels.

Interestingly, when audiovisual (i.e., face, body and speech) and audio channels (i.e., speech) are ranked with respect to detection accuracy, along with these single channels, accuracy at detecting lies is highest in audiovisual, audio, transcript, visual (i.e., face and body) and tone modalities, respectively (Zuckerman et al., 1981a; DePaulo, Rosenthal, Green & Rosenkrantz, 1982b). However, it is important to note that accuracy at detecting deception in different channels may be influenced by whether a factual or an emotional message is involved. Thus, nonverbal channels may be more revealing of deception when affect is involved in the lie, whereas the verbal channel may be more revealing of deception when the lie involves factual information (DePaulo, Zuckerman & Rosenthal, 1980).

Whether these channel differences in accuracy at detecting deception reflect differences in the sending capacity, and controllability of behaviours, as postulated by Ekman and Friesen, has not been established. As DePaulo et al. (1980) note, it is very difficult to empirically assess some of the aspects of a channel's sending capacity (e.g., number of discernible patterns), and there are no published studies which vary the modality through which the senders of the messages are told to communicate. Consequently, it is not known whether a given modality leaks cues to deception because the sender cannot effectively control that channel, or because the sender is not aware that the channel

should be controlled, and therefore makes no attempt to do so.

However, there is some evidence to suggest that people do control their behaviours during deceptive messages.

In a study by Krauss, Geller and Olson (1976 cited in Krauss, 1981) students were interviewed with regard to their personal opinions on religious, political or value-related issues, as well as on their future plans. All interviewees were instructed to lie on half of the questions and to tell the truth on the other half of the questions.

One group of interviewer-interviewee pairs interacted face-to-face across a table while the other group of interviewer-interviewee pairs were placed in separate rooms and interacted over an intercom. During the interview, the head and shoulders of the interviewees in both groups were videotaped through a one-way mirror.

Tapes of the interviewees were presented to naive subjects who were asked to judge the truthfulness of the responses. One third of the subjects made their judgements on the basis of visual information alone; one third on the basis of vocal and verbal information; and one third, on the basis of visual, vocal and verbal information. Judges' accuracy scores were calculated as the number of correct 'true' responses minus the number of incorrect 'true' responses.

The results showed a borderline interaction between modality (i.e., face-to-face versus intercom) and rating condition (i.e., visual, audio or audiovisual). This effect was primarily a

result of judges in the video condition detecting lies more accurately for interviewees in the intercom condition than for interviewees in the face-to-face condition. Although it did not reach significance, this finding replicated the results of a previous study (Krauss, 1981) and as such, appears to be reliable. This finding suggests that there were visual cues in the interviewees' presentations that betrayed the deceptive nature of the message but that these cues were controlled, masked or inhibited by interviewees who were aware that the interviewer could see them.

Judges in the audio condition showed low accuracy scores for deceivers in both the intercom and the face-to-face groups. This finding suggests that either deception in this study aroused few vocal or verbal cues in the interviewees, or that the interviewees were effectively controlling the vocal and/or verbal cues to deception.

Interestingly, detection accuracy in the audiovisual condition for interviewees in both the intercom and face-to-face groups was low. Thus, even though the visual cues in the intercom condition are still present in the audiovisual stimulus, judges do not appear to be using these cues to advantage when audio information is also present.

In summary, the results from this study support Ekman and Friesen's theory that the face is controllable and controlled by potential deceivers during deceptive messages. Thus, deceivers who believed the interviewer would not see them, leaked more

deception cues from their faces than did deceivers who knew the interviewer would be observing them. Of course facial control may not have been a conscious strategy on the part of the face-to-face deceiver group. Interviewees in this group may have been more aware of their own faces because they were viewing the interviewer's face, or they may have been using visual feedback from the interviewer to modify and adjust their own behaviour to a much greater extent than interviewees in the intercom group. However, regardless of why interviewees in the face-to-face group controlled their facial expressions better than interviewees in the intercom group, the fact that they did supports the notion that deceivers can, and do, control their facial expressions.

Apart from the fact that it can be controlled, is there any evidence that the face is subject to more control than other information channels?

Evidence suggesting that the facial channel is more controllable than the vocal channel comes from a study by Zuckerman, Larrance, Spiegel and Klorman (1981c). These researchers suggested that three factors affect a person's nonverbal display: expressiveness, controllability and sender demeanor. The first two factors, derived from Ekman and Friesen's model, refer to the tendency to display spontaneous nonverbal cues, and to the ability to exaggerate, modify or suppress these cues. The third factor, sender demeanor, refers to the tendency for an individual's facial and/or vocal expressions to be pleasant or unpleasant regardless of the affect being experienced. Sender

demeanor is believed to arise from constant features of the individual's face and/or voice, and has been found to have a significant influence on whether a communicator is perceived to be truthful or deceptive (Zuckerman, DeFrank, Hall, Larrance & Rosenthal, 1979).

In order to investigate the roles of these three factors in facial and vocal behaviours, Zuckerman et al. (1981c) had subjects view pleasant, neutral and unpleasant film clips and asked them either to respond naturally to these stimuli, or to exaggerate or inhibit the facial responses elicited by these stimuli. During the viewings, subjects' facial responses were videotaped.

Immediately after viewing the stimuli, senders were asked to state their feelings about the film clips (i.e., positive, negative or neutral) and either to exaggerate, suppress or refrain from altering, the vocal expression of the experienced emotions. During the interviews, subjects' vocal responses were audiotaped. On completion of the vocal task, senders used a 9-point scale to rate how pleasant or unpleasant their responses were to each of the stimulus items.

Finally, two weeks after the experiment, senders completed a Perceived Encoding Scale (Zuckerman & Larrance, 1979) that was designed to assess senders' assessments of their tendency to reveal their affective responses through nonverbal channels.

Subjects' audiotaped responses were played through an electronical filter to eliminate verbal content (Such filters

eliminate the high frequency sounds that make words discernible while retaining paralinguistic information such as rhythm, speech rate, pausing, etc.). Then, tapes containing senders' facial expressions and their filtered speech were rated for facial and vocal pleasantness by naive judges.

In addition to this task, judges also attempted to match the facial expressions and vocal expressions of the subjects with the eliciting stimulus (i.e., positive, negative or neutral).

The main dependent measures in the study were subjects' ratings of their own affective responses to the experimental stimuli, judges' ratings of senders' facial and vocal pleasantness, and judges' identification scores (i.e., judges received 2 points for correctly matching expressions to pleasant, unpleasant or neutral stimuli, 1 point for matching pleasant or unpleasant expressions to neutral scenes, and 0 points for mismatching pleasant to unpleasant scenes or vice versa.).

The results indicated that both facial expression and content filtered speech revealed some information about senders' affects. Thus, judges were able to match facial expressions and vocal expressions with the correct eliciting stimuli. As might be expected, exaggerated expressions received the highest identification scores; suppressed expressions, the lowest; and spontaneous expressions fell between these two. However, the difference in identification scores between exaggerated and suppressed expressions was significantly higher for facial expressions than for vocal expressions. This finding suggests

that senders had more control over their facial expressions than over their vocal expressions, and therefore were better at exaggerating facial expression than at exaggerating vocal expression.

There are also indications that vocal expressions are primarily influenced by expressiveness and sender demeanor factors, whereas facial expression is primarily influenced by the controllability factor.

Under suppression, exaggeration or spontaneous conditions, pleasantness ratings of vocal expressions were positively correlated for both pleasant and unpleasant stimuli. If a sender was rated as relatively more vocally pleasant for pleasant stimuli, then he or she was also rated as relatively more vocally pleasant for unpleasant stimuli. The fact that there was no interaction between the three vocal conditions (i.e., exaggeration, suppression or natural) and the type of stimuli (positive, negative or neutral) suggests that senders exercised little effective control over emotional expression in the voice. In assessments of vocal pleasantness, sender demeanor (i.e., the pleasantness of constant features in an individual's voice) appears to have been the dominant influence.

On the other hand, judges' ratings of facial pleasantness for pleasant and unpleasant stimuli were positively correlated under suppression conditions, but negatively correlated under exaggeration conditions. In other words, under suppression conditions, a sender effectively suppressed positive and negative

facial responses to the stimuli, and therefore pleasantness ratings were primarily determined by speaker demeanor. However, under conditions of exaggeration, a sender effectively exaggerated positive and negative facial response to the stimuli, and consequently, pleasantness ratings were primarily determined by the stimulus being viewed.

It is clear that the empirical findings on the controllability and leakage of different channels of information support the contention that people can, and do control at least some aspects of their nonverbal behaviour (Ekman & Friesen, 1969; Stocking & Leathers, 1980). Furthermore, channels can be ranked according to the ease with which deception can be detected by naive judges on the basis of information in each single channel. Thus, in order of detectability, lies are easiest to detect in the verbal channel, followed by the body channel, the vocal channel and the facial channel. Whether these rankings reflect differences in the controllability of the channel has not been thoroughly investigated, but, consistent with Ekman and Friesen's theory, there is some evidence that the facial channel is highly controllable. However, inconsistent with Ekman and Friesen's theory, the verbal channel appears to be more revealing of deception than the nonverbal channels.

Altogether, Ekman and Friesen's contention that the face is a more controlled channel of information than is the body, and that lies are easier to detect by looking at a deceiver's body than at his or her face, received strong empirical support.

However, the theory needs to be extended and modified to account for the paralinguistic and verbal channel data.

One point that should be made here is that this theory has played a seminal role in nearly all the current psychological research into deceptive communication. In essence, Ekman and Friesen opened up the area of behavioural lie detection to empirical study by providing a much needed theoretical framework in which to conduct research. To date, it is still the dominant theory in the area.

Hocking and Leathers' theory of deceptive behaviour also received some support from the empirical research on lie detection. According to their theory, the body and the voice of a deceiver are expected to contain cues to deception, but the face is not expected to do so. The ranking of the channels is consistent with these hypotheses.

However, Hocking and Leathers' contention that the face is a poorly controlled channel because of the difficulty in directly monitoring one's own face is not supported by the available data. In other words, the face appears to be a highly controllable information channel.

This finding could constitute a serious challenge to Hocking and Leathers' theory. If deceivers can easily manage and control facial expression, then the arguments that Hocking and Leathers apply to body behaviours, should apply equally to facial behaviours. This means that, if a deceiver stereotype can be shown to exist for facial behaviour, and if people do effectively

control facial behaviour, then, Hocking and Leathers' theory would predict facial expressions during deception to show behavioural change in the opposite direction to the type of behavioural changes associated with the deceiver stereotype.

Because there is little evidence that facial behaviours change much as a function of message veracity, it remains merely to demonstrate the existence of a stereotypic belief about a liar's facial behaviour to undermine Hocking and Leathers' theory.

Unfortunately, there have been no published studies that have adequately investigated people's beliefs about the facial behaviours exhibited by deceivers. However, there is evidence that at least some facial behaviours are believed to alter during deception. Thus, Hocking and Leathers (1980) claim that people believe deceivers show less eye contact than do nondeceivers, and Zuckerman, Koestner and Driver (1981b) found subjects believed that, compared to nondeceivers, deceivers show decreased eye contact and increased blinking and smiling.

According to Hocking and Leathers' theory, if people believe decreased eye contact and increased blinking and smiling accompany deception, then, to the extent that people can easily control these behaviours, an individual might be expected to exhibit an increase in eye contact, and a decrease in blinking and smiling, when being deceptive. The results from Zuckerman and Driver's (1985) review of the behavioural correlates of deception did not support these predictions. Thus, based on results averaged over a number of studies, eye gaze was not found to alter

during deception, and blinking was found to show a significant increase during deception. Smiling did show a tendency to decrease during deception, but this difference was not significant.

In conclusion, Hocking and Leathers' theory is not strongly supported by empirical results. However, in spite of the weaknesses of Hocking and Leathers' theory, it makes a very valuable contribution to the deceptive communication literature. That contribution consists in focussing attention on the importance of the deceiver's beliefs about deceptive behaviour in understanding the deceptive communication process.

Although at one point in their paper, Ekman and Friesen (1969) state "eye-contacts ... which deviate in duration or frequency from the norm ... can provide important deception clues, stemming from ego's ... attempt to simulate confidence and candor" (p. 97), they fail to elaborate on how ego's attempt to simulate candor must be related to ego's concepts or beliefs about which behaviours convey sincerity, and which behaviours convey insincerity to the audience.

The idea that a deceiver's beliefs about deceiver behaviour will influence the behaviours that that deceiver exhibits is an important concept, as is the idea that there exists a stereotypic notion of how a typical deceiver behaves. In fact, it is the contention of the present paper that beliefs should be an integral part of any psychological theory concerned with understanding processes of deceptive communication.

Interestingly, whenever Hocking and Leathers refer to stereotypic beliefs about deceivers, they use the term 'cultural stereotype'. This term gives a central place to a deceiver's culture in determining his or her beliefs about what kinds of behaviour constitute deceptive behaviour. However, there is only one published study that has examined people's beliefs about deception (Zuckerman et al., 1981b), and none that have investigated the effects of culture on these beliefs.

It is of note that culture also occupies a central role in Ekman and Friesen's theoretical rationale (1969). Not only did these researchers claim that "...within deceptive interactions differences in neuroanatomy and cultural influences combine to produce specific types of body movements and facial expressions which escape efforts to deceive and emerge as leakage or deception cues" (p. 88), but they also state that "...sensory differences combine with sociocultural variables to bring about differences among face, hands and feet in internal and external feedback." (p. 89) Thus, Ekman and Friesen postulate that part of the reason for the high internal and external feedback associated with the face, is that the face is a very salient and highly visible source of communication in Western culture. The feet and legs tend to be much less visible sources of information because, in Western culture, these body parts are usually hidden by clothes or underneath furniture. They also note that culturally-specific display rules govern the expression of facial affect in most interactions, and thus these rules influence how and when facial

expressions will be intensified, suppressed, neutralized or masked with a another expression. As final evidence of the importance that Ekman and Friesen attach to cultural factors in deceptive communication, it should be noted that they eliminated the data from foreign born judges in their 1974 study in case these judges "did not understand the task or employed a different set of cultural rules in interpreting nonverbal behavior." (p. 292)

As evident in the above discussion, culture plays an important role in the theories that dominate deceptive communication research. However, to date, the empirical information on the role of culture in deceptive communication consist of one published study that looked at deceptive communication in a nonWestern culture (Feldman, 1979), and an unpublished thesis, that investigated the effects of judge culture on accuracy of lie detection (Atmiyanandana, 1976). Clearly, there is a need to investigate Ekman and Friesen's (1969) claim that cultural factors influence the behaviours that accompany deceptive messages, and Ekman's (1985) claim that accuracy at detecting lies is influenced by the cultural background of the interactants.

It is also important to evaluate Hocking and Leathers' contention that people have a stereotypic notion of how deceivers behave, and investigate whether this stereotype is culturally bound, as implied by the term 'cultural stereotype'.

The importance of investigating cultural influences in deceptive communication is not just theoretical. Beliefs about

deceptive behaviours, and the behavioural cues used to assess communicator veracity could have a major impact on intercultural communication. For example, suppose behaviours associated with deception in one culture connoted something totally different in another culture. When members of these two cultural groups interacted, misattributions of deceptive intent could have a detrimental effect on communication and on intercultural relations.

The purpose of this chapter was to provide an overview of the theoretical and empirical basis of current research into deceptive communication. This area has gained considerable popularity in recent years with researchers investigating the effects of gender, age, personality dimensions such as Machiavellianism, self-monitoring, and introversion-extroversion, attractiveness of the deceiver, familiarity of communicants, type of message communicated, etc. on deceptive communication. However, in spite of its central role in Ekman and Friesen's (1969) theory of nonverbal behaviour in deceptive communication, and in Hocking and Leathers' (1980) theory of the nonverbal indicators of deception, whether or not culture has any effect on the deceptive communication process has never been established. The purpose of the present thesis is to investigate possible cultural influences in the deceptive communication process.

Chapter 3

LITERATURE REVIEW OF CROSS-CULTURAL COMMUNICATION

There are a number of reasons to suggest that the behaviours exhibited by the liar, and the strategies utilized by the lie detector may be influenced by the cultural background of the interactants. The present chapter reviews the theoretical and empirical evidence for postulating cultural influences in the deceptive communication process.

There are many ways that culture could affect both the behaviours exhibited by a liar, and judgements of sincerity by a lie detector.

For example, an individual's moral attitude towards lying; the way that an individual has learned to express emotional messages, and the individual's beliefs about the kinds of behaviours that will convey sincerity and insincerity to an audience may affect the behavioural changes that the individual will exhibit during deception.

Similarly, the behaviours that the lie detector believes indicate sincerity and insincerity (e.g., absence of eye contact is often believed to convey dishonesty); the way the lie detector interprets the liar's behaviour (e.g., poor eye contact could be interpreted to mean dishonesty, shyness or shame); the informational channels to which the lie detector primarily attends (e.g., facial expression, paralanguage), and the lie detector's

expectations concerning the probability of deception in a given situation (e.g., asking directions to a friend's house versus buying a used car); all these factors may influence a message detector's judgements of the sincerity of a message.

Three ways that culture may have an impact on a liar's behaviour will be examined in the present chapter: cultural influences in physiological, emotional, or cognitive responses to the act of lying; cultural differences in the expression of these responses, and cultural differences in beliefs about how to manage one's behaviour so as to convey an impression of sincerity.

Subsequently, four ways that an individual's cultural background could theoretically influence his or her assessment of the sincerity of a message will be reviewed. These ways include cultural differences in beliefs about how deceivers behave; cultural differences in the decoding or interpretation of emotional messages; cultural differences in the informational channels primarily used to interpret interpersonal communications; and cultural differences in the social situations in which deception is expected to occur.

The Influence of Culture on the Behaviour of a Liar

1) Cultural influences in evoked responses to lying

Is there any evidence to suggest that lying does not arouse the same responses, or at least the same magnitude of responses, in individuals from different cultural groups?

1) Culture/Ethnic differences in levels of reactive arousal

According to Zuckerman, DePaulo and Rosenthal's (1981a)

model of deceptive behaviours, lying is associated with increased levels of physiological arousal. Behavioural changes reflecting this arousal may be displayed when an individual is being deceptive. If individuals from different cultural backgrounds vary in base levels of arousal or in arousal-related responses to stressors such as lying, then the behaviours they display during deception may vary.

The psychophysiological literature suggests that individuals of different racial and ethnic backgrounds do show significant differences in basal skin impedance and in degree of galvanic skin response (GSR) to stressors; both are measures of physiological arousal.

Bernstein (1965) and Johnson and Corah (1963) found that Black American subjects had higher mean skin resistance than did White American subjects. Based on these findings, Bernstein (1965) suggests that there may be racial differences in levels of manifest arousal.

Lazarus, Tomita, Option and Kodama (1966) measured GSR while subjects viewed a stressful film. They found that Japanese subjects exhibited significantly higher GSRs while watching the stressful portions of the film than did American Caucasian subjects.

Another experiment that found evidence for ethnic differences in GSR reactivity to stress was conducted by Sternback and Tursky (1965). In this experiment, American women of Irish, Jewish, Italian or British descent were given repeated electric

shocks, and their diphasic skin potential measured over thirty trials. The results showed that the women of British descent manifested more rapid decreases in skin potential over the 30 trials than did women in the other three subject groups. This finding suggests that ethnic background can mitigate the arousal associated with the stress of repeated shocks.

With specific regard to physiological arousal associated with the stress of being deceptive, Kugelmass and Lieblach (1968) reported ethnic differences in GSR reactivity during lying. In this experiment, Kugelmass and Lieblach divided male subjects into those of Near Eastern origin (i.e., born in Iraq, Iran, or Morocco) and those of more Western origin (i.e., born in Israel, America, or Europe). Subjects performed a task that consisted of choosing one of six cards. After the card had been chosen, the experimenter asked the subject which card he had picked and the subject was required to respond negatively to all six cards. Thus responses to the relevant (i.e., chosen card) were lies; responses to the irrelevant (i.e., unchosen cards) were truths. GSR was recorded throughout the task.

The results showed no difference in GSR reactivity to the irrelevant cards in the two groups of subjects. However, subjects of Near Eastern origin showed smaller increases in GSR when lying than did subjects of Western origin. This finding suggests that ethnic background has an influence on the degree of arousal associated with deception.

Waid and Orne (1981) also report finding ethnic

differences in the accuracy with which a subject's lies can be detected during a polygraph examination. In this study, subjects were classified into German, English, Irish, Italian, Jewish and Scottish ethnic groups on the basis of their surnames. Using a standard questioning technique (i.e., Control Question Technique), subjects either responded truthfully or dishonestly to a number of interrogation questions. GSR recordings were made throughout the interrogation.

Analysis of these data showed that individuals in the Irish heritage group were significantly less likely to have their lies detected than were individuals in any of the other five subject groups. Rather than being a result of their Irish heritage per se, Waid and Orne (1981) suggest that the Irish subjects in this study displayed low GSR reactivity in response to lying because the polygrapher, like these subjects, was also of Irish descent. In other words, Waid and Orne (1981) postulated that the ethnic background of the subject and the ethnic background of the polygrapher may interact in such a way that ethnic similarity between the subject and the polygrapher may decrease the subject's GSR reactivity.

This hypothesis is consistent with the results of an earlier experiment by Rankin and Campbell (1955) in which the GSRs of Caucasian male subjects were recorded during a word-association task. The words in this task consisted of emotion-provoking terms such as 'mother' or 'flunk'. During the task, one of two examiners, one Negro and one Caucasian, touched the arm of the

subject while pretending to adjust the electrodes on the subject. Analysis of the results of this experiment showed a significantly higher mean GSR accompanying the touch of the Negro experimenter than the touch of the Caucasian experimenter. Rankin and Campbell (1955) interpreted this finding to mean that the touch of an individual of the same racial background may be less arousing than the touch of an individual of a different racial background.

Although the findings of these two studies are consistent with postulations of an interaction between ethnicity of the subject and ethnicity of the examiner in GSR reactivity, it should be noted that Wald and Orne's (1981) finding may reflect a low reactivity for subjects of Irish descent rather than an ethnic similarity with the polygrapher. Also, a study by Poirer and Lott (1967) that used more than one White and one Black experimenter, failed to replicate Rankin and Campbell's (1955) results suggesting that 'racial effect' claimed by Rankin and Campbell actually may have resulted from individual differences between the Black and White experimenters.

To summarize, the data suggest that ethnic biases in physiological responses to stress exist, and these biases may influence detectability in a polygraphic examination. However, the sparsity of empirical evidence makes any conclusions about the relationship between ethnicity and the arousal evoked by deception very tentative. Given the current controversy over the use of polygraphic examinations in both legal and employment contexts, this would seem an important question for investigation by

researchers interested in establishing the effectiveness of the polygraph as an instrument for the detection of lies. In the context of the present paper, it is sufficient to note that ethnic background may affect the degree of physiological arousal associated with the stress of being deceptive..

(i) Effects of culture on emotional responses accompanying lying

Zuckerman et al. (1981a) postulate that guilt, anxiety and duping delight are frequent emotional responses experienced by deceivers in North American culture. Is there any evidence to suggest that individuals from other cultural backgrounds experience qualitatively or quantitatively different emotional reactions to the act of telling lies?

In a book published in 1932, Larson argued that there are differences in both the frequency and the social acceptability of lying in different situations in different cultural groups. According to Larson, Samoan children are taught to lie provided they don't get caught; Navaho Indians believe their gods view deceit as a form of courage; Fiji Islanders, Marshall Islanders and Koreans all show a strong propensity to lie; Orientals value honour and harmony over truth; and Patagonians are honest among themselves but lie without hesitation to outsiders or strangers.

Cultural differences in moral attitudes towards lying in various situations have been postulated by a number of other researchers including Benedict (1959 cited in Bok, 1982), Sweetser (1987) and Westermarck (1908).

Ludwig (1965) describes the relationship of morality and

deception as follows:

"Each separate culture seems to have its own unique approach or attitude towards lying and deception, and these attitudes are usually related to the practical needs of the culture....various forms of (lying) are condoned and encouraged in one society and punished in another." (p. 15)

Because many of the behaviours that occur during deceptive communication (e.g., adaptors, increased voice pitch, etc.) result from negative affects such as anxiety or guilt being aroused in the deceptive situation, cultural differences in moral attitudes towards lying could influence affective responses to the act of telling lies. As a consequence of different emotional responses accompanying deception, different behavioural responses may be exhibited by deceivers from divergent cultural groups. For example, if Asians value social harmony over truthfulness (Larson, 1932) then lying in many social situations may not be associated with guilt. Thus if the boss asks an employee if he or she likes his idea for some new system design, an Asian may feel morally obligated to praise the idea whereas an American may feel morally obligated to alert the boss to problems in the design. If both the Asian and the American lie and simulate approval for the design, the Asian employee is apt to experience less guilt about the lie and consequently may exhibit fewer behavioural changes associated with guilt, than will the American employee. In this manner, culturally-influenced attitudes towards lying could produce different affective and behavioural responses in deceivers

from different cultural backgrounds.

Unfortunately, there are no published studies that have experimentally investigated cultural differences in the morality associated with various types of deceptive communication. There are studies that have investigated cultural differences in general morality (Rettig & Pasamanick, 1959; Snarey, 1985; Tomé, 1988), and studies that have specifically investigated the factors influencing the moral judgements of lying in American populations (Lindskold & Walters, 1983; Maier & Lavrakas, 1976; Peterson, Peterson & Seeto, 1983), but none that have specifically looked at the basis for moral evaluations of lying across different cultures. Therefore, although it is reasonable to postulate cultural differences in the emotional responses accompanying lying, little is known about the relationship between culture and moral judgements of lying and the hypothesis that culture has an impact on deceiver behaviour by influencing affective responses to lying has not been investigated.

III) Effects of culture on cognitive difficulty of lying

Whether there are cultural differences in the cognitive difficulty associated with the creation and telling of lies is not known. However, it may be that individuals from cultures that encourage or condone lying in particular social situations may become more practiced at telling lies, and therefore find lying a less cognitively difficult task than individuals from cultures in which lying is strongly condemned. Empirical data are needed before the validity of this hypothesis can be tested, but the

notion that people who lie frequently may find lying less cognitively difficult than people who rarely lie seems reasonable. Therefore, if lying is more common in some cultural groups than in others (Larson, 1932; Ludwig, 1965), there may be cultural differences in the cognitive difficulty associated with lying among members of these cultural groups.

In summary, there exists little empirical data that directly address the question of whether or not the act of lying elicits different responses in individuals from divergent cultural backgrounds. However, an assessment of the available evidence suggests that the hypothesis that culture can influence the physiological arousal, emotional responses and cognitive difficulty evoked by the act of engaging in deceptive communication is a tenable one.

Apart from influencing responses evoked by lying, a second way that culture may affect the behaviours exhibited by a deceiver is by influencing the expression of these responses.

11) Cultural Influences in expression of the arousal, emotional and cognitive responses evoked by deception

Regardless of whether deception is associated with the same physiological, emotional and/or cognitive responses in different cultures, the behavioural expression of these responses may vary across cultural groups. Thus, for example, individuals from two different cultures may experience the same level of guilt when telling a lie, but because of culturally-based differences in the way guilt is behaviourally encoded, or because of differences

in cultural rules governing the manner in which guilt is displayed or exhibited in public, the two individuals may express their feelings of guilt through very different behaviours.

There is some evidence that people from divergent cultural groups differ in the way they communicate messages nonverbally.

Argyle (1975) asked English, Italian and Japanese subjects to exhibit the appropriate facial expressions for a variety of emotions, and then, using photographs of these posed expressions, asked judges from these three cultural groups to identify the emotion being expressed. The results showed that Englishmen and Italians could recognize each other's facial expressions equally well, but could not recognize the emotion being expressed by the Japanese subjects. Interestingly, even the Japanese judges identified the facial expressions of the Englishmen and Italians better than those of the Japanese. This finding suggests that Japanese do not express facial emotions as distinctly or effectively as do English or Italian individuals.

Differences in patterns of eye gaze have also been reported in various cultures.

Hall (1966) found that eye gaze during conversation differed between Arabs and Americans, and between Englishmen and Americans. Argyle (1975) found that Arab subjects looked at each other longer, and more directly than did Japanese subjects. LaFrance and Mayo (1976) reported that Black Americans look at the listener more when speaking than when listening, whereas White Americans look more when listening than when speaking.

Other examples of cultural differences in patterns of eye gaze include claims that Navaho Indians teach their children not to gaze directly at another person during conversation (Hall, 1963); that Japanese people avoid direct eye contact while conversing (Morsbach, 1973, cited in Argyle & Cook, 1976); and that the Mende of Sierra Leone continually avert their gaze during conversation (Argyle & Cook, 1976).

In addition to cultural variation in facial expression and eye gaze, differences have been found in other behaviours as well. Watson (1970) studied nonverbal behaviours during conversation between male Arabs, Latin Americans, Southern Europeans, Asians, Indians, and Northern European students. He found that Arabs, Latin Americans and Southern Europeans tended to orient themselves more directly, gaze at each other longer, and touch each other more, than did Asians, Indians and Northern Europeans.

Cultural differences in vocal expression of emotion have also been reported.

In a study of the encoding and decoding of emotional expression in paralanguage, McCluskey and Albas (1981) had Mexican and Canadian subjects vocally express happiness, sadness, love and anger. High frequency sounds were filtered out of these messages in order to obscure the actual words, and then these messages were rated by both Mexican and Canadian judges. Interestingly, both Mexican and Canadian judges were more accurate at identifying the emotion being expressed by the Mexicans than by the Canadians. This finding suggests that Mexicans may be better vocal encoders

of emotion than Canadians.

The results of the aforementioned studies support the existence of culturally-based differences in the behavioural encoding or transmission of emotional messages. Although some of the cultural variability is due to differences in the behaviours used to express specific emotional messages (e.g., North Americans say 'no' by shaking their heads sideways whereas East Indians say 'yes' by this same gesture), culturally-specific display rules and norms about which and when nonverbal behaviours should be masked, intensified, attenuated, or displayed contribute to these differences as well.

At present, there is a lack of experimental data on cultural differences in the control or management of nonverbal expression. However, there is some evidence that people from different cultural groups believe they control their nonverbal behaviours more or less successfully. In an experiment by Scherer, Summerfield and Walbott (1983), English people claimed to control the expression of positive emotion to a greater extent than was claimed by French, West German, Italian or Swiss people. Also, compared to subjects from southern Europe, subjects from northern Europe reported having better control of negative emotions.

Other examples of cultural differences in behavioural control have also been reported. For instance, Japanese frequently inhibit facial expressions of emotion (Argyle & Cook, 1976). As a consequence of this facial inhibition, Japanese tend

to show little reliance on facial-visual channels in the encoding or decoding of messages (Argyle & Cook, 1976). Italians and Greeks, on the other hand, are less likely to inhibit emotional expression, and are said to be very facially expressive (Argyle, 1975). Feldman (1979) suggests that Koreans control their facial expressions more than Americans, and Morsbach (1973, cited in Feldman, 1979) maintains that control over both verbal and nonverbal channels of communication is the norm in many Oriental cultures.

It should be noted here that this concept of cultural differences in behavioural control is an integral part of Ekman and Friesen's (1969) theory of deceptive communication. According to their theory, culture plays an important role in determining the degree of internal and external feedback associated with the different nonverbal channels. As a function of cultural differences in these two feedback systems, various behaviours may be differentially controllable among members of different cultural groups.

Intimately related to controllability of communication channels is the notion of culturally specific display rules. A number of researchers (e.g., Ekman, 1977; Boucher, 1977 cited in Feldman, 1979) claim that there are culturally specific rules governing the manner, degree and situation in which various emotional responses can be expressed. According to Ekman and Friesen (1975), display rules determine whether an affect display is intensified, de-intensified, neutralized or masked with a

covering affect. The specific display rules that operate on a given affect are culturally determined.

In support of this hypothesis, Ekman, Friesen and Ellsworth (1982) cite a study in which they showed emotionally arousing films to American and Japanese subjects who were either alone, or in the presence of a higher status individual. Analysis of subjects' facial expressions during the films showed no significant differences between Japanese and American facial expressions when alone. However, when subjects were in the presence of a high-status, culturally homogeneous interrogator, Japanese but not American subjects masked expression of negative emotions with a polite smile. According to Ekman et al. (1982), this masking of negative emotional displays is consistent with Japanese display rules, and supports the notion that the expression of emotions is influenced by the display rules of the culture.

To summarize, there is substantive evidence for postulating cultural differences in the nonverbal behaviours used to communicate emotional messages. Note that this does not imply that there are not universal expressions of emotion but rather that there are nonverbal behaviours that appear to be universal as well as nonverbal behaviours that exhibit a high degree of cultural variation (e.g., Eibl-Eibesfeldt, 1972; Ekman, 1971).

The basis for this cultural variation in nonverbal behaviour may be differences in expressing various emotions, differences in proficiency at behavioural control, or differences in cultural

rules for the public display of specific emotions. In any case, these data suggest that deceivers from different cultural groups may not exhibit the same behavioural changes even if the act of lying elicits the same arousal, emotional and cognitive responses in these individuals.

III) Effects of culture on beliefs about deceiver behaviour

Apart from influencing the responses initially evoked by lying, and the behavioural expression of these responses, an individual's cultural background could influence his or her beliefs about behavioural cues to deception. In other words, the behaviours that a deceiver may attempt to inhibit, simulate or mask will reflect his or her beliefs about the types of behaviours that convey sincerity and insincerity to the audience.

This position has been advocated by some researchers. For example, Ramsey (1979) states "People have quite precise opinions about what others will 'do' when verbally lying; about which nonverbal behaviours are easy and difficult to fake, and about which subjects lies are most often told. Such determinations seem to arise through experience, and are therefore culturally influenced." (p. 111)

Unfortunately, the specific hypothesis that beliefs about deceivers' behaviours are culturally specific has never been empirically investigated. Hocking and Leathers (1980) postulate the existence of a cultural stereotype of deceiver behaviour, and their theory is based on the premise that liars control the behaviours that they believe indicate deception to the audience.

However, Hocking and Leathers failed to examine either of these premises in their study, never having established the existence of a cultural stereotype of deceiver behaviour in their own subjects.

DePaulo, Stone and Lassiter (1985) refer to individuals' beliefs about a deceiver's behaviour by the term 'cultural stereotype', but also fail to provide any experimental or empirical evidence to support the existence of such a stereotype.

In fact, to date, there are no published studies that specifically have examined stereotypes of deceivers' behaviours cross-culturally. However, it should be noted that in a study by Watson (1970), subjects from a variety of different cultural backgrounds were asked how they would perceive someone who did not maintain sufficient eye contact during social interactions.

Interestingly, in spite of the differences in the actual amount of eye gaze that occurred between members of these different cultural groups, subjects all believed that too little eye gaze was a sign of insincerity, dishonesty or shyness. This finding suggests that low eye contact during interactions may be universally associated with deception. Whether other behavioural changes are also universally associated with deception or specific to certain cultural groups remains to be established.

In summary, there are three ways that culture can influence the behaviours exhibited by a deceptive individual. First, the arousing, emotional or cognitive responses evoked by lying may vary depending on cultural attitudes concerning the frequency and acceptability of lying in various situations.

Second, behavioural expression of the responses evoked by lying may vary in different cultures and may be influenced by cultural norms governing the manner and degree of emotional displays that can be expressed in various social situations.

Third, cultural stereotypes concerning the types of behaviours that liars typically exhibit may influence the behaviours an individual attempts to mask, attenuate, intensify or simulate while dissembling.

Apart from influencing the behaviour of a deceiver, culture may have an impact on deceptive communication by influencing an individual's perceptions and assessments of a communicator's sincerity.

Influence of Culture on the Lie Detector's Behaviour

There are at least four ways that an individual's cultural background could influence his or her judgements of the sincerity of another person.

1) Effects of culture on beliefs about deceivers' behaviours

Just as an individual's beliefs about how deceivers behave may influence the behaviours he or she exhibits when lying, these same beliefs may influence how the individual judges the sincerity of another. In other words, if Hocking and Leathers are correct in suggesting that stereotypic beliefs about liars' behaviours are culturally specific, then lie detectors from different cultures may look for, and utilize different behavioural cues when judging the sincerity of a given message. For instance, individuals from one culture may associate a long pause before responding with

deceptive intent, whereas individuals from another culture may associate short pause before responding with deceptive intent.

Although there are no published studies on strategies of lie detection in different cultural groups, Zuckerman, Spiegel, DePaulo and Rosenthal (1982) investigated lie detection strategies within a group of American subjects. In this experiment, videotapes of speakers presenting emotional messages were edited to eliminate verbal information, and then the taped segments were recombined such that different channels of information (i.e., the face, body and voice of speakers) expressed discrepant emotional messages. Subjects were shown these tapes and asked to determine the emotion being experienced by the videotaped speakers. Some of the judges expected the speakers to be lying frequently and other judges did not expect the speakers to be lying at all.

The results showed that subjects who expected the speakers to be lying tended to utilize information from the body or the vocal channels in determining speakers' emotional states. Subjects who did not expect the speakers to be lying tended to rely on facial information in determining speakers' emotional states. This finding suggests that judges who expected speakers to be lying preferentially attended to different channels of information than did judges who did not expect the speakers to be lying. In other words, judges appear to employ a strategy in situations involving possible deception such that facial information is discounted, and vocal and bodily behaviour used as the basis for inferring the truth. This strategy may reflect the

belief that facial behaviour is easily controlled by deceivers but vocal and bodily behaviours are not. Whether individuals from different cultural groups would employ this same strategy is not known, but if there are cultural differences in beliefs about deceiver behaviour then it is likely that lie detectors from different cultures would utilize different strategies in assessing the sincerity of a given message.

II) Effects of culture on decoding emotional messages

A second way that culture could influence an individual's assessments of message sincerity is by influencing the way that he or she interprets or decodes nonverbal behaviour. Individuals from different cultural backgrounds do not necessarily decode or interpret behaviours similarly, and therefore, when assessing the sincerity of a message, individuals from divergent cultural groups may interpret a communicator's behaviour quite differently. For example, Adams (1957) reports that the same tone of voice that is perceived as sincere by Egyptians, is perceived as belligerent by Americans. Thus, vocal tones that communicate sincerity to an Egyptian judge may not communicate sincerity to an American judge. In this way, cultural differences in interpretations of a communicator's behaviour may lead judges to arrive at different conclusions regarding a communicator's sincerity.

III) Effects of culture on attention to information channels

A third way that people from diverse cultural backgrounds could differ in their perceptions and judgements of message sincerity is for these individuals to attend preferentially to

different informational channels. In other words, lie detectors could have similar beliefs regarding the types of behavioural changes that accompany deception, and could interpret nonverbal behaviour in a similar manner, but if they attend to, or focus on, different sources of information in a message, they may still differ in their judgements of message sincerity.

For example, Japanese are reported to inhibit facial expression of emotion, and consequently, may pay little attention to the face during interactions. Italians and Greeks, on the other hand, are very facially expressive and pay close attention to facial information during social interactions (Argyle, 1975). If a Japanese and an Arab were assessing the sincerity of a communicator, the Arab judge may focus attention on the communicator's face to a much greater extent than would the Japanese judge. As a consequence of this differential attention, the two judges would not be using the same information in making judgements about the communicator, and could arrive at different conclusions.

IV) Effects of culture on expectations of deception

A fourth way that culture could influence a person's assessment of deceptive messages is by influencing his or her beliefs regarding the occurrence of deception in different contexts. In other words, a lie detector's expectations of deception in a given situation could influence his or her judgements of message veracity. If an individual comes from a culture in which truth-telling is highly revered, then he or she

may be more trusting and less on guard against deception than an individual who comes from a culture in which lying, at least in certain contexts, is an expected behaviour.

There is some evidence that judges' expectations of deception can influence their perceptions of deception. In an experiment by Toris and DePaulo (1985) it was found that interviewers who expected interviewees to be lying tended to perceive both honest and dishonest interviewees as being more deceptive than did interviewers not expecting deception.

Kraut (1978) also found that altering judges' expectation of deception had a significant effect on judges' ratings of communicator sincerity. In this experiment, observers who were suspicious of the veracity of an interviewee's answer (i.e., the answer was obviously the answer that the interviewer wanted to hear), and who heard a long pause preceding the response, tended to judge the response as being dishonest. However, observers who were not suspicious of the veracity of an interviewee's answer (i.e., the answer was obviously not the answer that the interviewer wanted to hear), and who heard a long pause preceding the response, tended to judge the response as being honest. In other words, the same behaviour was interpreted differently depending on whether the judge expected the response to be honest or dishonest. Thus, these results support the contention that a judge's expectations of deception can influence his or her assessment of a communicator's sincerity. Whether or not cultural groups differ in their general suspiciousness of deception in

different situations is not known but if so, this is another way that cultural factors could influence assessments of the sincerity of a communicator.

The above discussion has outlined how culture can influence the encoding and decoding of nonverbal and vocal behaviours, and suggests ways that cultural factors could have an important impact on deceptive communication.

If culture does influence patterns of deceptive communication in one or more of the ways suggested above, under what circumstances would one expect communication to be maximally disrupted?

Two theories of interpersonal communication address this issue. One theory focuses on the homogeneity of the communicants, and the other theory focuses on cultural differences in sensitivity to nonverbal communication.

Regarding the issue of homogeneity of communicants, Rogers and Shoemaker (1971) suggest that communication is maximally effective if the source of the message and the receiver of the message are homophilous. (Homophilous interactants are defined as interactants who share a subcultural language with common meanings, and have similar beliefs, values and social characteristics.) The more heterophilous the message source and the message receiver, the less effective the communication. According to Rogers and Shoemaker (1971), communicants who do not share a common cultural background tend to be highly heterophilous making effective communication problematic.

LaFrance and Mayo (1978) also believe that the cultural background of interactants can have important implications for accurate communication. They divide a communicative message into two components; a report component and a command component. The report component refers to the content of the message, and the command component refers to how the content is to be interpreted. For interactants from different cultural groups, the report and command components of a message may be mutually shared; the report component of a message may be the same, but the command component may differ (e.g., a head nod may have one meaning in Culture A, and a totally different meaning in Culture B); the report component of the message may differ but the command component be the same (e.g., a North American may signal agreement by a downward head nod whereas an East Indian may signal agreement by shaking his head sideways); or both the report and command component of a message may be dissimilar. Obviously, interactants who share a common language and paralinguistic will communicate much more accurately and effectively than will interactants who do not speak the same language or do not use paralinguistic in the same manner.

There is some empirical evidence to support the contention that the decoding of nonverbal behaviour is more accurate if the interactants are culturally and linguistically similar. Izard (1971) had Americans facially encode a number of emotions and then tested 592 judges from nine cultural groups (i.e., American, English, German, French, Swiss, Swedish, Greek, African and Japanese) for recognition of the encoded expression. Although

Judges from all nine national groups scored well above chance on this task, there were significant differences in accuracy rates among the different cultural groups. Mean accuracy scores for African subjects were significantly lower than the mean accuracy scores for all other groups combined. The Japanese subjects were significantly less accurate at recognizing the facial expressions than nearly all the Western cultural groups, and the Greeks scored significantly lower on the test than did the Americans. These findings suggest that culturally and linguistically homogeneous judges were better at decoding the facial expressions of the Americans than were culturally and linguistically heterogeneous judges.

In addition to facial expression, an effect of cultural homogeneity of interactants on accurate decoding of nonverbal behaviour has been found for paralinguistic cues as well. In an experiment investigating cultural differences in the ability to detect simulated emotions in vocal channels, Albas, McClusky and Albas (1976) had Anglo Canadian and Cree Indians make audio tapes simulating happiness, sadness, love and anger. These tapes were electronically filtered to remove the verbal content, and then played for other Anglo Canadian and Cree subjects. Analysis of the results revealed a culture of speaker by culture of listener interaction; members of both cultural groups identified the simulated emotions better if the encoder was from the same cultural group as the decoder than if the encoder was from the alternate cultural group. Thus, these findings support the

contention that judges are more accurate at decoding emotional messages by culturally homogeneous senders than by culturally heterogeneous senders.

In an experiment examining cultural differences in the decoding of both corporal and paralinguistic cues, Rosenthal and his colleagues also reported evidence that cultural similarity between the source and the receiver of a message led to increased accuracy in decoding nonverbal behaviours (Rosenthal, Hall, DiMatteo, Rogers & Archer, 1979). In this experiment, individuals in 20 different countries were compared on the accuracy with which they could interpret nonverbal expressions of emotion. The test used in this experiment was the Profile of Nonverbal Sensitivity (PONS) and consists of a film showing an American female expressing a variety of different emotions. The audio portion of this film was either electronically filtered or randomly spliced in order to remove the verbal content.

Analysis of the results showed that nonAmerican individuals were less accurate at decoding nonverbal behaviours than were American individuals. In addition, the variation in the ability of the nonAmerican groups to label correctly the emotions being expressed was a function of how culturally and linguistically similar each group was to the Americans. (For this analysis, cultural similarity was defined on the basis of scaled ratings by anthropologists and laypersons in different countries, and by rankings of the national groups with respect to their linguistic proximity to the English used by the encoder.) In other

words, national groups that spoke English or languages similar to English (e.g., German, Dutch or Swedish), scored higher on the PONS than did national groups whose languages were dissimilar to English (e.g., Chinese, Hebrew, or Turkish). There was also a significant correlation between score on the PONS and ratings of cultural similarity to Americans.

The aforementioned studies support the hypothesis that homogeneity of interactants increases the effectiveness of communication such that judges are more accurate at decoding emotional messages when the encoder is from a similar cultural background as themselves. Whether cultural similarity plays the same role in deceptive communication is unknown. However, it is noteworthy that Ekman (1985) maintains that accurate lie detection is easier if the lie detector and the liar share the same cultural background than if they come from divergent cultural or linguistic backgrounds.

Although there is evidence for an influence of cultural homogeneity of interactants on the effectiveness of communication, the findings of other cross-cultural studies can not be interpreted solely on this basis.

In a study whose results were described earlier in this chapter, Argyle (1975) had English, Italian and Japanese subjects facially encode emotions, and then tested identification of these facial expressions in English, Italian and Japanese subjects. Consistent with the cultural homogeneity hypothesis, the Japanese subjects were more accurate than either the English subjects or

the Italian subjects at identifying facial expressions of the Japanese encoders. Also consistent with the cultural homogeneity hypothesis, the English and Italian subjects identified emotional expressions better than the Japanese subjects if the encoder was either English or Italian. However, contrary to the cultural homogeneity hypothesis, English, Italian and Japanese subjects all recognized the facial expression of English and Italian encoders better than the expressions of the Japanese encoders.

This last finding indicates that the Japanese may be less facially expressive than English or Italian individuals, and suggests that there may be cultural differences in the encoding of emotional expression that are distinct or separable from effects relating to cultural homogeneity of communicants.

Not only are there cultural differences in the encoding or sending of emotional messages, there is also empirical evidence of cultural differences in the general ability to decode or interpret emotional expression.

In an experiment investigating the accuracy with which Northern and Southern Italians could recognize facial expressions, Giovanni and Picci Bitti (1981) found that Southern Italians identified facial expressions better than did Northern Italians, regardless of whether the target photograph was of a Northern or a Southern Italian. On the basis of these results, these researchers suggested that the Southern Italians were more sensitive to facial expression than were the Northern Italians. In other words, their results support an effect of culture on the

decoding of facial expression. Contrary to the cultural homogeneity hypothesis, there was no evidence of any interaction of culture of subject by culture of target in this experiment.

A main effect of culture on accuracy of decoding facial expression was also found in an experiment by Dickey and Knower (1941). In this experiment, the ability of Mexican and American children to identify emotional expression in American faces was examined. The results revealed that Mexican children identified the expressed emotions better than did American children. Dickey and Knower concluded that the Mexican children were more sensitive decoders of facial cues than were the American children. This finding is in direct contrast to that predicted by a cultural homogeneity hypothesis.

In addition to sensitivity to the decoding of facial expression, there is also evidence for a cultural effect in general sensitivity to paralinguistic communication.

An experiment by McCluskey and Albas (1981) compared Mexican and Canadian subjects for their accuracy at decoding emotions expressed in content-filtered speech. The results showed that Mexicans were superior to Canadians in accurately decoding the paralinguistic cues present in both the Mexican and Canadian speech samples. Emotional expression by the Mexican encoders were judged more accurately by both Canadian and Mexican subjects suggesting that Mexicans also may be more accurate paralinguistic encoders of emotion than are Canadians.

To summarize, there is good evidence that cultural

differences exist in the use of nonverbal communication, and that the extent to which these differences affect communication effectiveness is influenced by the cultural proximity of the source and receiver. There is also evidence that suggests that general cultural differences exist in the intensity with which emotions are expressed, and in sensitivity to nonverbal communication.

Although little research has addressed this issue, there is some evidence that these factors may also play a significant role in the decoding and encoding of nonverbal cues in deceptive communication. |

In an experiment that investigated lying in Korean students, Feldman (1979) had subjects lie about their liking for a disagreeable drink. Feldman found that first-grade males and females, seventh-grade males, and college-aged males and females were successful at convincing a panel of judges that they really liked the drink. These findings are in contrast to the results of an earlier experiment that used American subjects and a similar methodology (Feldman, Jenkins & Poopola, 1979). The results of this previous experiment showed that first-grade males and females were not able to lie successfully on this task, but seventh-grade and college-aged subjects were able to lie successfully.

Feldman (1979) suggests that these contradictory results reflect the fact that Koreans learn to control and manage nonverbal behaviour at an earlier age than do Americans. Because these results are from two different experiments, any conclusions

regarding cultural differences in the deceptive ability of American and Korean children are tentative. However, these results do suggest the existence of cultural differences in deceptive communication.

The effect of cultural proximity on the ability of subjects to detect lying in American speakers was examined in a experiment by Atmiyanandana (1976). In this experiment, silent videotapes of truthful and deceptive speakers were shown to American, Latin American and Asian subjects. Atmiyanandana hypothesized that subjects would be increasingly accurate at detecting deceit as a function of their cultural similarity to the American speakers. Therefore, American subjects were predicted to be the most accurate judges of deception; Latin Americans the next most accurate; and Asians, the least accurate judges of deception.

The results of this experiment did not support the cultural similarity hypothesis in that Asian; Latin American and American judges did not differ significantly in their accuracy at detecting lies by American speakers. However, consistent with the hypothesis, Asians did detect slightly fewer lies than did the Latin American and American subjects. Perhaps this trend would have reached significance if not for a number of procedural flaws in the design of the experiment.

One of the most important problems with the design of this experiment was the failure to include within-culture comparison groups for the Latin American and Asian subjects. Because there is no same-culture base rate with which to compare the accuracy

scores of Latin American and Asian subjects. It is impossible to determine if these subjects would have been more accurate had the speakers been from the same cultural background as themselves.

Another problem with this experiment was that Atmiyanandana eliminated all vocal and verbal cues from the taped messages. Because important cultural differences may occur in the decoding of paralinguistic and linguistic cues, cultural differences in detecting deception in the speakers' messages may have been lost by the elimination of these cues.

It is unfortunate that Atmiyanandana's experiment is so flawed because it is the only one to date that has attempted to examine the cultural homogeneity hypothesis in a deceptive communication context. The question of whether cultural factors have an impact on deceptive communication, and if so, whether cultural homogeneity is related to the encoding and decoding of deceptive messages is an important one. If cultural factors are found to influence deceptive communication, this could have important implications for intercultural communication in terms of a diminished ability to assess the sincerity of a culturally-heterogeneous communicator. Given the theoretical and practical implications of this question, and given the unsubstantiated claims of cultural effects in the deceptive communication literature, the present thesis is an empirical attempt to explore the question of whether cultural factors play a role in deceptive communication. Specifically, the present investigation examines the following questions:

1. Do individuals from different cultural backgrounds have different attitudes and beliefs concerning deceptive communication?
2. Do interactants from different cultural backgrounds behave differently when telling lies?
3. Do interactants from different cultural backgrounds perceive or judge the sincerity of communicated messages differently?
4. Are lie detectors who are culturally similar to the communicator better at detecting lies than lie detectors who are culturally dissimilar to the communicator?

In order to investigate these questions, members of two distinct cultural groups, Anglo Canadians and Chinese were asked to participate in research concerning deceptive communication. These two cultural groups were chosen as subjects for this investigation partly because their linguistic and cultural dissimilarity to each other was expected to maximize differences in patterns of nonverbal communication; partly because Chinese visa students comprise the largest population of overseas students on campus making them a highly accessible group; and partly because the Chinese are one of the largest ethnic groups in Canada and therefore a clearer understanding of the factors influencing effective communication between Canadians and Chinese could have important implications for Canadian society. Furthermore, there are a number of reasons to expect Anglo Canadians and Chinese to show significant differences in situations involving deceptive

communication. For instance, in general, North Americans view lying in interpersonal interactions as a negative behaviour (Maier & Lavrakas, 1976). However, it has been reported that Chinese place less value on honesty in interpersonal interactions than on social harmony (LaBarre, 1946, Ludwig, 1965). As a consequence of differential attitudes towards lying, it may be that the act of lying does not entail the same levels of guilt or anxiety for Chinese individuals as for Canadians.

There is also some evidence that Chinese do not utilize nonverbal behaviour in the same way as do North Americans. For example, Chinese are said to express anger by narrowing the eyes, whereas Americans show the opposite effect when angry (Chan, 1979 cited in Boucher, 1982). Orientals also are reported to control nonverbal and verbal behaviour to a greater extent than do North Americans (Morsbach, 1973 cited in Feldman, 1979). These cultural differences in nonverbal and verbal behaviour during nondeceptive communication suggest the possibility of similar differences occurring during deceptive communication.

One other way that Chinese and Canadian interactants may differ in the encoding and decoding of deceptive messages is in their use of the different information channels.

Hall (1976) categorizes cultures as high context cultures or as low context cultures, on the basis of whether verbal or nonverbal communication tends to predominate in the culture. High context cultures are cultures in which much of the information in a message is implicit in the physical context of the interaction

or in the interactants themselves. Thus, little of the informational content of the message is contained in the verbally-coded explicit part of the message. Examples of high context cultures include Japanese, Chinese and Korean cultures.

Low context cultures are cultures in which most of the information of a communicated message does reside in the explicit verbally-coded part of the message. Examples of low context cultures include North American, German, Swiss and Scandinavian cultures.

It is possible that, depending on whether they are from a high or low context culture, individuals may preferentially attend to verbal or nonverbal channels during social interactions. In other words, individuals from high context cultures (e.g., Chinese) value nonverbal skills and therefore, during interactions, may focus attention on nonverbal communication channels (Okabe, 1983). In fact, both Hall (1976) and Hsu (1981) have noted that the Chinese tend to rely more on nonverbal channels of communication than on the verbal one.

Individuals from low context cultures (e.g., Canadians) tend to value verbal skills in communication, and, consequently, may be more attentive to the verbal channel during communication than are individuals from high context cultures.

Because of general differences in the use of verbal and nonverbal information channels during nondeceptive communication, Canadians and Chinese may show differences in their use of communication channels during deceptive communication.

In conclusion, there are a number of reasons to expect Canadians and Chinese individual to show differences in their encoding and decoding of deceptive messages. There is evidence to suggest that Canadians and Chinese have different moral attitudes towards lying; that Canadians and Chinese show differences in nonverbal behaviour; and that Canadians and Chinese differ in their emphasis on verbal and nonverbal information channels.

In order to investigate whether Canadian and Chinese individuals actually do differ in their attitudes towards lying, or in their beliefs about the kinds of behavioural changes that accompany lying, a questionnaire was administered to a sample of Canadian and Chinese respondents. The results of this questionnaire study are presented in Chapter 4.

Chapter 4

ATTITUDES AND BELIEFS ABOUT DECEPTION: A QUESTIONNAIRE STUDY

In the present chapter, attitudes towards lying and beliefs about the behaviour of deceivers are examined in a sample of Canadian and Chinese individuals. Specifically, the purpose of this study was to ascertain whether Canadians and Chinese differ in their attitudes towards lying or in their beliefs about the behavioural concomitants of deceptive communication. If Canadian and Chinese cultures differ in their moral attitudes towards deception in different situations, then the act of lying may arouse differential degrees of guilt, anxiety, or other deception-related emotions in individuals from these two cultural backgrounds. In turn, this differential affective response to lying, could mean that the act of deception elicits, and is accompanied by, different behavioural cues in members of these two cultures.

Is there any evidence that Canadians and Chinese have different attitudes towards lying?

Although experimental data are lacking on this point, there is evidence that Chinese have a different general attitude towards honesty than do Canadians. Whereas North Americans generally condemn lying (Linskold & Walters, 1983; Maier & Lavrakas, 1976), historically, Chinese culture has placed more emphasis on social harmony and individual dignity than on absolute

truth (Ludwig, 1965; Smith, 1895; Williams, 1898; Westermarck, 1908). In fact one author, W. LaBarre, goes so far as to argue that lying is an accepted part of social communication among the Chinese. "A scrupulous fidelity to the truth - which many people have argued is the indispensable foundation of any society - is simply absent among the Chinese. The lie, and not merely the social lie, is a legitimate weapon in man's interpersonal relationships" (1946, p. 378).

If lying is less of a moral wrong in Chinese culture than in Canadian culture, lying may be accompanied by less guilt and/or anxiety in Chinese than in Canadians. Also, a less moralistic attitude towards lying could mean that Chinese lie more often in social interactions than do Canadians. Increased practice at lying could decrease the cognitive difficulty associated with the act of deception in Chinese deceivers. If either or both of these conjectures are true, then a deceptive Chinese individual may not exhibit the behavioural cues associated with the emotional response of guilt or with the increased cognitive difficulty frequently associated with lying in North American culture.

In addition to differences in emotional responses to lying, and in the cognitive difficulty associated with lying, Canadians and Chinese may differ in their beliefs about how deceivers behave. According to Hocking and Leathers (1980), an individual's beliefs about the behaviours that accompany deception are important in determining the nonverbal behaviours that individual will exhibit during deception. In their words, the

liar will attempt to control "those nonverbal behaviours that he/she believes to be important defining features of the cultural stereotype for deceivers" (Hocking & Leathers, 1980, p.122).

If Canadians and Chinese have different beliefs about the behavioural concomitants of lying, then deceptive Canadian and Chinese individuals may attend to, and attempt to control, different aspects of their behaviour. Thus, due to differential behavioural control as opposed to differential emotional arousal, Canadians and Chinese may exhibit different behavioural changes when telling lies.

Different beliefs concerning the behavioural cues that indicate lying may also cause Canadians and Chinese to look for, and to use different behavioural changes when assessing a communicator's sincerity. If Canadians and Chinese have different beliefs about what constitutes deceptive behaviour, then individuals from these two cultural groups may perceive the same communicator as being more or less sincere depending on how the communicator's behaviour is assessed in relation to these beliefs.

Whether Canadians and Chinese have stereotypical beliefs about how a person behaves when being deceptive has not been investigated. However, there is some evidence that Americans, at least, do have a stereotypic concept about how a typical deceiver behaves.

In a 1980 paper by Hocking and Leathers, the results of a study are described in which American students were surveyed regarding their beliefs about the types of behaviours exhibited by

deceivers. Using an adjective check-list comprised of 45 nonverbal behaviours, respondents were asked to check any of the 45 behaviours that they believed were exhibited by a typical deceiver. The results showed that, in general, people do have a stereotypic conception of how a person behaves when being deceptive. (Hocking and Leathers define stereotypes as sets of labels used to single out an individual as sharing assumed biosocial, personality and behavioural characteristics on the basis of group membership, p. 122). The most salient feature of this 'deceiver' stereotype was that deceivers were believed to exhibit higher levels of activity than nondeceivers. Thus liars were seen as engaging in more hand-to-face gestures, nervous fidgeting, foot and leg movements, eye movements, licking lips and eye twitching than truth-tellers. Eye contact was the only behaviour believed to decrease significantly during deception.

Evidence supporting the existence of a 'deceiver' stereotype was also found in a study by Zuckerman, Koestner and Driver (1981b). In this study, subjects were asked to rate how 19 different behaviours changed as a function of insincerity on the part of the communicator. The results of this study showed that subjects believed that 17 of these behaviours changed significantly when a person was being deceitful. Thus pupil size, rate of blinking, smiling, frequency of head movements, shrugs, adaptors, foot and leg movements, postural shifts, latency to respond, length of response, rate of speech, speech errors and hesitations, voice pitch, irrelevant information and frequency of

self-references were all rated as increasing during lying. Eye contact was rated as decreasing significantly during lying. The only two behaviours not expected to alter systematically during deception were hand gestures and frequency of negative statements.

The fact that subjects, regardless of gender or whether asked about their own behaviour or the behaviour of others, consistently chose these 17 behaviours as changing during deception, and as changing in the same direction (i.e., 16 increasing in frequency and 1 decreasing in frequency) suggests that these subjects shared a common conception about how engaging in deceit influences a person's nonverbal and verbal behaviour. Thus these subjects, like the subjects described in the Hocking and Leather paper, believe that the act of lying is associated with behavioural changes on the part of the deceiver, and that these behavioural changes are in the direction of increased movement and activity on the part of the deceiver. Their conception of a liar is consistent with the belief that lying is an arousing, emotional and cognitively difficult task.

Although the results of these two studies provide support for the contention that people have a stereotypic concept or image of the kinds of behaviours that will be exhibited by a deceptive communicator, the exact nature of this stereotype is unclear. It may be that the subjects in these studies do share a stereotypic belief about the specific behavioural correlates of lying. Alternatively, it may be that subjects merely share a more general belief that lying is associated with increases in overall

movement. In other words, subjects may be rating nearly all the behaviours as showing increased movement during deception, regardless of what the behaviour is, or they may in fact be agreeing about the specific behavioural changes that accompany deception.

One way to investigate the specificity of this deceiver stereotype is to test whether or not individuals' conceptions of deceptive behaviour vary as a function of the type of deceptive situation. If subjects' beliefs about a liar's behaviour vary across different deceptive situations but still show consistency across subjects, then this is evidence that individuals possess a fairly specific stereotype of deceptive behaviours, and that this stereotype is sensitive to environmental constraints.

In order to ascertain whether or not 'deceiver' stereotypes exist in Canadian and Chinese cultures, and if so, whether these stereotypes vary as a function of the type of deceptive situation, subjects in the present study were asked to rate how a deceiver's behaviour changes when telling two different types of lies; an unplanned or spontaneous lie, and a planned or premeditated lie.

It should be noted here that, although researchers have suggested that beliefs about deceiver behaviour may vary depending on the type of deceptive situation involved (Zuckerman et al., 1981b), and although there is evidence that planning a lie affects both the types of behaviours that are exhibited by the deceiver (Miller, deTurck & Kalbfleisch, 1983; Greene, O'Hair, Cody & Yen,

1985; O'Hair, Cody & McLaughlin, 1981), and the accuracy with which lies can be detected (Littlepage & Pineault, 1985), to date, there exist no empirical data on the influence of planning on people's beliefs about deceptive behaviours. Therefore, in addition to assessing moral attitudes towards lying, a second purpose of the present study was to determine if Canadians and Chinese have stereotypic expectations concerning how deceivers behave, and to investigate whether people's beliefs about deceiver behaviour vary depending on whether the deceiver is presenting a prepared or a spontaneous message.

Once it is determined whether Canadians and Chinese have stereotypic concepts of how deceivers behave, and whether these stereotypes vary depending on whether the lie is preplanned or spontaneous, then Canadian and Chinese concepts of deceptive behaviours in the two situations can be compared. Finally, the question of whether individuals from these two cultures have different beliefs about the kinds of behavioural changes that typically accompany deception can be addressed.

One other question related to subjects' beliefs about deceptive behaviours was investigated in the present study. This question concerns which behavioural cues are believed to be the best indicators of the fact that a given communicator is being deceptive.

It is important to note that this question is distinct from the question of the degree to which behaviours are believed to alter during deception. Although some behaviours may be

expected to change significantly during deception, these behaviours may also show frequent changes in situations other than ones involving deception. As a consequence, these behaviours may not be good cues to use when assessing the sincerity of a communicator's message.

On the other hand, a very small change in some behaviours may be very good indicators of the occurrence of deception. For example, a brief smile while telling a coworker how badly you feel about his losing out on a promotion may represent a very small change in behaviour but still be a good sign of the insincerity of your expressed sentiment.

Because the magnitude of behavioural change is not necessarily related to perceptions of communicator deception, it is important to identify the behavioural cues subjects believe should be used in making judgements of a speaker's sincerity; how these behaviours relate to the behaviours that are expected to alter the most during deception; and whether Canadian and Chinese individuals believe that the same behavioural cues are important in judging a communicator's sincerity.

To summarize, the purpose of the present study was to investigate and compare Canadian and Chinese moral attitudes towards lying, and to examine these individuals' beliefs about the kinds of behaviours exhibited by deceptive communicators. Specifically, this study addresses the following three questions:

1. Do Chinese believe lying to be less of a moral wrong than do Canadians?

2. Do Canadians and Chinese believe that deceptive communicators behave differently than sincere communicators, and if so, do these beliefs constitute a cultural stereotype of deceiver behaviour?

3. Do Canadians and Chinese believe that the act of engaging in deception influences communicators in a similar manner, and what behaviours do they believe are the best cues to use in assessing the sincerity of a communicator?

Method

Subjects

Ninety-two Canadian students (38 males; 54 females) and 75 Chinese students (35 males; 40 females) participated in the study. All the Canadian and 60 of the Chinese subjects were first and second year university students who received class credit for their participation. The remaining 15 Chinese subjects were visa students from a Hamilton high school who volunteered to participate in the study. All the Canadian subjects were born and raised in Canada, and spoke English as their primary language. All the Chinese subjects were born in Hong Kong or Singapore, spoke Cantonese as their primary language, and English as a second language. All Chinese subjects had been in Canada less than four years.

The mean age of the Canadian students was 19.7 years. The mean age of the Chinese students was 20.2 years. Chinese subjects had lived in Canada an average of 3.1 years.¹

Materials

Preliminary questionnaire

In order to determine which, if any, behavioural cues are

believed to be associated with deception in Canadian and Chinese cultures, a preliminary survey involving 12 Canadian (4 male; 8 female) and 12 Chinese (5 male; 7 female) university students was conducted. These 24 individuals were requested to fill out a short questionnaire consisting of the following three open-ended questions: Which, if any, behaviours do you expect to alter when a person tells a lie; What do you do so as to appear to be telling the truth when in fact you're telling a lie; and Which behaviours do you think are the most important to attend to and control when a person wants to avoid being caught telling a lie?

Responses to these questions indicated that the respondents did believe that certain behavioural changes occur when people tell lies. Also, although Canadians reported nearly twice as many behaviours as being associated with lying as did Chinese, the responses of both groups indicated a belief that liars show general increases in body movement, and tend to act nervous or ill at ease when lying.

Both on the basis of the responses to these questions, and the behaviours found to be related to deception in the lie detection literature, a total of 34 behaviours were chosen for inclusion in the main questionnaire study.

This preliminary questionnaire also included a section asking the respondents to read 23 different scenarios and rate the likelihood of each of these situations arising in the respondent's homeland. Because the purpose of these scenarios was to assess

individuals' attitudes towards lying in various situations, it was important to establish whether or not these situations were plausible in both Canadian and Chinese cultures.

Although the results of the preliminary survey showed that 6 of the 23 scenarios were rated as slightly less likely to occur by Chinese respondents than by Canadian respondents, only one of the scenarios was rated as being unlikely to occur overall. As this particular scenario was rated as equally unlikely to occur by both Canadian and by Chinese respondents, and was aimed at assessing individuals' attitudes towards a very specific and unusual type of lie (i.e., a lie in which an innocent person lies in order to divert punishment from the guilty parties to himself), it was decided to retain this scenario in the final questionnaire in spite of its perceived rarity of occurrence. (Refer to Situation 'U' in the copy of the main questionnaire found in Appendix A.) All 23 scenarios were retained in the main questionnaire.

Main questionnaire

The main questionnaire contained five main sections.

The purpose of the first section was to acquire information about the respondent's age, sex, religion, languages spoken, place of birth and other such demographic characteristics. Chinese students were also asked to indicate their proficiency in reading, writing and speaking English.

The second section of the questionnaire contained a list of 34 verbal and nonverbal behaviours. Respondents were asked to

indicate on a 9-point scale the degree to which each of these behaviours alters when a person is telling a lie as opposed to when he or she is telling the truth. All 34 behaviours were rated twice; once for a person telling a spontaneous lie, and once for a person telling a prepared lie. The goal of having these behavioural changes rated separately for spontaneous and for prepared lies was three-fold.

First, categorizing lies as spontaneous or prepared was intended to give respondents some structure regarding the type of deceptive situation involved. Other studies that have had respondents rate the behavioural changes that accompany lying, (e.g., Hocking & Leathers, 1980; Zuckerman et al., 1981b), have not specified the types of lies or the kinds of deceptive situations involved. The complete lack of information about the type of lie allows respondents to imagine a wide range of deceptive situations when deciding whether or not any specific behavioural changes will accompany a deceptive message. Such an unstructured approach to investigating beliefs about deceptive behaviours may be one reason that respondents tend to expect most of the target behaviours to alter during deception. If respondents are reading each target behaviour and then rating that behaviour based on whether they can imagine situations in which that behaviour could be associated with deception, there may be very few behaviours that might not be expected to occur in one situation or another. By categorizing lies as either spontaneous or prepared, at least some of the variability arising from this

source may be eliminated.

The second reason for having respondents rate behavioural changes separately for spontaneous and planned lies was to determine whether respondents have stereotypic beliefs about how an individual behaves when telling a lie, and if so, whether these stereotypes differ for different types of deception.

The third reason for categorizing lies with respect to amount of planning was to assess the kinds of behavioural changes people believe are both controllable and controlled by a liar. In other words, a comparison of the behavioural changes expected to accompany planned lies with the behavioural changes expected to accompany unplanned lies reflects individuals' beliefs about the behaviours that liars attend to, and/or practice controlling when given the opportunity to prepare their messages.

The third section of the questionnaire asked respondents to choose, in order of importance, the 10 behavioural cues that are most useful in determining whether someone is telling a lie. The purpose of this question was to investigate whether Canadian and Chinese individuals have the same beliefs regarding the behavioural cues that should be used in making assessments of message veracity. As in the second section of the questionnaire, respondents were asked to choose these behaviours twice: once for spontaneous lies, and once for prepared lies.

The fourth section of the questionnaire investigated Canadian and Chinese moral attitudes towards lying in a variety of social contexts. This section presented respondents with 23

scenarios in which a male actor told a lie. Subjects were asked to read these scenarios and, using a 9-point scale, assess both the acceptability of the lie, and the likelihood of someone actually lying in that situation. In each of the scenarios, a male actor deliberately lied to a family member, a friend or acquaintance, or a stranger. The lie either benefitted this other person at cost to the liar (i.e., an altruistic lie), or benefitted the liar at cost to the recipient of the lie (i.e., a selfish lie). None of the lies caused more than minor harm to any of the individuals in the scenario.

The final section of the questionnaire sought to assess general attitudes towards lying, and to determine how frequently lying is thought to occur in daily social interaction. To this end, subjects were asked to answer the following four questions:

1. How right or wrong is lying in general?
2. How necessary is it to lie in everyday social life?
3. How frequently do you tell lies?
4. How frequently do other people tell lies?

(A copy of the questionnaire is included in Appendix A.)

Procedure

Subjects were asked to fill out a questionnaire concerning their attitudes and beliefs about lying. The questionnaires were administered in small groups of three to twelve individuals. Canadian and Chinese subjects participated in separate groups.

All subjects were instructed to answer the questions with reference to members of their own cultural group. Both Canadian

and Chinese subjects completed the questionnaires in English. The only difference between Canadian and Chinese versions of the questionnaire was that the names of the male actors in the 23 scenarios were typical Canadian names for the Canadian subjects (e.g., Ben, Jack, Terry), and Chinese names for the Chinese subjects (e.g., Kwok-To, Luk-Nai, Ka-Fai).

The entire questionnaire took approximately one hour to complete. Completion time did not differ appreciably for Canadian and Chinese subjects.

Results and Discussion

Magnitude of Behavioural Changes Believed to Accompany Deception

Do respondents believe that specific behavioural changes occur when a person is telling a lie?

To determine which, if any, behavioural changes are believed to occur during deception, a series of one-sample t-tests were conducted. Mean ratings of the amount of change expected in each of the 34 target behaviours were tested against hypothesized means of 5, (i.e., on a 9-point scale, a rating of 5 indicates no increase or decrease in the behaviour is expected to accompany deception). Because multiple testing can result in inflated alpha levels, an experimentwise alpha level of .05 was maintained for each set of hypotheses by using the Bonferroni method of alpha adjustment (Bird, 1975; Ramsey, 1982). This procedure adjusts the alpha level for each hypothesis according to the number of hypotheses being tested; (i.e. in the present analysis, the appropriate alpha level is $.05 / 34$). Tests were conducted

separately for planned and unplanned lie conditions, and for Canadian and Chinese samples.

The results for behavioural changes expected during unplanned lies are presented in Table 1.

In the unplanned lie condition, Canadians rated all 34 behaviours as changing significantly during deception. Except for voice strength and eye contact which were expected to decrease during lying, all other behaviours were rated as showing a significant increase in occurrence when an individual was lying.

The Chinese respondents rated 25 of the 34 behaviours as changing significantly during an unplanned lie. Of these 25 behaviours, eye contact was rated as decreasing in occurrence during spontaneous lies, whereas the remaining 24 behaviours were rated as increasing during deception.

Results for the behavioural changes expected to accompany planned lies are presented in Table 2.

In the planned lie condition, Canadians rated 21 out of the 34 behaviours (i.e., 62%) as changing significantly when a person tells a planned lie. With the exception of eye contact, all these behaviours were expected to increase in occurrence.

Chinese respondents in the planned lie condition rated 2 of the 34 target behaviours (i.e., 6%) as changing significantly when an individual tells a planned lie; use of 'illustrators and rate of speaking. Both of these behaviours were expected to increase if a person was telling a planned lie.

It is evident from these results that both Canadian and

Table 1

Behaviours Rated as Changing Significantly during Unplanned Lies

Behaviour	Canadian Mean	t(91)	Chinese Mean	t(74)
Pupil size	5.9	6.26*	5.3	1.42
Smiling	5.8	3.65*	5.2	.65
Blinking	6.6	9.94*	6.0	4.33*
Twist hair	6.9	11.70*	5.7	3.17
Perspire	7.6	17.45*	6.0	4.37*
Body adaptors	7.0	13.96*	6.4	7.00*
Turn away	7.5	16.39*	6.6	7.66*
Change position	7.2	15.76*	5.9	3.93*
Bite nails	6.6	9.49*	6.0	5.07*
Illustrators	6.2	6.97*	6.0	4.18*
Response length	6.6	6.71*	5.6	1.84
Voice pitch	6.6	10.98*	5.2	.88
Ahs and uhms	7.6	18.83*	6.5	6.68*
Use wrong words	7.2	17.39*	6.7	7.60*
Speech rate	6.2	5.78*	4.5	2.18
Bite/Lick lips	6.6	9.99*	6.0	4.92*
Shifty gaze	7.5	16.93*	6.7	8.66*
Eye contact	2.6	12.60*	3.8	4.28*
Wrinkle forehead	5.7	5.69*	5.5	2.52
Cover mouth	5.8	6.60*	5.8	4.05*
Flush	7.4	17.58*	6.5	6.58*
Scratch	6.3	9.39*	5.8	3.88*
Object adaptors	6.9	14.57*	6.6	7.93*
Head movement	6.3	7.55*	6.0	5.32*
Lean away	6.7	12.42*	6.0	5.11*
Body movements	7.0	12.51*	6.0	4.78*
Hand movements	7.0	15.27*	6.3	5.98*
Response latency	7.2	12.12*	6.3	5.67*
Pauses	7.3	15.71*	6.4	6.21*
Voice strength	3.5	6.62*	4.8	.69
Stuttering	6.7	8.72*	5.8	4.04*
Foot movements	6.8	12.19*	6.1	5.15*
Joking	6.1	5.40*	4.6	1.64
Cough/Swallow	7.2	15.54*	6.4	6.40*

* significant using a Bonferroni adjustment for multiple tests;
alpha = .05. Means are tested against a hypothesized mean of 5.0.

Table 2

Behaviours Rated as Changing Significantly during Planned Lies

Behaviour	Canadian Mean	t(91)	Chinese Mean	t(74)
Pupil size	5.4	3.83*	4.8	1.31
Smiling	5.3	1.58	5.5	2.13
Blinking	5.6	4.76*	5.1	.52
Twist hair	5.7	5.00*	5.3	1.44
Perspire	6.9	15.12*	5.3	1.53
Body adaptors	6.0	7.10*	5.3	1.32
Turn away	5.8	4.19*	4.9	.22
Change position	5.9	5.22*	5.2	1.26
Bite nails	5.6	3.35*	4.8	.93
Illustrators	5.6	3.79*	5.9	3.59*
Response length	5.2	.73	4.8	.68
Voice pitch	5.3	2.46	5.5	2.08
Ahs and uhms	5.1	.37	4.8	1.06
Use wrong words	5.0	.14	4.5	2.29
Speech rate	5.6	3.40*	5.6	3.43*
Bite/Lick lips	5.5	3.65*	5.0	.35
Shifty gaze	6.0	6.17*	5.0	.20
Eye contact	4.0	4.62*	5.2	1.03
Wrinkle forehead	5.0	.54	5.0	.40
Cover mouth	5.2	2.40	4.6	2.09
Flush	6.0	6.89*	5.4	2.04
Scratch	5.7	5.84*	5.0	.30
Object adaptors	6.1	8.49*	5.3	1.54
Head movement	5.3	2.15	5.1	.69
Lean away	5.8	5.89*	5.2	1.14
Body movements	5.5	2.90	5.2	1.01
Hand movements	5.5	4.22*	5.1	.39
Response latency	4.6	1.92	4.8	1.08
Pauses	4.9	.81	4.8	.94
Voice strength	5.0	.32	5.1	.72
Stuttering	5.2	1.31	5.2	.93
Foot movements	5.9	7.69*	5.0	.24
Joking	5.8	4.79*	5.6	2.66
Cough/Swallow	6.0	6.80*	5.2	1.38

* significant using a Bonferroni adjustment for multiple tests;
alpha = .05

Chinese respondents believe that specific behavioural changes accompany the presentation of deceptive messages.

Do beliefs about deceivers' behaviours vary as a function of whether the deceptive message is planned or unplanned?

In terms of the total number of behaviours expected to alter during deception, both Canadian and Chinese respondents rated more behaviours as changing during unplanned lies than during planned lies. Thus 13 of the 34 behaviours that Canadians rated as changing significantly during unplanned lies were not rated as changing significantly during planned lies. These 13 behaviours are smiling, length of response, voice pitch, filled pauses (i.e., ahs and umhs), use of incorrect words, wrinkling of the forehead, covering mouth, head movements, body movements, latency to respond, silent pausing, voice strength, and stuttering. The impact of planning on Canadian respondents' beliefs about the behavioural changes that accompany deception was to decrease the number of changes expected by approximately 37%. Planning had no effect on the direction of behavioural change (i.e., increase or decrease in occurrence) expected for any of these behaviours.

Chinese respondents also rated more behaviours as changing significantly during unplanned lies than during planned lies. Thus 25 behaviours were rated as changing significantly during unplanned lies but only 2 were rated as changing significantly during planned lies. One of these 2 behaviours, illustrators, was one of the 25 behaviours expected to show a significant increase

during unplanned lies. The other behaviour, speech rate, was expected to alter significantly only during planned lies. The impact of planning on Chinese respondents' beliefs about the behavioural changes that accompany deception was to decrease the number of changes expected by approximately 68%.

Apart from the question of whether the magnitude of behavioural changes expected for planned and unplanned lies differs, a separate question is whether the pattern of behavioural changes differs in these two conditions. To examine the similarity in the patterns of behavioural changes for planned and unplanned lies, a Pearson product-moment correlation coefficient, r , was calculated using the mean behavioural ratings for planned and unplanned lie conditions. Responses by Canadian and Chinese subjects were analyzed separately.

Figure 1 shows profiles of Canadian subjects' ratings of the amount of change in each behaviour during unplanned and planned lies. Canadian subjects' ratings of the behavioural changes that occur in unplanned lies are significantly and positively correlated with their ratings of the behavioural changes that occur in planned lies, $r(32) = .56$ $p < .01$.

Therefore, although Canadian respondents expect deceivers telling planned lies to exhibit fewer and smaller behavioural changes than deceivers telling unplanned lies, they expect the same basic pattern of behavioural changes to accompany these two types of lies.

Figure 2 shows profiles of Chinese subjects' ratings of

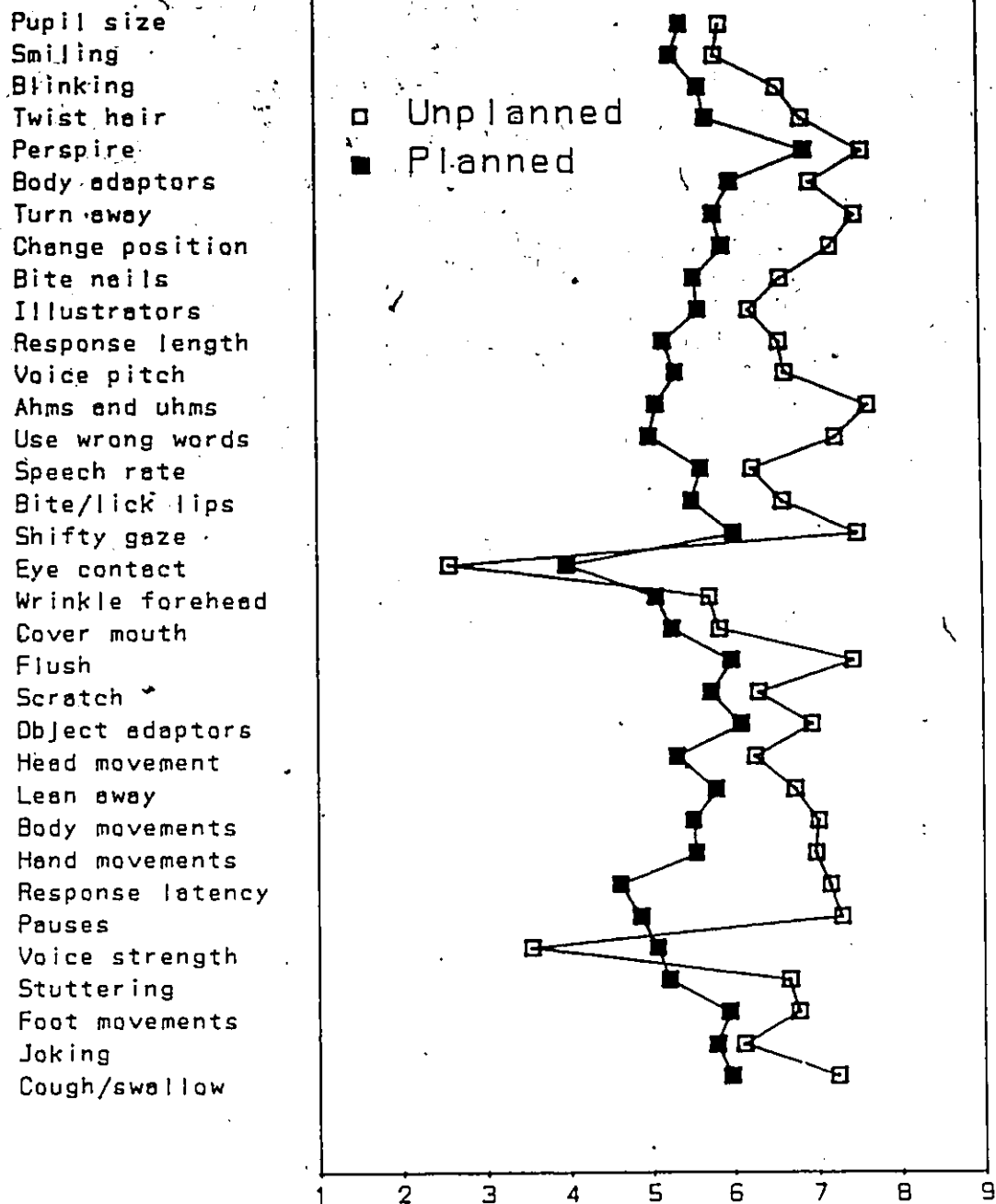


Figure 1. Canadian respondents' expectations of changes in behaviour during unplanned and planned lies.

the amount of change in each behaviour during unplanned and planned lies. Chinese subjects' ratings of the behavioural changes that occur during unplanned lies are significantly and negatively correlated with their ratings of the behavioural changes that occur during planned lies, $r(32) = -.36, p < .05$. In other words, Chinese respondents, unlike Canadian respondents, rated the pattern of behavioural changes that accompany planned lies as differing significantly from the pattern of behavioural changes that accompany unplanned lies. Thus the behavioural changes that are expected to accompany unplanned lies have a slightly inverse relationship to the behavioural changes that are expected to accompany planned lies.

How do the behavioural changes expected by Canadian respondents compare to the behavioural changes expected by Chinese respondents?

In terms of the specific behaviours that are believed to alter significantly during deception, Chinese respondents expected deceivers to exhibit fewer and smaller behavioural changes than did Canadian respondents. Thus, Canadians rated all 34 behaviours as changing significantly during unplanned lies. Chinese rated only 25 of these behaviours as changing significantly during unplanned deception. Unlike the Canadians, Chinese respondents did not expect unprepared deceivers to show changes in pupil size, smiling, twisting hair, response length, voice pitch, speech rate, wrinkling forehead, voice strength, or joking.

In the planned lie condition, a similar pattern emerged.

Pupil size
Smiling
Blinking
Twist hair
Perspire
Body adaptors
Turn away
Change position
Bite nails
Illustrators
Response length
Voice pitch
Ahms and uhms
Use wrong words
Speech rate
Bite/lick lips
Shifty gaze
Eye contact
Wrinkle forehead
Cover mouth
Flush
Scratch
Object adaptors
Head movement
Lean away
Body movements
Hand movements
Response latency
Pauses
Voice strength
Stuttering
Foot movements
Joking
Cough/swallow

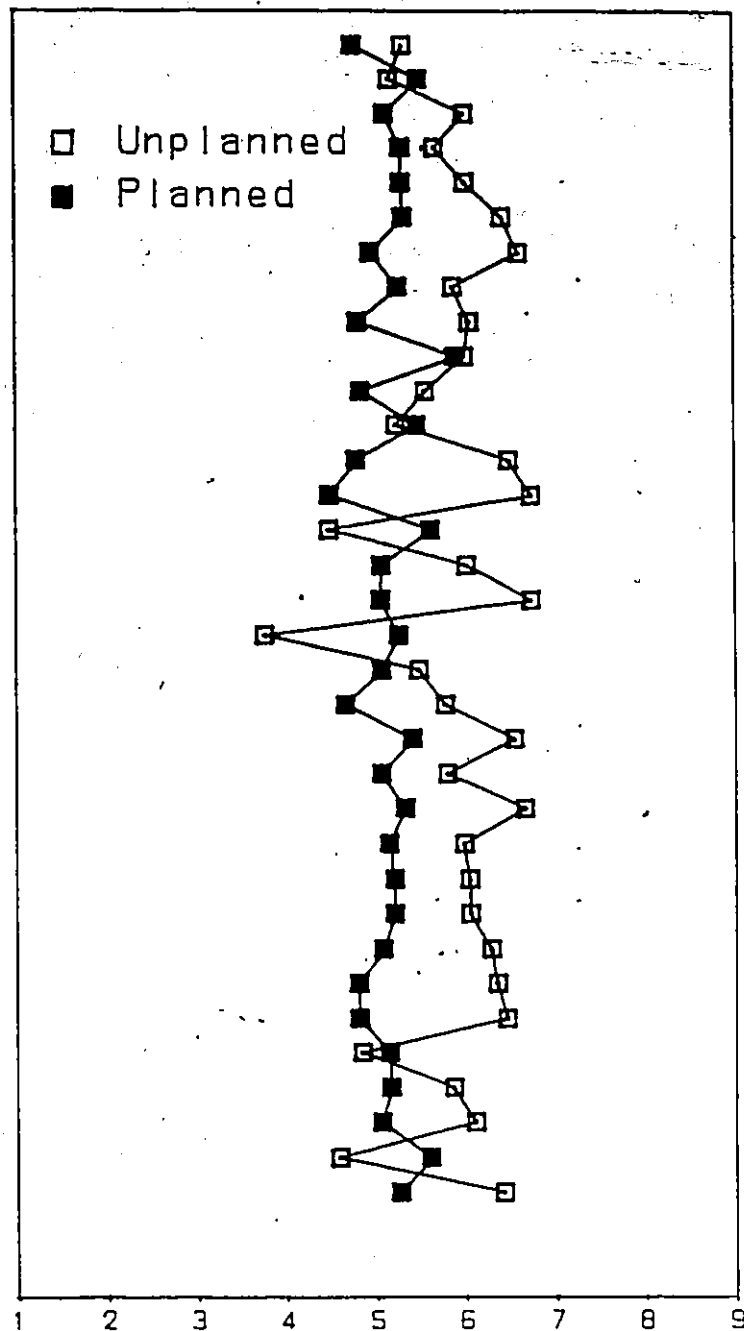


Figure 2. Chinese respondents' expectations of changes in behaviour during unplanned and planned lies.

Canadians rated 21 behaviours as showing significant changes during deception. Chinese respondents rated 2 behaviours as changing significantly during planned deceptive messages. Therefore, unlike the Canadians, Chinese respondents did not expect prepared deceivers to exhibit changes in pupil size, blinking, twisting hair, perspiring, body adaptors, turning away, changing positions, biting nails, biting lips, shifting gaze, eye contact, flushing, scratching, object adaptors, leaning away, hand movements, foot movements, joking and coughing/swallowing.

Global comparisons of Canadian and Chinese subjects' ratings of the 34 behaviours for unplanned and planned lies were conducted using Hotelling's T^2 tests. (Hotelling's T^2 is a multivariate analysis which compares two groups on a linear combination of dependent variables.)

Based on a linear combination of the 34 behaviours, the Hotelling's T^2 showed a significant difference between Canadian and Chinese subjects' ratings of the behavioural changes that occur during spontaneous lies, $F(34,132) = 4.52, p < .001$.² To examine which of the 34 behaviours are contributing to this significant effect, univariate t-tests were conducted for each of the individual behaviours. Because multiple testing can result in inflated alpha levels, alphas for each t-test were adjusted using Bonferroni's procedure to maintain an overall alpha level of .05.

The results of the 34 t-tests are presented in Table 3.

As can be seen in this table, Canadian and Chinese mean responses differed significantly for 13 of the 34 target.

Table 3

Canadian and Chinese Ratings of the Behavioural Changes Accompanying
Unplanned Lies

Unplanned Lie Behaviours	Canadian	Chinese	t(165)	p
Pupil size	5.9	5.3	2.25	.026
Smiling	5.8	5.2	1.88	.063
Blinking	6.6	6.0	2.11	.036
Twist hair	6.9	5.7	4.61	.000 *
Perspire	7.6	6.0	5.88	.000 *
Body adaptors	7.0	6.4	2.23	.027
Turn away	7.5	6.6	3.59	.000 *
Change position	7.2	5.9	5.27	.000 *
Bite nails	6.6	6.1	2.02	.045
Illustrators	6.2	6.0	0.80	.424
Response length	6.6	5.6	2.75	.007
Voice pitch	6.6	5.2	4.97	.000 *
Ahs and uhms	7.6	6.5	4.55	.000 *
Use wrong word	7.2	6.7	2.02	.045
Speech rate	6.2	4.5	5.47	.000 *
Bite/Lick lips	6.6	6.0	2.28	.024
Shifty gaze	7.5	6.7	3.17	.002
Eye contact	2.6	3.8	-3.54	.001 *
Wrinkle forehead	5.7	5.5	1.11	.270
Cover mouth	5.8	5.8	0.35	.727
Flush	7.4	6.5	3.47	.001 *
Scratch	6.3	5.8	2.16	.032
Object adaptors	6.9	6.6	1.24	.216
Head movement	6.3	6.0	1.16	.248
Lean away	6.7	6.0	2.95	.004
Body movements	7.0	6.0	3.63	.000 *
Hand movements	7.0	6.3	2.94	.004
Response latency	7.2	6.3	2.83	.005
Pauses	7.3	6.4	3.19	.002
Voice Strength	3.5	4.8	-3.89	.000 *
Stuttering	6.7	5.9	2.82	.005
Foot movement	6.8	6.1	2.67	.008
Joking	6.1	4.6	4.70	.000 *
Cough/Swallow	7.2	6.4	3.27	.001 *

* significant at alpha = .05 using a Bonferroni adjustment for multiple tests.

behaviours. These behaviours included perspiring, speech rate, changing position, voice pitch, joking, twisting hair, use of ahs and uhms, voice strength, body movements, turning away, eye contact, flushing and cough/swallow. For all 13 of these behaviours, Canadians rated the behaviours as changing more (i.e., as increasing or decreasing more) during a spontaneous lie than did Chinese respondents.

A profile of Canadian and Chinese ratings of behavioural changes as a function of unplanned deception is shown in Figure 3.

From this figure, it is apparent that subjects in both groups expect the occurrence of most of the behaviours to increase when a person is telling a lie. It is also clear that Canadian and Chinese individuals have similar beliefs concerning the general pattern of behavioural changes that accompany unplanned deception. Thus the five behaviours that Canadians rated as showing the most change during unplanned lies include increased use of ahs and uhms during speech, increased perspiring, decreased eye contact, increased shifting of gaze, and increased turning away from the audience. For the Chinese group, the five behaviours expected to change the most during unplanned lies include increased frequency of incorrect words, increased shifting of gaze, increased frequency of object adaptors, increased turning away and flushing.

The similarity in these lists is evident. Of the five behaviours expected to show the largest magnitude of change during spontaneous lies, Canadian and Chinese chose four that were very

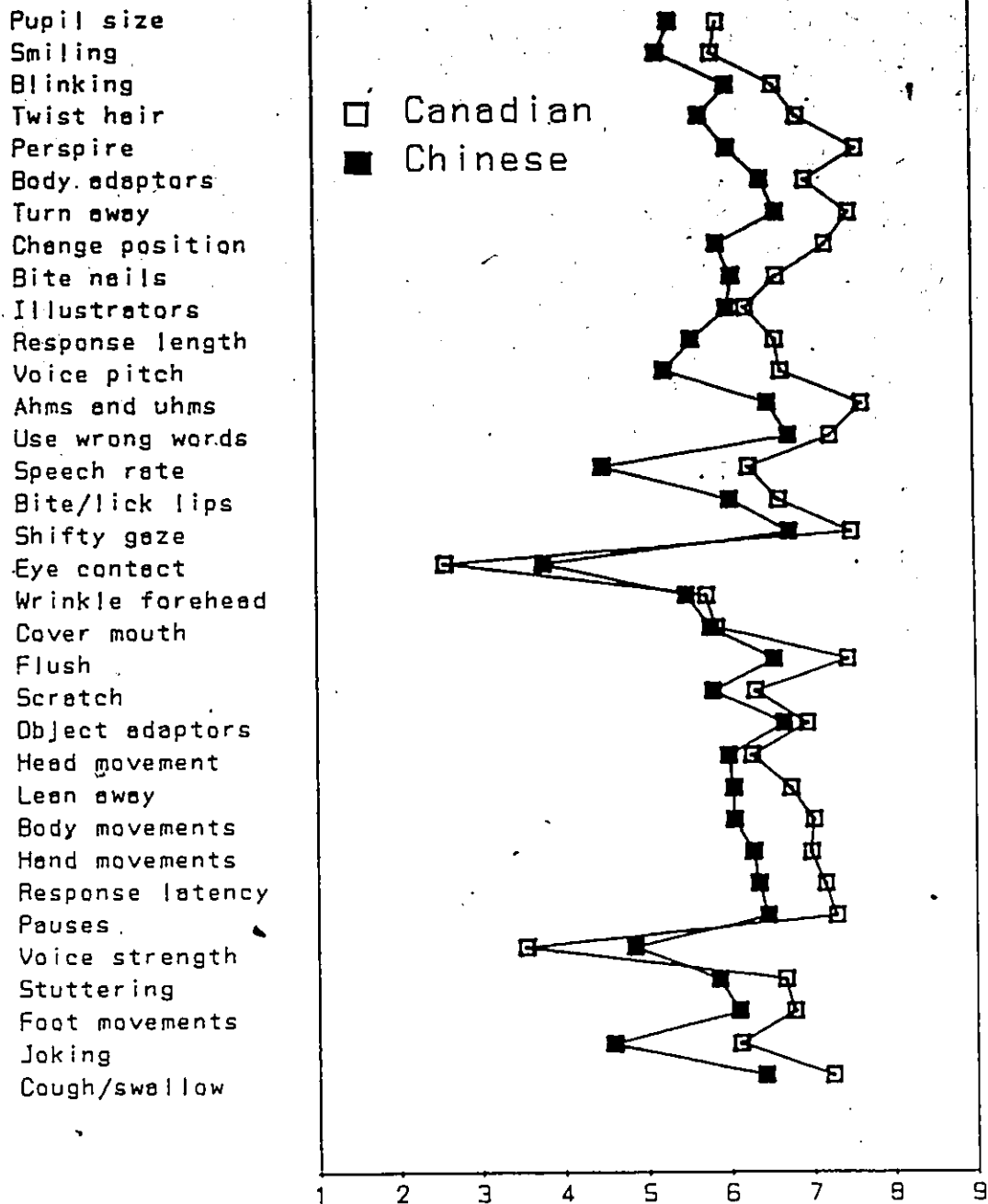


Figure 3. Canadian and Chinese respondents' expectations of changes in behaviour during unplanned lies.

similar to each other. Thus these cultural groups chose two identical behavioural cues (i.e., shifting gaze and turning away), a physiological cue (i.e., perspiring and flushing, respectively), and a speech disturbance cue (i.e., ahs and uhms, and use of incorrect word) as changing the most during an unplanned lie.

In order to compare the pattern of behavioural changes expected by Canadian and Chinese respondents during unplanned lies, a Pearson's r statistic was computed. The results of this analysis were significant, $r(32) = .81$, $p < .01$, indicating that Canadian and Chinese ratings of the behavioural changes that accompany unplanned lies are highly similar (i.e., 66% of the variance in pattern of responses is common in the two cultures).

To summarize, Canadians expect more behaviours to alter as a function of unplanned deception, and they expect larger changes in these behaviours than do the Chinese. However, it is clear that Canadian and Chinese individuals believe that, in general, people show similar types of behaviours when presenting unplanned deceptive messages.

Turning to the planned lie condition, analysis based on a linear combination of the 34 behaviours showed a significant difference between the Canadian and Chinese responses, $F(34,132) = 3.15$, $p < .001$. Post hoc univariate t-tests, using Bonferroni-adjusted alpha levels, revealed that 5 of the 34 behaviours were rated significantly differently by Canadian and Chinese respondents. (Refer to Table 4) These five behaviours included perspiring, shifting gaze, eye contact, object adaptors

Table 4

Canadian and Chinese Ratings of the Behavioural Changes Accompanying Planned Lies

Planned Lie Behaviours	Canadian	Chinese	t(165)	p
Pupil size	5.4	4.8	3.18	.002
Smiling	5.3	5.5	-0.73	.465
Blinking	5.6	5.1	2.19	.030
Twist hair	5.7	5.3	1.69	.093
Perspire	6.9	5.3	7.21	.000 *
Body adaptors	6.0	5.3	2.65	.009
Turn away	5.8	5.0	2.83	.005
Change position	5.9	5.3	2.46	.015
Bite nails	5.6	4.8	2.83	.005
Illustrators	5.6	5.9	-1.00	.318
Response length	5.2	4.8	1.00	.320
Voice pitch	5.3	5.5	-0.57	.571
Ahs and uhms	5.1	4.8	1.07	.285
Use wrong word	5.0	4.5	1.79	.076
Speech rate	5.6	5.6	0.08	.939
Bite/Lick lips	5.5	5.1	2.16	.032
Shifty gaze	6.0	5.0	3.72	.000 *
Eye contact	4.0	5.2	-3.92	.000 *
Wrinkle forehead	5.1	5.1	0.01	.995
Cover mouth	5.2	4.7	3.15	.002
Flush	6.0	5.4	2.51	.013
Scratch	5.7	5.1	3.21	.002
Object adaptors	6.1	5.3	3.37	.001 *
Head movement	5.3	5.1	0.73	.465
Lean away	5.8	5.2	2.86	.005
Body movements	5.5	5.2	1.24	.217
Hand movements	5.5	5.1	2.26	.025
Response latency	4.6	4.8	-0.64	.520
Pauses	4.9	4.8	0.17	.866
Voice Strength	5.1	5.1	-0.31	.758
Stuttering	5.2	5.2	0.18	.857
Foot movement	5.9	5.0	4.48	.000 *
Joking	5.8	5.6	0.73	.468
Cough/Swallow	6.0	5.3	3.09	.002

* significant at alpha = .05 using a Bonferroni adjustment for multiple tests.

and foot movements. For all five of these behaviours, Canadian respondents rated the behaviours as showing more absolute change during planned lies than did Chinese respondents.

A profile of Canadian and Chinese ratings of behavioural changes as a function of planned deception is shown in Figure 4.

It is clear from this profile, that Canadian and Chinese beliefs concerning the behavioural changes that occur during planned lies are less similar than their beliefs about the behavioural changes that occur during unplanned lies. Thus, the five behavioural changes that Canadians rated as altering the most during planned lies included increased perspiring, increased body adaptors, increased shifting of gaze, decreased eye contact, and increased object adaptors. These behaviours are ones primarily associated with increased levels of guilt and anxiety on the part of the deceiver.

The five behavioural changes that Chinese rated as altering the most during planned lies included increased smiling, increased illustrators, decreased use of incorrect words, increased rate of speaking, and increased joking. These behaviours tend to be associated more with decreased levels of cognitive difficulty and increased levels of behavioural control than with feelings of guilt and anxiety on the deceiver's part. These behaviours also tend to facilitate social interaction and may reflect the importance the Chinese attach to social harmony.

A Pearson's r was used to correlate Canadian and Chinese ratings of the behavioural changes that accompany planned lies.

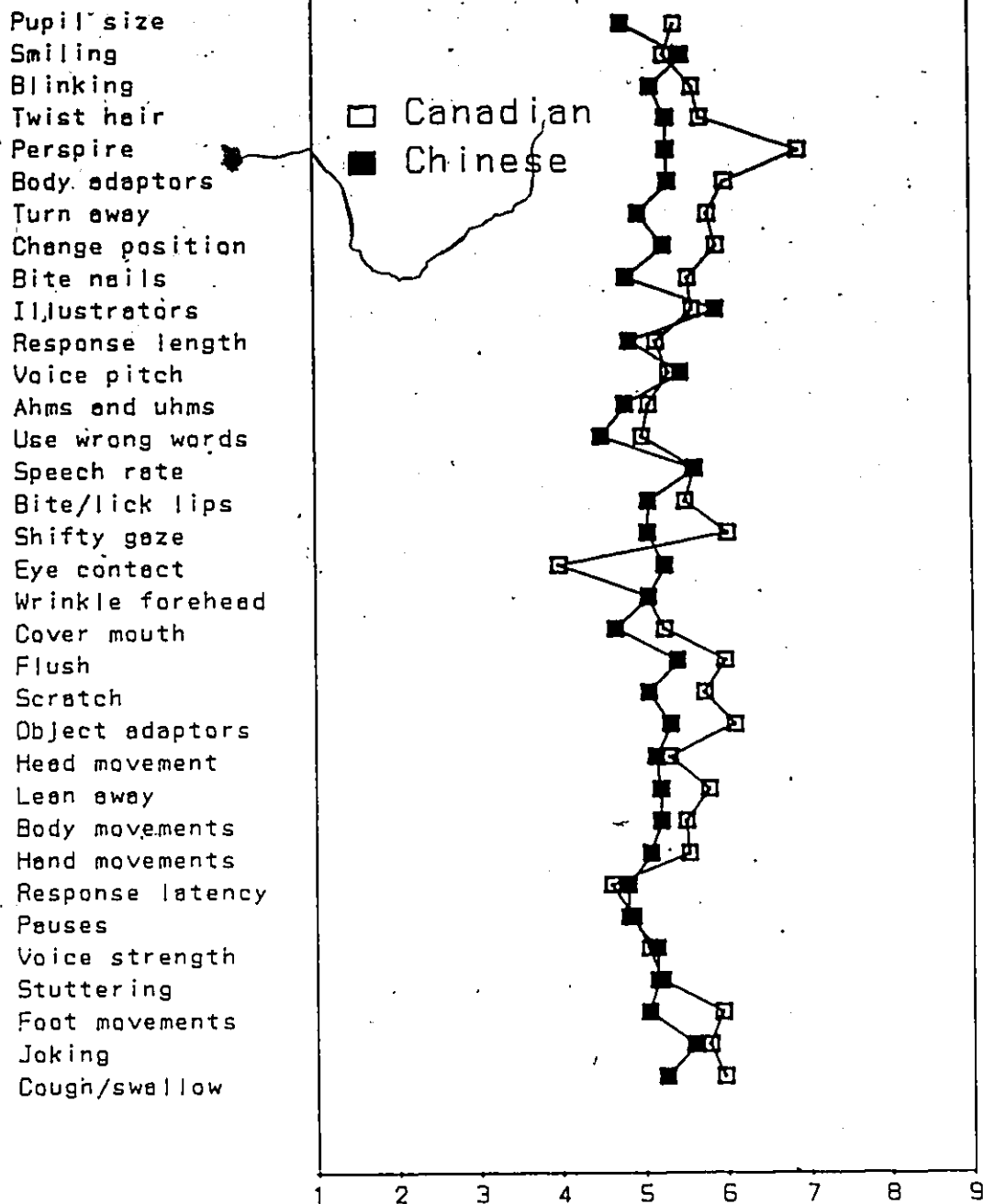


Figure 4. Canadian and Chinese respondents' expectations of changes in behaviour during planned lies.

Although significant, the resulting r was smaller than the r obtained in the spontaneous lie condition, $r(32) = .35, p < .05$.

Thus Canadian and Chinese ratings of the behavioural changes that accompany planned deception are more similar than would be expected by chance but have only 12% of the variance in common.

To summarize, as with unplanned lies, Canadians expect more behaviours to alter as a function of planned deception, and they expect larger changes in these behaviours than do the Chinese. Also, Canadian and Chinese ratings of the behavioural changes that accompany planned lies are less similar than for the unplanned lie condition, and the specific behaviours rated as showing the greatest magnitude of change during planned lies are quite different in these two cultural groups.

Strategies of Lie Detection

Separate from the question of what behavioural changes occur when people tell lies is the question of what behavioural changes are important in assessing the veracity of a communicator. In the third section of the questionnaire, subjects were asked to choose the 10 behaviours that were most important in assessing whether someone was lying. These data are summarized in Table 5.

To assess whether any of the 34 behaviours were chosen more often than chance, the probability of each behaviour being one of the 10 behaviours chosen (i.e., $p = .29$) was used to calculate expected frequency distributions based on random responding. Using standardized scores, and setting alpha at .05, behaviours that were chosen significantly more often than the

Table 5

Percentage of Respondents Choosing Each Behaviour as One of the Ten Most Important Behaviours in Detecting Unplanned and Planned Lies

	<u>Unplanned Lies</u>		<u>Planned Lies</u>	
	<u>Canadians</u>	<u>Chinese</u>	<u>Canadians</u>	<u>Chinese</u>
Pupil size	7.8	12.7	12.5	18.1
Smiling	20.0	28.2	18.2	62.5 *
Blinking	13.3	22.5	10.2	31.9
Twist hair	16.7	18.3	15.9	16.7
Perspire	75.6 *	28.2	73.9 *	27.8
Body adaptors	10.0	29.6	14.8	18.1
Turn away	47.8 *	38.0	39.8 *	37.5
Change position	27.8	33.8	28.4	26.4
Bite nails	13.3	31.0	9.1	23.6
Illustrators	7.8	15.5	22.7	41.7 *
Response length	38.9	40.8 *	46.6 *	34.7
Voice pitch	32.2	35.2	27.3	47.2 *
Ahs and uhms	65.6	38.0	38.6 *	29.2
Use wrong word	24.4	56.3 *	14.8	27.8
Speech rate	58.9 *	29.6	69.3 *	51.4 *
Bite/Lick lips	7.8	29.6	14.8	25.0
Shifty gaze	44.4 *	39.4	46.6 *	51.4 *
Eye contact	45.6 *	26.8	61.4 *	45.8 *
Wrinkle forehead	7.8	7.0	1.1	13.9
Cover mouth	7.8	15.5	5.7	16.7
Flush	66.7 *	54.9 *	44.3 *	22.2
Scratch	6.7	22.5	8.0	11.1
Object adaptors	17.8	33.8	21.6	23.6
Head movement	5.6	19.7	19.3	26.4
Lean away	12.2	22.5	20.5	19.4
Body movements	37.8	15.5	42.0 *	25.0
Hand movements	18.9	26.8	14.8	16.7
Response latency	45.6 *	46.5 *	40.9 *	33.3
Pauses	55.6 *	38.0	26.1	27.8
Voice Strength	50.0 *	33.8	53.4 *	41.7 *
Stuttering	46.7 *	16.9	20.5	4.2
Foot movement	16.7	21.1	22.7	18.1
Joking	14.4	18.3	26.1	47.2 *
Cough/Swallow	36.7	50.7 *	21.6	34.7

* Behaviours chosen significantly more often than chance ($p < .05$)

expected frequencies were identified for unplanned and planned lies for Canadian and Chinese groups.³

Unplanned Lies

In the unplanned lie condition, Canadian subjects chose 11 behaviours significantly more often than would be expected by chance ($p < .05$). These behaviours and the percentage of subjects choosing the behaviour as one of the 10 most important behavioural cues in detecting unplanned lies are shown in Table 5. As can be seen in this table, Canadian respondents chose perspiring (75.6%), flushing (66.7%), use of ahs and uhms (65.6%), speech rate (58.9%), silent hesitations and pausing (55.6%), voice strength (50.0%), turning away from the listener (47.8%), stuttering (46.7%), eye contact (45.6%), latency to respond (45.6%), and altering direction of gaze (44.4%) as being important behavioural cues in the detection of unplanned lies.

Chinese subjects chose five behaviours significantly more often than expected by chance ($p < .05$). These behaviours were using incorrect words (56.3%), flushing (54.9%), coughing/swallowing (50.7%), latency to respond (46.5%), and response length (40.8%).

The behavioural cues chosen by both Canadian and Chinese subjects indicate a belief that unplanned lies are associated with changes in levels of arousal (i.e., perspiring, flushing, fast speech rate, frequent changes in gaze direction), cognitive difficulty (i.e., ahs and uhms, silent hesitations, stuttering, long response latencies, use of incorrect words), and levels of

guilt and anxiety (i.e., decreased voice strength, turning away, decreased eye contact, increased swallowing) on the part of the liar. With respect to their beliefs about the importance of specific behavioural cues, Canadian and Chinese subjects differed most regarding how important perspiring, use of ahs and uhms, use of wrong words, rate of speaking, and eye contact are in assessing deceptive communication in an unplanned lie situation. Thus, a larger proportion of Canadian respondents believe that perspiring, use of ahs and uhms, rate of speaking, and amount of eye contact are important cues in the detection of unplanned lies than do Chinese respondents. A larger proportion of Chinese respondents believe that use of incorrect words is a better cue in the detection of unplanned lies than do Canadian respondents.

Planned Lies

Canadian subjects' responses in the planned lie condition are similar to their responses in the unplanned lie condition. (Refer to Table 5) Eleven behaviours were chosen significantly more often than would be expected by chance ($p < .05$). These behaviours and the percentage of Canadian subjects choosing each behaviour as one of the 10 most important behaviours in detecting planned lies, are as follows: Perspiring (73.9%), rate of speech (69.3%), eye contact (61.4%), voice strength (53.4%), length of response (46.6%), frequent altering of gaze (46.6%), flushing (44.3%), body movement (42.0%), latency to respond (40.9%), turning away from the listener (39.8%), and use of ahs and uhms in speech (38.6%).

Aside from the fact that pauses and stuttering have been replaced by length of response and body movement, these behaviours are the same as the ones that Canadian subjects chose as being important in the detection of unplanned lies. This suggests that Canadian subjects believe that planned lies, like unplanned lies, are associated with changes in levels of arousal and levels of guilt and anxiety on the part of the liar. Cognitive difficulty, as one might expect, seems to be less of a factor in the behavioural changes accompanying lies in a planned situation than in an unplanned situation. Thus, of the four behaviours chosen in the unplanned lie condition and associated with high levels of cognitive difficulty, (i.e., pauses, stuttering, response latency, ahs and uhms), two are not rated as being as important in the planned lie condition (i.e., pauses and stuttering).

In the planned lie situation, Chinese subjects chose eight behaviours more often than would be expected by chance ($p < .05$). These behaviours were smiling (62.5%), rate of speech (51.4%), frequent altering of gaze (51.4%), voice pitch (47.2%), making jokes (47.2%), eye contact (45.8%), use of illustrators (41.7%), and voice strength (41.7%). Interestingly, not one of these behaviours was chosen by Chinese subjects as important in the detection of unplanned lies. Furthermore, many of these behaviours are associated with behavioural control during lying suggesting that Chinese respondents consider behavioural control to be an important component in planned deception.

With respect to their beliefs about specific behavioural

cues, Canadian and Chinese subject groups differ most in their beliefs concerning the importance of perspiring, smiling, use of illustrators, increased voice pitch, body movement, and making jokes, in assessing whether another person is telling a planned lie. Thus Canadian respondents believe that amount of perspiring and body movement are better cues to detect planned lies than do Chinese respondents. On the other hand, Chinese respondents believe that smiling, use of illustrators, voice pitch and making jokes are more important cues to detect planned lies than do Canadian respondents.

How do respondents' beliefs about the magnitude of behavioural changes during lying relate to their beliefs about the importance of specific behavioural cues in the detection of lies?

Spearman's rank order correlation coefficient (ρ) was used to compare the behaviours combined over subjects and ranked according to the mean magnitude of change during lying, with the behaviours combined over subjects and ranked according to importance of the behaviour. In this latter case, behaviours were ranked according to the percentage of respondents choosing each behaviour as one of the 10 most important behavioural cues to deception. Correlations were calculated separately for Canadian and Chinese respondents, and for unplanned and planned lie conditions.

For the unplanned lie condition, the results of these analyses show that the behavioural rankings based on magnitude of change are very similar to the behavioural rankings based on

Importance of change for both the Canadian ($\rho = .64$, $df = 32$, $p < .01$) and Chinese subject groups ($\rho = .51$, $df = 32$, $p < .01$).

In other words, respondents believe that the behaviours showing the largest changes during unplanned deception are also the most important behavioural cues for detecting unplanned lies.

In the planned lie condition, behavioural rankings based on magnitude of change were not significantly similar to rankings based on importance of the change for either Canadian ($\rho = .21$, $df = 32$, $p > .05$) or Chinese subject groups ($\rho = .33$, $df = 32$, $p > .05$). Thus, respondents didn't necessarily believe that the behaviours that show the largest changes during planned deception are the most important cues in detecting planned lies.

Attitudes towards Lying

Acceptability of Lying in Specific Situations

In the fourth section of the questionnaire, subjects were asked to rate 23 scenarios for the acceptability and the likelihood of someone lying in these situations. The mean rated acceptability of lying in each of the scenarios for the two subject groups are shown in Table 6. Values can range from extremely wrong (1) to extremely acceptable (9). Bonferroni adjusted t-tests performed on each of the 23 scenarios revealed that Canadian and Chinese ratings of the acceptability of lying in these situations differed significantly on 10 of the scenarios. In all 10, Chinese subjects rated lying as less wrong than did Canadians.

In order to explore some of the dimensions underlying

Table 6

Mean Ratings of the Acceptability of Lying in Specific Scenarios

Situation	Canadians	Chinese	t(165)	p
A	2.8	3.4	-2.44	.016
B	1.8	3.6	-7.32	.000 *
C	1.9	2.0	-0.50	.620
D	4.7	5.4	-2.17	.032
E	2.2	2.8	-2.61	.010
F	4.1	4.2	-0.25	.803
G	6.9	6.4	1.47	.144
H	2.9	4.8	-6.31	.000 *
I	1.9	3.8	-7.51	.000 *
J	4.2	4.8	-2.08	.039
K	3.7	5.5	-7.24	.000 *
L	3.4	4.2	-2.92	.004
M	4.6	5.6	-3.31	.001 *
N	1.8	3.3	-6.02	.000 *
O	2.6	4.2	-5.34	.000 *
P	5.5	5.7	-0.77	.442
Q	5.3	4.9	1.42	.158
R	4.1	5.5	-4.68	.000 *
S	2.1	4.0	-7.13	.000 *
T	4.8	5.6	-2.54	.012
U	4.2	5.1	-2.52	.013
V	3.4	4.4	-3.55	.001 *
W	3.2	3.7	-2.12	.036

* significant at alpha = .05 using a Bonferroni adjustment for multiple tests.

Canadian and Chinese ratings of the acceptability of lying in these scenarios, subjects' ratings of the 23 scenarios were entered into a principal components analysis. This type of factor analysis produces a solution in which subjects' scores are a simple linear transformation of scores on the factored variables, and merely provides an empirical summary of the data (Tabachnick & Fidell, 1983). It should be noted that the relatively small sample size and the lack of any marker variables make this analysis exploratory rather than confirmatory but the results are interesting and provide valuable information for future study.

Initially, data from Canadian and Chinese subjects were analyzed separately.

A preliminary estimate of the number of components in each data set was determined using cluster analyses. The result of the two cluster analyses suggested the presence of three underlying factors in both data sets.

A principal components analysis using varimax rotation and specifying a total of three factors was performed separately on the Canadian and the Chinese data. A correlation of .45 (i.e., a 20% overlap in variance between the variable and the factor) was set for including a variable in the interpretation of a factor.

The results of the factor analyses yielded three factors that, in terms of their variable loadings, were highly similar for the Canadian and Chinese data. Therefore the Canadian and Chinese data were combined and entered into a principal components analysis. Using varimax rotation and specifying the extraction of

three factors, the factor analysis on data from both Canadian and Chinese respondents yielded the same three factors as yielded by separate analyses of Canadian and Chinese data. These three factors were labelled as follows: Lies to strangers or government officials (Factor 1); Altruistic lies (Factor 2); and Lies to friends and associates (Factor 3). Table 7 shows the loadings of the various scenarios comprising each factor. Note that none of the scenarios load on more than one factor, and that the only scenario not loading on any of the factors is Situation A (i.e., the scenario in which a customer lies about getting incorrect change from a shopkeeper).

In order to compare Canadian and Chinese responses on these three factors, standardized factor scores were calculated for all respondents, and then these scores were entered into a 1-way MANOVA. The results showed a significant effect of culture on a linear combination of the three factor scores, $F(3,163) = 32.02$, $p < .001$. Subsequent univariate ANOVAS on these three factors showed Canadian and Chinese scores differed significantly on Factor 1, $F(1,165) = 90.24$, $p < .001$, but not on Factor 2, $F(1,165) = .263$, $p > .05$, or on Factor 3, $F(1,165) = 2.62$, $p > .05$.

The mean rated acceptability of lying for each scenario loading on the three factors are presented in Table 8. It is apparent from this table that, of the 10 scenarios in which Chinese respondents rated lying as being significantly less wrong than did Canadian respondents, 9 load on Factor 1. In other words, Chinese generally rated lying to strangers as being

Table 7

Loadings of Acceptability Ratings of Scenarios based on a Three Factor Solution

<u>Factor</u>	<u>Description</u>	<u>Scenario</u>	<u>Loading</u>
Factor 1	Nonaltruistic lies to nongroup members	H	.71
		K	.69
		I	.68
		S	.67
		N	.66
		R	.62
		T	.58
		O	.56
		V	.52
		M	.45
Factor 2	Altruistic lies	G	.71
		F	.66
		P	.65
		Q	.55
		D	.51
		U	.47
Factor 3	Nonaltruistic lies to group members	W	.64
		J	.61
		C	.61
		L	.60
		B	.45
		E	.45

significantly more acceptable than did Canadians. Scenarios involving lying to friends (i.e., scenarios loading on Factor 3), or involving altruistic lies (i.e., scenarios loading on Factor 2), were rated similarly by the two subject groups.

Ratings of the Likelihood of Lying in Specific Situations

Analyses of Canadian and Chinese subjects' ratings of the likelihood of lying in each of the scenarios showed that lying was considered unlikely in only one scenario, Scenario U. (Refer to the questionnaire in Appendix A.) Lying in all the other scenarios was considered somewhat likely (i.e., had a mean rating of less than 6 on a scale where 1 signifies extremely likely and 9 signifies extremely unlikely) by both the Canadian and the Chinese subjects. These results suggest that the test scenarios have some degree of external validity in both cultures. (Refer to Appendix B for a table of the mean rated likelihood of lying in each scenario.)

Is the likelihood of lying in a scenario related to the acceptability of lying in that scenario? In order to answer this question, Pearson's product-moment correlation coefficient, r , was used to test the relationship between mean rating of the likelihood of lying in a scenario and mean rating of the acceptability of lying in a scenario. Canadian and Chinese data were analysed separately.

The results showed no significant correlation between mean rated acceptability of lying in a scenario and mean rated likelihood of lying in a scenario for either the Canadian data,

Table 8

Factor Loadings of Acceptability Ratings by Canadian and Chinese Respondents for the Scenarios

	<u>Scenario</u>	<u>Canadian</u>	<u>Chinese</u>
Factor 1 Lies to Nongroup Members	H	2.9	4.8 *
	K	3.7	5.5 *
	I	1.9	3.8 *
	S	2.1	4.0 *
	N	1.8	3.3 *
	R	4.1	5.5 *
	T	4.8	5.6
	O	2.6	4.2 *
	V	3.4	4.4 *
	M	4.6	5.6 *
Factor 2 Altruistic Lies	G	6.9	6.4
	F	4.1	4.2
	P	5.5	5.7
	Q	5.3	4.9
	D	4.7	5.4
	U	4.2	5.1
Factor 3 Lies to Group Members	W	3.2	3.7
	J	4.2	4.8
	C	1.9	2.0
	L	3.4	4.2
	B	1.8	3.6 *
	E	2.2	2.8

* Scenarios on which Canadian and Chinese ratings differed significantly, $p < .05$.

$\chi^2(21) = .05$, $p > .05$, or for the Chinese data, $\chi^2(21) = -.01$, $p > .05$. Therefore ratings of the acceptability of lying in a scenario are independent of ratings of the likelihood of someone telling a lie in that situation.

General Attitudes Towards Lying

In the final section of the questionnaire, subjects were asked to answer four questions regarding the morality, necessity, and frequency of lying in today's society. Subjects' responses to these four questions were analyzed using a Hotelling's T^2 test.⁴ The results showed a significant effect of subject culture on responses to these four questions, $F(4,160) = 6.11$, $p < .0001$.

Bonferroni-adjusted t-tests were used to explore which of these four questions were contributing the most to this significant difference. Setting alpha at .05, a p of .013 was needed for significance on these four tests.

The results of these analyses revealed significant differences in Canadian and Chinese responses to only one of the four questions, Question 1.

Question 1 asked subjects to use a 10-point scale to rate the general acceptability of lying in everyday social life. On this question, Canadian respondents rated lying as being significantly more wrong than did Chinese respondents, $t(163) = 4.43$, $p < .001$. Mean ratings for Canadian and Chinese subjects on this question were 3.27 and 4.40, respectively.

Question 2 asked subjects to use a 10-point scale to rate the necessity of lying in everyday social life. On this question,

there was no significant tendency for Canadians to rate lying as less necessary than Chinese respondents, $t(163) = 1.89$, $p > .013$. Mean ratings for Canadian and Chinese subjects on this question were 5.76 and 5.19, respectively.

Question 3 asked subjects to use a 7-point scale to rate the frequency with which they told lies. On this question, there was no significant difference between Canadian respondents' estimates of the frequency with which they lied, and Chinese respondents' estimates of the frequency with which they told lies, $t(163) = 1.92$, $p > .013$. Mean ratings for Canadian and Chinese respondents on this question were 5.22 and 5.19, respectively.

Question 4 asked subjects to use a 7-point scale to rate the frequency with which they believed other people told lies. On this question, there was a nonsignificant trend such that Canadians believed that other people told lies less frequently than did Chinese respondents, $t(163) = 2.13$, $p > .013$. Mean ratings for Canadian and Chinese respondents on this question were 4.72 and 4.44, respectively.

Although only responses to Question 1 were significantly different for Canadian and Chinese respondents, it should be noted that the multivariate test was significant, and the responses to all four questions were in a direction which suggests that the Chinese believe that lying is more acceptable and occurs more frequently than do Canadians.

In regard to these four questions, it is interesting to investigate within-culture comparisons of responses to Questions 3

and 4. Results of two dependent t-tests on responses to these two questions showed that both Canadian and Chinese subjects say that they themselves lie less frequently than do other people, $t(90) = 6.70$ and $t(73) = 3.97$, respectively, $p < .01$.

General Discussion

The purpose of the present study was to investigate Canadian and Chinese attitudes towards lying, and to assess and compare beliefs about how people behave when telling lies. With this goal in mind, there are three main issues that will be addressed. The first issue is whether or not these results support the contention that Canadian and Chinese have different attitudes towards lying. The second issue is whether Canadians and Chinese believe that deceivers act differently than nondeceivers, and whether beliefs about the behaviours that accompany deception are stereotypic within the two cultural groups. The third issue is whether or not Canadians and Chinese have similar beliefs about the behavioural concomitants of deception and about the behavioural cues that best indicate insincerity on the part of a communicator.

Turning to the first issue, do the results of the present study suggest that Canadian and Chinese have different attitudes towards lying?

There is some evidence to support the contention that lying may be considered less morally wrong by Chinese subjects than by Canadian subjects. Thus, a multivariate analysis of responses to the four questions concerning the wrongness,

necessity and frequency of lying showed a significant difference between Canadian and Chinese responses to these questions. Post-hoc analyses of responses to the individual questions showed that one question was the major contributor to this difference. This was the question that asked subjects to rate how right or wrong it is to tell a lie. The results showed that Chinese subjects rated lying as significantly less wrong than did Canadian subjects.

Do Chinese consider all lies to be less morally wrong than do Canadians?

Respondents rated how right or wrong it was for a person to tell a lie in 23 scenarios. A multivariate analysis of data from all 23 of these scenarios showed that Chinese respondents rated lying as significantly less wrong than did Canadian respondents.

Post-hoc analyses on ratings for each of the 23 scenarios revealed that 10 of the scenarios were the major contributors to the significance of the multivariate results. In order to examine whether there were any underlying commonalities in these 10 scenarios, data from the 23 scenarios were entered into a principal components analysis. The results showed that 9 of the 10 lies that Chinese rated as significantly less wrong than Canadians loaded on one component; nonaltruistic lies to strangers. In other words, Chinese scores on Component 1 (i.e., nonaltruistic lies to strangers) were significantly higher than Canadian scores on this component. This finding indicates that Chinese respondents rated lies to strangers as significantly less

wrong than did Canadian respondents. Chinese and Canadian scores did not differ significantly on Component 2 (i.e., altruistic lies) or on Component 3 (i.e., lies to friends or acquaintances).

The finding that Chinese rate lying to strangers as less wrong than do Canadians is an extremely interesting one, and probably relates to the emphasis in Chinese culture on group membership.

In a recent cross-cultural study of values in 40 countries, Hofstede (1984) found that cultures could be ranked along four general dimensions: a power-distance dimension, a collectivism/individualism dimension, a uncertainty avoidance dimension, and a masculinity/femininity dimension. Very generally, the power-distance dimension is the value placed on status differentials among individuals in the society; collectivism/individualism is the relative value placed on group interests as opposed to individual interests in the society; the uncertainty avoidance dimension reflects degrees of tolerance for ambiguity or uncertainty in the society; and the masculinity/femininity dimension concerns gender-related values in the society.

The dimension of interest here is the individualism/collectivism dimension. Hofstede's (1984) results show that Canadians score high on the individualism end of the continuum whereas Chinese score high on the collectivist end of the continuum. In other words, Chinese place a high value on group membership and interdependence of individuals. The

interests of the group are considered to be more important than the interests of the individual. Canadians, on the other hand, place a high value on the rights and needs of the individual.

Cultural differences in values relating to this individualism/collectivism dimension may relate to specific attitudes about lying. Thus, Hofstede (1984) maintains that cultures that are low in individualism tend to trust group members and not to trust nongroup members (p.229). Because lying is detrimental to establishing and maintaining a bond of trust between people, lying to group members (i.e., friends, family and coworkers) may not be easily condoned in collectivist cultures such as the Chinese. However, lying to nongroup members with whom one does not share a bond of trust is less likely to be as strongly condemned. In other words, Chinese may believe that lying to nongroup members is less morally reprehensible than lying to group members because nongroup members are expected to believe and trust each other less than are group members.

Canadians, because they are highly individualistic, may be more dependent on the trustworthiness of others in general. If this is true, then it is reasonable for Canadians to discriminate less on the basis of group membership than do Chinese, and to rate lying to group members and to nongroup members as equally reprehensible.

A comparison of the mean rated wrongness of the scenarios loading on Factor 1 (i.e., lies to nongroup members) with the mean rated wrongness of scenarios loading on Factor 3 (i.e., lies to

group members) for Canadian and Chinese groups supports this interpretation. Thus the difference in overall mean rating for scenarios loading on Factor 3 and overall mean ratings for scenarios loading on Factor 1 is .39 for the Canadian group, and 1.14 for the Chinese group.

The hypothesis that moral attitudes towards deception are related to individualism/collectivist values in a society is an important one. It suggests that different cultures may have very different attitudes towards lying and deception, and that these attitudes may vary according to some very general dimensions of social interactions. At present there exists very little research on the dimensions that are important in individuals' assessments of the morality of lying and how these dimensions reflect specific cultural values. No doubt more cross-cultural approaches to the study of moral attitudes towards lying could elucidate the role of deceptive communication in human interaction.

In any event, results from the present study support the contention that Chinese regard some lies as less morally wrong than do Canadians. This finding implies that, at least in some situations, deceptive Chinese communicators may feel less stress, guilt or anxiety about telling lies than do Canadians, and consequently may exhibit fewer behavioural cues associated with increased levels of arousal or with feelings of guilt or anxiety.

Given that Chinese individuals regard some lies as less morally reprehensible than do Canadians, then, compared to Canadians, they may also expect fewer behavioural changes to

accompany such lies.

This conjecture is consistent with the findings of the present study. Thus, compared to Canadians, Chinese rated fewer behaviours as changing significantly during deception. This was particularly true for the behavioural changes expected to accompany planned lies. This finding suggests that people may have different expectations about how deceptive individuals behave as a function of having differential attitudes towards lying.

At present it is not known whether differential attitudes towards lying influence either the behavioural cues an individual exhibits during deception, or the behaviours an individual uses in judging the sincerity of a communicator. However, Ekman (1981) has postulated that cues to deceit may vary as a function of whether the deceiver feels guilty about the deception. If this is the case, an individual's moral attitude towards lying may influence how guilty or anxious he or she feels about the act of deception, and could therefore influence the behaviours he or she exhibits when attempting deception.

With respect to whether or not an individual's attitude towards lying can influence his or her performance in a lie detection task, there is some research indicating that an individual's expectations about the possibility of deception can influence his or her performance in a lie detection task.

In a study by Toris and DePaulo (1985), subjects were asked to participate in a study on how people convey impressions of sincerity in a job interview. Subjects were asked to interview

individuals for a job and then to rate the interviewees on a number of characteristics. One of these characteristics was honesty. Half the subjects were told to expect some of the interviewees to be lying; the other subjects were told nothing about the sincerity of the interviewees. The results showed that subjects who were told that some interviewees would be lying were significantly more likely to perceive both honest and dishonest interviewees as being deceptive than were subjects who were not biased towards expecting deception. This finding suggests that people who expect others to lie frequently may perceive the behaviours of others as indicating deception more often than people who do not expect others to lie frequently. Similarly, individuals from societies with permissive attitudes towards lying may lie more frequently, expect others to be lying more frequently, and may be more prone to label others as being deceptive than individuals from societies with less permissive attitudes towards lying. This hypothesis awaits empirical investigation.

The second issue to be addressed here is whether Canadian and Chinese respondents believe that a person's behaviour changes when he or she is being deceptive and if so, whether individuals' beliefs about deceptive behaviour are consistent with the notion of a deceiver stereotype.

Analysis of Canadian responses to section 2 of the questionnaire (i.e., the section in which respondents are asked to rate the amount of change occurring in 34 nonverbal behaviours

during planned and unplanned lies) showed that Canadians believe that people behave differently when they lie than when they tell the truth. Thus, of the 34 behaviours that were rated by the respondents, all 34 were believed to change significantly during unplanned deception, and 21 of these were believed to change significantly during planned deception. These results strongly support the contention that Canadians believe lying to be associated with specific behavioural changes on the part of the deceptive communicator.

Analysis of Chinese subjects' responses to Section 2 of the questionnaire showed that Chinese also believe that people behave differently when they lie than when they tell the truth. This is particularly true if deceivers are telling unplanned lies. Thus, of the 34 behaviours rated, Chinese rated 25 behaviours as changing significantly during unplanned deception, and 2 behaviours as changing significantly during planned lies. These results support the contention that Chinese also believe lying to be associated with specific behavioural changes on the part of the deceiver.

It is clear from these data that both Canadian and Chinese believe that at least some behavioural changes occur when a person tells a lie. Further, it is apparent that respondents in both subject groups expect individuals to exhibit high levels of activity when being deceptive. Thus the majority of behavioural changes believed associated with both unplanned and planned deception are in the direction of an increase in magnitude or

in frequency of occurrence.

These results suggest that liars generally are perceived to be more anxious, nervous or fidgety than are truth-tellers. This image of a deceptive communicator is consistent with the findings of Hocking and Leathers (1980) and of Zuckerman et al. (1981b). Thus respondents in these two studies also believed that deceivers behave differently than truth-tellers, and that this difference is such that liars are believed to engage in more bodily movement than truth-tellers.

Do Canadians and Chinese merely share a general belief that individuals exhibit higher levels of activity when they are lying as opposed to when they are telling the truth, or do Canadians and Chinese have specific behavioural stereotypes of deceivers? In other words, do Canadians and Chinese share with other members of their culture, an image or conception of the specific behavioural changes that accompany deception, and are these changes influenced by specific features of the deceptive situation (e.g., whether the deceiver is prepared or unprepared to lie)?

The results of the questionnaire suggest that both Canadian and Chinese respondents have specific stereotypic beliefs about how deceivers in their respective cultural groups behave.

When asked about the most important behavioural changes for assessing the sincerity of a communicator, Canadian subjects showed significant agreement on 11 of the 34 behaviours in the

unplanned lie condition, and on 11 behaviours in the planned lie condition. In fact, 6 behaviours in the unplanned lie condition, and 4 behaviours in the planned lie condition were chosen as important cues in detecting lies by over 50% of the respondents. Clearly these Canadian respondents have a specific and relatively homogeneous conception of the kinds of behavioural changes exhibited by deceivers.

Although not as homogeneous in their ratings as the Canadians, Chinese respondents also appear to have a specific stereotypic notion of the behavioural changes that accompany deception. Thus over 40% of the Chinese respondents agreed on 5 behaviours in the unplanned lie condition, and on 8 behaviours in the planned lie condition as being important in the detection of lies. From these data, it is evident that Chinese respondents, like Canadian respondents, have a specific conception of the kinds of behavioural changes that accompany deception.

It was suggested earlier in this dissertation that if people have specific beliefs about how deceivers behave, then these beliefs may reflect constraints or characteristics of the deceptive situation. In the present context, one question of interest is: Do Canadian and Chinese ratings of the behavioural changes accompanying deception alter as a function of whether the deception is perceived to be spontaneous and unplanned, or perceived to be nonspontaneous and planned?

A comparison of the behavioural changes expected in the planned and unplanned lie conditions shows that Canadian

respondents believe that the opportunity to plan a lie influences the behavioural changes that accompany lying. The essence of this effect was to attenuate the behavioural changes that were believed to accompany unplanned lies. Thus in the planned lie condition, all 34 behaviours were believed to show less change than in the unplanned lie condition. The result of this influence was to reduce the 34 behaviours expected to alter significantly during unplanned deception to 21 in the planned lie condition.

The finding that respondents believe that prepared liars exhibit fewer behavioural changes than do unprepared liars may reflect a belief that prepared liars experience less arousal, less emotionality, and/or less cognitive difficulty than unprepared liars, or that prepared liars are better able to control the behavioural changes that accompany deception. Further research is needed before the effect of planning a lie on respondents' beliefs about the behaviour of deceivers can be clarified. However, it is noteworthy that, regardless of the reduced responsibility expected in the planned lie condition, there is a high correlation (i.e., $r = .56$) between mean amount of behavioural change expected in planned and unplanned lie conditions. This suggests that Canadian respondents believe lying in planned and unplanned situations is accompanied by changes in many of the same behaviours.

A comparison of Chinese respondents' ratings of the magnitude of behavioural changes expected in the planned and unplanned lie conditions shows that, like the Canadians, the Chinese believe that planning acts to decrease the number and

magnitude of behavioural changes exhibited by a deceiver.

Compared to the 25 behaviours that were expected to change significantly during unplanned lies, Chinese respondents rated only 2 as changing significantly during planned lies.

Unlike the Canadians, the behavioural changes that the Chinese believe accompany unplanned lies are inversely correlated (i.e., $r = -.36$) with the behavioural changes that are believed to accompany planned lies. Why this inverse relationship exists is not clear. Perhaps Chinese respondents don't believe that planned lies aren't associated with the same emotional or cognitive processes as unplanned lies. Alternatively, perhaps Chinese respondents believe that planning a response allows the deceiver to exert a higher degree of control over his or her behaviour, and thereby compensate for some of the behavioural changes that are elicited by the act of lying. In any case, the Chinese believe that the behavioural changes accompanying planned lies may differ quantitatively and qualitatively from the behavioural changes that accompany unplanned lies.

These results suggest that the Chinese have a stereotypic belief about the kinds of behavioural changes that are exhibited by a deceptive communicator, and that this deceiver stereotype depends on whether the deceiver has prepared his or her deceptive response beforehand.

To summarize, both Canadian and Chinese respondents believe that deceivers behave differently from truth-tellers, and appear to have stereotypic conceptions of the specific kinds of

behavioural changes that accompany both unplanned and planned deception.

The third issue to be addressed concerns whether Canadian and Chinese beliefs about the behavioural changes that accompany deception differ, and if so, how these differences could influence both the behaviours exhibited by members of these two cultures during deception, and the way that members of these two cultures assess the sincerity of other individuals.

Canadian and Chinese beliefs about the impact of deception on behaviour differ in a number of important ways.

First, Chinese subjects rate the behavioural changes that accompany lying in members of their cultural group as being fewer in number, and smaller in magnitude, than the behavioural changes that Canadian subjects believe accompany lying in members of their culture.

One explanation for this finding is that the Chinese may believe that people generally exercise more control over their behavioural responses than Canadian subjects believe them to do. Thus as compared to Canadian subjects, Chinese subjects expect liars to have better control over the behavioural changes associated with lying, and therefore believe fewer and smaller behavioural changes accompany deception.

Alternatively, the Chinese may believe lying to be associated with lower levels of physiological arousal and/or less guilt and anxiety than do Canadian subjects. In fact, if Chinese subjects regard lying as less of a moral wrong than do Canadian

subjects, then for Chinese subjects, lying actually may be accompanied by lower levels of arousal, guilt or anxiety than for Canadian subjects. If lying is not believed to be highly arousing or anxiety-provoking, then it is reasonable that a deceiver will not be envisaged as behaving much differently than a truth-teller.

In either case, it is clear that the Canadians believe deception has a larger impact on behaviour than do the Chinese.

Second, Canadians and Chinese have very different ideas about the effect of planning a lie on a deceiver's behaviour. Thus, Canadian ratings of behavioural changes during planned and unplanned lies show a positive correlation whereas Chinese ratings of behavioural changes during planned and unplanned lies show a negative correlation.

Third, the behavioural cues that Canadians believe are important indicators of deception are very similar for both unplanned and planned lies. However, the behavioural cues that Chinese believe to be important indicators of deception are very different for unplanned and planned lies.

Fourth, although the pattern of behavioural changes believed to occur during planned lies show a statistically significant degree of similarity for Canadian and Chinese subjects this similarity accounts for only 12% of the variance in respondents' ratings, (i.e., $r = .35$). In view of the high similarity of Canadian and Chinese responses in the unplanned lie condition, (i.e., 65% of the variance in ratings was accounted for by respondent culture), the low correlation for behavioural

changes during planned lies suggests that Canadian and Chinese responses in this condition are more dissimilar than in the unplanned lie condition.

To summarize, both Canadian and Chinese subjects believe that lying is correlated with specific behavioural changes. However, at least with respect to people in their own culture, Chinese subjects expect behaviour to change less overall than do Canadian subjects. This is true for both planned and unplanned deception. Also, both Canadian and Chinese subjects believe that planned deception is associated with fewer behavioural changes than is unplanned deception. However, Canadians believe the same basic pattern of behavioural change occurs during planned and unplanned deception whereas the Chinese believe that planning has a differential effect on the patterns of behavioural change that occur during deception. Canadians believe that the important behavioural cues to deception are very similar for planned and unplanned lies, but the Chinese believe that the important indicants of deception are very different for planned and unplanned lies. Finally, Canadian and Chinese beliefs about the behavioural changes that accompany unplanned lies are very similar in pattern, but their beliefs about the behavioural concomitants of planned lies are much less similar.

Can these differences in Canadian and Chinese beliefs about deceiver behaviour have an influence on the way individuals from these two cultural groups encode or decode deceptive messages?

Unfortunately there is little information available on this question. There is some evidence that individuals' beliefs about the behaviours that accompany deception correlate both with the cues that are used in making judgements of deception, and, to a lesser degree, with the cues that actually accompany deception (Zuckerman, DePaulo and Rosenthal, 1981a). Thus these data suggest that a judge's performance in a lie detection task may reflect cultural beliefs about the behavioural cues that accompany deception.

Regarding whether beliefs about deceiver behaviours have an influence on how an individual behaves when presenting a deceptive message, there is also little information available. Although Hocking and Leathers (1980) maintain that people's beliefs about typical deceivers' behaviours influence the behaviours they attempt to control during deception, they fail to provide any support for this contention.

In order to determine whether Canadian and Chinese individuals behave differently when presenting deceptive messages, or whether individuals from these two cultural groups perceive and assess the sincerity of a communicator in a different manner, two laboratory studies were conducted. The results of these studies are presented in the following chapters.

Chapter 4 Notes:

1. Chinese visa students frequently complete one or two years of high school in Canada before entering university. Therefore first year university students have often been in Canada longer than one year.

2. Hotelling's T^2 statistic can be converted to an F statistic according to the following formula:
 $F = (N_1 + N_2 - p - 1) T^2 / (p(N_1 + N_2 - 2))$ and is distributed as F with p and $(N_1 + N_2 - p - 1)$ degrees of freedom (Harris, 1975). In this equation, p is the number of dependent variables and N_1 and N_2 are the number of subjects in the two groups.

3. Not all respondents correctly completed this section of the questionnaire and therefore these analyses are based on data from 85 Canadian and 72 Chinese respondents in the unplanned lie condition, and on 90 Canadian and 71 Chinese respondents in the planned lie condition. A number of behaviours were chosen less often than expected by chance, but have not been reported here because it is not clear whether such behaviours reflect a belief that people effectively control these behaviours when lying, or whether these behaviours are believed unrelated to deception.

4. Two respondents did not complete this part of the questionnaire and therefore these results are based on the data of 165 respondents.

5. Although 10 of the Canadian and 7 of the Chinese respondents' data contained multivariate outliers, elimination of these cases made no significant difference to the results reported here. Therefore the following results are based on the data of all respondents.

Chapter 5

A BEHAVIOURAL ANALYSIS OF CANADIAN AND CHINESE DECEIVERS

In chapter 4, it was demonstrated that both Canadian and Chinese individuals believe that people telling lies behave differently than people telling the truth. However, members of these two cultural groups have different beliefs about how deceivers typically behave.

One difference is that the Chinese expect deceivers to exhibit fewer and smaller changes in behaviour than do the Canadians. This finding is true for both planned and unplanned deception but Canadian and Chinese beliefs differ the most regarding the behavioural changes believed to accompany planned lies.

Additional evidence that Canadian and Chinese respondents have different beliefs regarding the behavioural changes that accompany planned lies comes from examining the behaviours respondents rated as showing the largest magnitude of change. Although the five behaviours believed to show the greatest magnitude of change during unplanned lies are quite similar for Canadian and Chinese respondents, the five behaviours expected to show the greatest magnitude of change during planned lies are not similar. Specifically, Canadians believe the five behaviours that show the greatest magnitude of change when deceivers tell planned lies are perspiring, object adaptors, body adaptors, shifting of

gaze and eye contact. All these behaviours except eye contact are believed to increase during planned deception. Thus, the Canadian stereotype of a person telling a planned lie is someone who exhibits increases in perspiration, fidgets or plays with a pen, paperclip or some other object, frequently engages in scratching, rubbing or other grooming behaviours, is 'shifty-eyed', and does not maintain eye contact with his or her audience; i.e., someone who generally appears nervous, fidgety and ill-at-ease.

The Chinese, on the other hand, rated illustrators and rate of speaking as increasing significantly during planned lies. Although failing to reach significance, Chinese respondents also showed tendencies to rate joking and smiling as increasing during lying, and to rate speech errors as decreasing during lying. Thus, the Chinese stereotype of a person telling a planned lie is someone who frequently uses his or her hands to emphasize and illustrate points, speaks quickly and fluently, makes jokes and often smiles; in other words, someone who presents a polished, controlled, and perhaps glib image.

Whether these beliefs reflect actual differences in the ways that Canadian and Chinese deceivers behave is not known. However, if, relative to their occurrence during truthful messages, behaviours can increase, decrease or remain constant during dishonest messages, then there are three ways that beliefs can be related to actual changes in behaviour during deception.

First, the cultural stereotype associated with the behaviour of a deceiver may accurately depict the behavioural

changes that accompany deception. For example, consistent with Canadian and Chinese responses on the questionnaire, Canadians may decrease levels of eye contact when being deceptive, and Chinese may increase levels of smiling when telling planned lies. In other words, there may be a positive correlation between beliefs about the behavioural changes that accompany deception and the actual behavioural changes that occur.

Second, the cultural stereotype associated with the behaviour of a deceiver may bear no relationship to the behavioural changes that actually occur during deception. Thus, the behaviours that are believed to increase or decrease during deception may not actually alter in frequency, magnitude or duration as a function of the sincerity of a communicator.

Third, the cultural stereotype associated with the behaviour of a deceiver may bear an inverse relationship to the behavioural changes that are exhibited during deception. In other words, the behaviours that are believed to increase during deception may actually decrease during deception, and vice versa.

The foregoing discussion raises an important question: Why would people believe that certain behavioural changes occur during deception, when in fact, those behaviours either do not alter during deception, or alter in a manner inconsistent with the stereotypic notion of deceiver behaviour?

The answer to this question relates to Hocking and Leathers' (1980) contention that deceivers control those behavioural changes that they believe their audience associates

with insincerity. Thus, even though the incidence of a particular behaviour may be expected to increase because of increased levels of arousal, negative affect, or cognitive difficulty accompanying lying, the deceiver may control or manage his or her self presentation such that the behavioural changes evoked by deception are masked, attenuated or neutralized. In some cases, the deceiver may overly control certain behaviours and consequently exhibit behavioural changes in the opposite direction to those directly evoked by the deceptive process.

To summarize, Canadian and Chinese individuals have different stereotypic conceptions of how people behave when they are lying. If these beliefs reflect actual changes in deceivers' behaviours, then Canadian and Chinese individuals may be expected to exhibit different behavioural changes when lying.

If these beliefs do not accurately reflect the behavioural changes that accompany deception, then Canadian and Chinese deceivers may or may not exhibit similar behavioural changes when engaging in deception. In other words, Canadian and Chinese deceivers may show similar behavioural changes even though they have different stereotypes concerning the behaviour of deceivers. Alternatively, Canadian and Chinese deceivers may exhibit different behavioural changes because their beliefs about the behaviour of deceivers causes them to attend to, and attempt to control, different aspects of their performance.

Is there any evidence that individuals from different cultural backgrounds do exhibit different behavioural changes when

presenting deceptive messages?

Although not directly addressing the question of cultural influences in the behavioural changes that accompany deception, two of the dominant theories in the area of deceptive communication provide support for the existence of such cultural differences.

Hocking and Leathers (1980) contend that a person's beliefs about how a typical deceiver behaves influence his or her behaviour when telling a lie. Thus, the specific behavioural changes that a person attempts to control or manage while being deceptive are the ones that he or she believes are typically associated with deception. Given the existence of culturally specific stereotypes of deceiver behaviour, Hocking and Leathers' theory would support the notion that Canadian and Chinese individuals attend to, and attempt to manage, different aspects of their behavioural performance when engaging in deceptive communication. This attention to different aspects of their message presentations could result in Canadian and Chinese deceivers exhibiting dissimilar behaviours during deception.

Although the rationale is different, Ekman and Friesen (1969) also contend that cultural factors influence the behaviour of a deceiver. According to their theory, there are cultural differences in the visibility of different body parts, in the amount of external feedback received about various forms of behavioural expression, and in the display rules governing the appropriate expression of various affective responses. As a

consequence of these differences, individuals from divergent cultural backgrounds may have differential degrees of control over specific behaviours or channels of communication, and therefore, when attempting to control or manage behavioural expression in a deceptive situation, may exhibit different behavioural changes.

Do empirical data support the existence of cultural differences in deceiver behaviour?

There exists very little empirical data on this question. Feldman's (1979) developmental study of lying in urban Koreans is the only published study that has investigated deceptive behaviour from a culturally-based perspective. Unfortunately, this study included only Koreans, thereby precluding any direct comparison with other cultural groups. However, as was noted in Chapter 3, the results of this study were different from the results of a study, similar in methodology, that was conducted with American subjects (Feldman, Jenkins & Popoola, 1979). Specifically, both Grade 1 and Grade 7 Koreans were found to be successful dissemblers by Feldman (1979), whereas Grade 7 but not Grade 1 Americans were found to be successful dissemblers by Feldman, Jenkins and Popoola (1979). Feldman (1979) suggests that the reason Grade 1 Koreans and Grade 1 Americans showed differential success on the deception task was that Koreans learn to control or manage their nonverbal behaviours at an earlier age than do Americans.

Although these findings suggest that cultural factors play a role in deceptive communication, Feldman (1979) fails to provide

an adequate assessment of this hypothesis because only one cultural group was included in the study. Because this study is the only one to have investigated the influence of culture on the presentation of deceptive messages, the answer to the question of whether individuals from different cultural backgrounds behave differently when lying requires thorough empirical investigation.

The purpose underlying the present investigation is to begin to explore the question of whether or not an individual's cultural background can influence the types of behavioural changes he or she exhibits during deceptive communication. Specifically, the behaviours of Canadian and Chinese communicators were assessed and compared during the presentation of truthful and deceptive messages. As there is evidence that gender may influence the behaviour exhibited by a deceiver (Cody & O'Hair, 1983), the effect of gender as well as culture was investigated in the present study.

It should be noted that a number of behaviours have been found to be significantly correlated with actual or perceived deception in American subjects (Knapp, Hart & Dennis, 1974; Kraut, 1978; Zuckerman, DePaulo & Rosenthal, 1981a). However, whether the same kinds of behaviours play a role in deceptive communication by Canadians and/or Chinese is not known. Even in American subjects, the relationship of various behaviours to deceptive communication is not clear-cut. Thus, even though some behaviours have been found to alter consistently during deception in a wide variety of paradigms (e.g., increased use of adaptors),

other behaviours, (e.g., response latency), have been found both to increase significantly and to decrease significantly during deceptive messages (Zuckerman et al., 1981a). Still other behaviours (e.g., verbal plausibility) tentatively appear to be powerful cues in the assessment of deceptive messages but have received insufficient empirical investigation to allow adequate assessment of their role in deceptive communication. Because of these considerations, no specific hypotheses were made concerning the specific behavioural changes that would be exhibited by deceivers in the present study.

Method

Subjects

The subjects for this experiment consisted of 16 Canadian (8 males; 8 females), and 16 Chinese (8 males; 8 females) university students. All the Canadians were born in Canada and spoke English as their primary language. The mean ages of the Canadian males and Canadian females were 20.2 and 19.4 years, respectively.

- The Chinese subjects were born in Hong Kong, Singapore or Malaysia, and spoke Cantonese as their primary language. The mean ages of the Chinese males and Chinese females were 22.0 and 20.8 years, respectively. On the average, the Chinese students had been living in Canada for an average of 3.1 years. All rated themselves to be fluent in spoken and written English, and had successfully passed the English fluency exam required for

university entrance.

Procedure

All subjects completed a personal data questionnaire and a 34-item opinion survey.

The personal data questionnaire was used to obtain information regarding the subject's age, place of birth, and fluency in English.

The 34-item opinion survey asked the respondent to indicate on 7-point Likert scales, his or her level of agreement with 34 controversial statements concerning social, moral, political or religious issues. After completing the opinion survey, the respondents were asked to use a 10-point scale to rate the importance of each of the 34 statements with which they had indicated strong agreement or strong disagreement (i.e., had rated with a 1, 2, 6 or 7 on the rating scale).

For each subject, four issues were selected at random from among the issues with which the subject both had agreed or disagreed strongly and had rated as being very important (i.e., had rated as 8, 9 or 10 in importance). Two of these issues were assigned at random to the lie condition and the remaining two issues were assigned to the truth condition.

The use of topics that were highly emotional and personally involving was intended to make the deception task as difficult as possible for the subjects. Thus, in order to appear sincere, an insincere subject would not only have to conceal any negative emotional responses aroused by the message content, but

at the same time, have to simulate the opposite affective response.

Once the four issues had been chosen and randomly ordered, the speaker was informed which two issues to tell the truth about and which two issues to lie about. All subjects were informed that they would be videotaped while presenting a 30-second message on each of the four issues.

Subjects were given five minutes to prepare each of the four messages. For the honest messages, the subject was instructed to compose messages made up of statements with which he or she strongly agreed. For the deceptive messages, the subject was instructed to compose messages made up of statements which with he or she strongly disagreed. Subjects were asked to make all the messages as convincing as possible.

At the end of the 20 minutes, the subject was seated in an empty room and asked to present the four messages. The order of the messages was randomized. Prior to presentation of the messages, subjects were again urged to make all four messages as convincing as possible.

The head and body of the subject from the knees up, was recorded on video tape during the presentations. A full audio recording was made of each presentation.

All presentations were edited so as to include only the first 30 seconds of the subject's response on each issue. These edited presentations were retaped using a randomized order of the speakers. Speakers' behaviours on these latter taped segments

were scored by trained raters.

Measurements

Speakers' behaviours were divided into three categories on the basis of informational channel: visual channel (i.e., body and face behaviours); vocal channel (i.e., paralinguistic behaviours) and verbal channel (i.e., message content). (Refer to Appendix C-1 for descriptions of these behaviours.) The specific behaviours analyzed were chosen with regard both to Zuckerman, DePaulo and Rosenthal's (1981) study on the behavioural changes that most reliably accompany deception, and to the behaviours that people believe accompany deceptive messages (i.e., based on the 1981 study by Zuckerman, Koestner and Driver, and on the questionnaire results reported in Chapter 4 of the present thesis).

i) Visual Channel Behaviours - There were nine behaviours scored from the video portion of the tapes; eight specific behaviours, and one global behaviour. The eight specific behaviours included number of seconds spent gazing directly into the camera, frequency of blinking, frequency of smiling, number of seconds spent gesturing or illustrating, total duration of adaptors, number of shrugs, overall duration of leg movements, and number of chair swings. In addition to these specific behaviours, a global estimate of overall amount of movement by each speaker was made using a 7-point scale.

ii) Vocal Channel Behaviours - A total of six vocal behaviours were scored for each message. These six behaviours were latency to respond, speech rate, word complexity, frequency of silent

pauses, frequency of filled pauses, and frequency of speech errors. Ratings of vocal behaviours were made from the audio portion of the experimental tapes.

(iii) Verbal Channel Behaviours - A total of six verbal behaviours were scored for each message. These behaviours were nonimmediacy of speech, linguistic certainty, plausibility of argument, level of articulation, concreteness of statement and logical development of argument.

Ratings of verbal behaviours were made using exact transcripts of the experimental tapes.

All visual and vocal channel behaviours were scored by a single judge who was blind with regard to the experimental conditions of the speakers. To assess the reliabilities of these ratings, a second judge independently scored these same behaviours for a randomly chosen 25% of Canadian and Chinese, male and female speakers. Pearson product-moment correlations were calculated for the two judges' ratings for each behaviour and ranged from .72 for the generalized movement index to .99 for speech rate. (Refer to Appendix C-2 for interrater reliability correlations.)

Verbal channel behaviours were scored by two raters who used 7-point Likert scales to rate the six dependent measures. Pearson product-moment correlations for these behaviours ranged from .73 for concreteness to .98 for linguistic certainty.

For the purposes of analysis, mean ratings for each behaviour were calculated over the two deceptive messages and the two honest messages, respectively, for each speaker. In the case

of disagreements between the raters, the mean of the two ratings was used.

Results

Data from the three information channels (i.e., visual, vocal and verbal) were analyzed using three separate 2 (speaker culture) X 2 (speaker sex) X 2 (experimental condition) MANOVAs in which the first two factors are between subject factors, and the third factor, truthful or deceptive message, is a within subject factor. Each MANOVA contained six dependent variables. (Because of their low rate of occurrence, smiling, shrugs, and leg movements were excluded from the experimental analyses.) All analyses were performed using the GANOVA statistical programme for microcomputers.

I) Visual Channel Behaviours

Six visual behaviours (i.e., direct gaze, blinking, adaptors, illustrators, chair swings and overall movement) were analysed using a 2 (culture) X 2 (sex) X 2 (truth/lie condition) mixed MANOVA.

The results, based on a linear combination of the six visual measures, showed no significant main effects or interactions for speaker culture, speaker sex or experimental condition. (Refer to Appendix C-3 for the results of the three MANOVAs for visual, vocal and verbal channel behaviours.)

II) Vocal Behaviours

The six vocal behaviours were analyzed using a 2 (speaker culture) X 2 (speaker sex) X 2 (experimental condition) MANOVA

with repeated measures on the third factor. The results, based on a linear combination of the six vocal measures (i.e., filled pauses, silent pauses, speech errors, speech rate, response latency and average word complexity) showed a significant main effect for speaker culture, $F(6,23) = 9.40, p < .001$.

There were no significant multivariate effects of either speaker sex or experimental condition on the six variables in the vocal channel; nor were there any significant multivariate interactions. (Refer to Appendix C-3)

In order to explore which of the dependent measures were contributing to the significant main effect of speaker culture, independent t -tests were performed on each of the six variables. Using a Bonferroni adjustment to derive the critical alpha level, the results showed only one of the six variables reached significance at the .05 level. That variable was speech rate. (Refer to Table 1) Thus, Canadian speakers spoke significantly faster during the 30 second messages than did Chinese speakers.

III) Verbal Content Measures

The six verbal content measures (i.e., nonimmediacy of speech, linguistic certainty, logical development of argument, plausibility of argument, level of articulation, concreteness of argument) were analyzed in a 2 (speaker culture) X 2 (speaker sex) X 2 (experimental condition) mixed MANOVA with repeated measures on the third factor.

The results show a significant main effect for experimental condition, $F(6,23) = 7.29, p < .001$, and a

Table 1

Means and Independent Sample t-Values for the Six Vocal Channel Measures as a Function of Speaker Culture

<u>Variables</u>	<u>Mean Values</u>		<u>t(30)</u>	<u>p</u>
	<u>Canadian</u>	<u>Chinese</u>		
Filled pauses	2.16	3.86	-2.00	.06
Silent pauses	1.80	1.87	-0.10	.91
Speech errors	1.84	3.64	-2.88	.01
Speech rate	90.14	67.30	5.66 *	.00
Word complexity	1.42	1.42	0.00	.99
Response latency	1.22	1.55	-2.27	.03

* significant at alpha = .05 using a Bonferroni adjustment for multiple tests.

significant main effect for speaker culture, $F(6,23) = 11.37$,

$p < .001$ on the six dependent measures in the verbal channel.

There was no significant main effect of speaker sex, and no significant interactions with any of the independent variables.

However, there was a nonsignificant tendency for Canadian and Chinese speakers' messages to vary as a function of message veracity, $F(6,23) = 2.10$, $p < .09$.

1) Main effect of experimental condition

Six dependent t-tests were conducted to examine which dependent variables were contributing the most to the significant effect of experimental condition. The results of these analyses are presented in Table 2.

Only one of the dependent variables reached statistical significance; plausibility of argument. Thus, true messages were rated as significantly more plausible than deceptive messages.

Examination of mean scores on the six dependent measures, grouped according to experimental condition and speaker culture, revealed that the finding that truthful messages are more plausible than deceptive messages was mainly due to Canadian speakers. (Refer to Appendix C-4.) Thus messages by Canadian speakers tended to be more plausible when they were truthful than when they were deceptive (i.e., mean rated plausibility for truths and lies was 4.9 and 4.3, respectively). Plausibility ratings of Chinese speakers' honest and deceptive messages were much more similar (i.e., mean rated plausibility for truths and lies is 4.2 and 4.1, respectively).

Table 2

Means and Correlated Sample t-Values for the Six Verbal Channel Measures as a Function of Experimental Condition

<u>Variables</u>	<u>Mean Values</u>		<u>t(31)</u>	<u>p</u>
	<u>TRUE</u>	<u>LIE</u>		
Nonimmediacy	7.32	8.81	-1.62	.11
Linguistic certainty	4.27	3.81	1.41	.17
Logical development	4.43	4.41	0.14	.91
Articulation	4.44	4.67	-2.30	.03
Concreteness	4.66	4.89	-1.77	.07
Plausibility	4.59	4.22	3.01 *	.01

* significant at alpha = .05 using a Bonferroni adjustment for multiple tests.

Table 3

Means and Independent-Sample t-Values for the Six Verbal Channel Measures as a Function of Speaker Culture

Mean Values				
<u>Variables</u>	<u>Canadian</u>	<u>Chinese</u>	<u>t(30)</u>	<u>p</u>
Nonimmediacy	9.47	6.66	1.75	.09
Linguistic certainty	4.97	3.11	4.33 *	.00
Logical development	4.70	4.15	3.58 *	.00
Articulation	5.12	3.99	6.84 *	.00
Concreteness	5.26	4.29	6.86 *	.00
Plausibility	4.62	4.19	1.81	.08

* significant at alpha = .05 using a Bonferroni adjustment for multiple tests.

11) Main effect of speaker culture

Six independent t-tests were used to examine which of the six variables were contributing to the significant multivariate effect of speaker culture. The results of these tests are presented in Table 3.

As is evident from this table, four of the six dependent variables differ significantly between Canadian and Chinese speakers' messages. These four variables are linguistic certainty, logical development of argument, level of articulation, and concreteness. Thus, Canadian speakers' messages were rated as higher in linguistic certainty, higher in logical development, higher in level of articulation and higher in concreteness than were Chinese speakers' messages. Canadian and Chinese speakers' messages did not differ with respect to ratings of plausibility of argument or nonimmediacy of speech.

Discussion

The purpose of the present study was to explore whether individuals' cultural backgrounds influence the behaviours that accompany deceptive messages.

Analysis of the results of this study provided little evidence that Canadian and Chinese speakers respond differentially to the task of presenting deceptive messages. Thus, there was no significant interaction between speaker culture and experimental condition for visual, vocal or verbal behaviours.

Nonetheless, it is of note that this interaction did reach borderline significance (i.e., $p < .09$) for a linear combination

of verbal behaviours. In the present context, it is unclear whether this tendency is related to Canadian/Chinese differences per se; to the language of presentation (i.e., English); or to primary versus secondary language usage (i.e., Canadians are presenting messages in their primary language whereas Chinese are presenting messages in their secondary or tertiary language.) However this finding does suggest that future research could benefit from attention to the verbal aspects of deception within different cultural groups.

Interestingly, the verbal channel was also the only channel in which true and lie messages showed a significant difference on a multivariate combination of the dependent measures. This finding provides support for the contention that the verbal channel is the most powerful single channel in which to detect lies (Zuckerman et al., 1981a).

The results of post hoc t-tests on the verbal channel data indicated that the main source of difference in verbal behaviour between truthful and deceptive messages was in level of plausibility (i.e., the extent to which the message is consistent with world knowledge). Examination of the mean ratings of this behaviour for Canadian and Chinese speakers revealed that Canadian speakers were primarily responsible for the decrease in plausibility associated with deceptive messages.

The finding that deceptive messages are associated with a lower degree of plausibility than truthful messages is consistent with the results of other research (Kraut, 1978; Stiff & Miller,

1986), but the specific nature of the relationship between plausibility of argument and message veracity has not been investigated. One tentative explanation for this finding is that the lower plausibility associated with deceptive messages reflects inappropriate word choices on the part of the liar. This hypothesis involves a phenomenon termed 'lexical leakage' (Spence, 1982) and is based on the idea that a speaker's choice of words is not entirely conscious and controllable. (Spence defines lexical leakage as "a choice of words that is influenced by unconscious and preconscious background factors but that conforms to all local semantic and syntactic requirements."; 1982, p. 301) Spence (1982) suggests that lexical leakage occurs because the looseness of expressive syntax in natural language allows a lot of freedom in the specific words chosen to express an idea. Because of the speed of oral communication, it is impossible for a speaker to monitor each word choice, and as a consequence of slips in managing the verbal channel, underlying emotional conflicts or hidden anxieties of the speakers may be revealed in the specific wording of messages. One example of lexical leakage that is given by Spence (1982) is of a farmer who, while applying for drought relief, complains about "drowning in red tape", (p. 301). Spence suggests that the farmer's use of the term 'drowning' may reflect his underlying anxiety about the need for water.

Although Spence (1982) did not extend this concept specifically to deceptive messages, it is possible that the heightened anxiety or hidden affect associated with a lie may

result in the liar making inappropriate word choices. As a result of such incongruous or inappropriate words, a message could be perceived as being implausible.

Although this hypothesis is highly speculative, it is consistent with finding that decreased plausibility was associated with deceptive messages by Canadians more than with deceptive messages by the Chinese. Thus, Canadians are highly fluent in English, and therefore are capable of choosing their words based on subtle nuances of meaning. For Canadian speakers then, the choice of words used to express a deceptive message may convey information about underlying emotions or anxieties. Chinese, on the other hand, are presenting their deceptive messages in a language that is not their native one. Because they are less fluent in English than are the Canadians, they may be less sensitive to the subtle meanings of English words. Thus, the word choices of Chinese speakers may convey more information about their vocabulary than about underlying emotions.

Unfortunately, instances of lexical leakage are difficult to score objectively and whether or not such leakage is related to the perceived plausibility of a message is unknown. Spence (1982) provides some guidelines for identifying such leakage (i.e., semantic overlap between word choice and the surrounding context, overuse of specific words, and subtle errors in usage). However, these guidelines are quite subjective and to date, no standardized scoring method has been developed for scoring lexical leakage. Perhaps if such a scale is developed the role of verbal leakage in

deceptive communication could be explored more extensively. For now, all that can be said is that the plausibility of a message appears to be related to the veracity of the message, and verbal leakage may or may not contribute to this relationship.

The only other statistically significant effects found in the present study were the multivariate effects of speaker culture on behaviours in both the vocal and verbal channels, and the borderline significant effect of speaker culture on behaviours in the visual channel.

For the most part, the differences in vocal and verbal behaviours reflect the fact that the Canadian and Chinese speakers were not equally fluent in English. Thus the results showed that, compared to the Canadian speakers, Chinese speakers spoke less, and tended to make more speech errors, exhibit longer pauses while speaking, and hesitate longer before responding. These specific behaviours tend to be associated with increased cognitive difficulty and, given that Chinese speakers are not using their native language, it would not be surprising if they found the task more cognitively difficult than did Canadian speakers.

It is also likely that the differences in verbal behaviours between Canadian and Chinese speakers are related to differences in language fluency as well. Thus Chinese speakers' messages were less logically consistent, less articulate, contained fewer absolute verbs, and were more vague, than messages by Canadian speakers.

The borderline effect of speaker culture on visual channel

behaviours is an interesting one. Although it did not reach statistical significance in the present study, this finding suggests that, independent of message veracity, Canadian and Chinese speakers may exhibit different visual behaviours overall.

An examination of the means for Canadian and Chinese speakers on the six visual behaviours shows that, Chinese speakers tended to exhibit less movement than did Canadian speakers. (Refer to Appendix C-5.)

It is not clear why Chinese speakers tended to exhibit less movement than did Canadian speakers but this finding is consistent with the notion that display rules in Chinese society encourage restraint of nonverbal and verbal expressions of emotions to a greater extent than do display rules in North American society (Argyle, Henderson, Bond, Iizuka & Contarello, 1984, cited in Bond, 1986). However, it is also possible that the Chinese speakers in the present study tended to move less than the Canadian speakers because the task is more cognitively difficult for them than for the native English speakers.

In any event, the fact that a borderline effect was found for the effects of speaker culture on visual behaviour is interesting, and may have important implications for intercultural communication between Canadian and Chinese individuals.

One other question of interest to the present investigation is: How do Canadian and Chinese deceivers' behaviours compare to Canadian and Chinese beliefs about deceivers' behaviours?

In spite of the fact Canadians believe that, among other things, people telling planned lies show significantly more blinking, use more adaptors, use more illustrators, and talk faster than people telling the truth, there were no significant differences found in any of the speakers' visual or vocal behaviours in the present study.

It may be that the experimental situation and the deceptive situations visualized by the questionnaire respondents bear little resemblance to each other. However, the finding that people tend to overestimate the behavioural changes that accompany deceptive messages is consistent with the results of other studies. Thus Zuckerman et al., (1981b) found that when subjects were asked to rate the behavioural changes that accompany deceptive messages, they rated 17 out of 19 as changing significantly during deception. Based on a review of the deceptive communication literature, Zuckerman et al., (1981b) found only 8 of these 19 behaviours actually did change significantly during deception, and that the correlation between amount of behavioural change believed to accompany deception, and amount of behavioural change that actually occurred was very low (i.e., $r = .11$). These findings suggest that people believe that deceivers show significantly more behavioural changes than they actually do.

Whether Chinese individuals expect more behavioural changes to accompany deception than actually occurs is not known. However, from the results of the questionnaire study described in

Chapter 4, it is clear that Chinese respondents expect fewer behaviours to change significantly during planned lies than do Canadian respondents. Nonetheless, the two behaviours that Chinese respondents rated as showing the most amount of change during planned lies, i.e., use of illustrators and speech rate, showed no significant changes in the present study. Thus it appears that Chinese beliefs about deceiver behaviour may be no more accurate than those of Canadians.

In summary, the results of a multivariate analysis showed that a linear combination of verbal behaviours differed significantly for truthful and deceptive messages. Based on post hoc univariate analysis, only one of these verbal behaviours differed significantly as a function of message veracity. That behaviour was argument plausibility, and its effect was specific to messages by Canadian speakers.

Apart from a main effect of speaker culture on the vocal and verbal behaviours, no other significant effects were found in the present study.

Altogether, the results of this study provide little support for the contention that Canadian and Chinese individuals exhibit different visual or vocal behaviours as a function of deception. However, the fact that neither visual nor vocal behaviours differentiated true from deceptive messages for Canadian or Chinese speakers could indicate that the specific variables measured were not sensitive enough to detect differences in the speakers' messages.

Unlike analyses of vocal and visual channel behaviours, the multivariate analysis of verbal behaviours showed that a combination of these behaviours did differentiate true from deceptive messages. This analysis also revealed a borderline interaction between culture and experimental condition. These findings suggest that verbal behaviours, at least, may represent a promising direction for researchers interested in the effects of culture on deceptive communicators.

Chapter 6

ASSESSING SINCERITY: A COMPARISON OF CANADIAN AND CHINESE JUDGES

Do cultural influences play a role in the perception and detection of deceptive messages?

Much of the research in the area of behavioural lie detection has shown that naive judges can discriminate truthful from deceptive messages with accuracy rates that are small (i.e., approximately 5% - 7% better than chance) but quite consistent (Zuckerman, DePaulo & Rosenthal, 1981a). However, the majority of these studies have investigated North American judges assessing North American communicators. Whether the cultural background of the communicators influences perceptions and judgements of sincerity is not known. Nor is it known whether judges from different cultural groups use the same criteria to assess the veracity of communicators.

It is important to investigate questions regarding the influence of cultural factors in the deceptive communication process. People from different cultures show differences in their use of nonverbal communication (Argyle, 1975 ; Hall, 1976) and it is possible that some of these behavioural differences could affect the perception and detection of deceptive messages.

Cultural differences in perceptions of a communicator's sincerity could have a serious impact on intercultural communication and on intercultural relations. In particular, misattributions about the

sincerity of communicators could undermine trust between people from different cultural backgrounds, and could promote negative cultural stereotypes.

To date, only two studies have investigated cultural influences in deceptive communication: Feldman's (1979) study of lying in Korean children, and Atmiyanadana's (1976) study of lie detection by Asian, Latin American and American judges (Refer to Chapter 3). Unfortunately, both these studies have procedural problems that effectively preclude any conclusions concerning the effects of culture on deceptive communication. Thus Feldman (1979) attempts to draw conclusions about the relative ability of Korean and American children to lie successfully, but fails to do a comparative study using members from both cultural groups.

Atmiyanandana (1976) attempted to test the hypothesis that cultural heterogeneity between the communicator and the judge decreases the accuracy with which true messages can be discriminated from false ones. However, mean accuracies for all three judge groups did not differ significantly from chance levels. Consequently, if there were differences in judges' ability to discriminate true from untrue messages, the difficulty of the task would have obscured them. In addition to this problem, Atmiyanandana confounded the effect of judge culture per se, with the effects of cultural heterogeneity of communicator and judge by using only American communicators. Thus, even if, as Atmiyanandana (1976) hypothesized, Asian judges had been significantly less accurate than Latin Americans and Americans at

detecting the lies of the American communicators, it could not be determined whether this result was because of cultural heterogeneity between the Asian judges and the American communicators, or because Asians are poorer at decoding cues to deception.

In order to investigate the question of cultural influences in deceptive communication, the present study was conducted. In this study, the problems inherent in Feldman's (1979) and Atmiyanadana's (1976) studies have been eliminated. Thus, communicators from two divergent cultural backgrounds are utilized so that effects of the cultural background of the communicator on judgements of sincerity can be assessed. Also, inclusion of judges from two different cultural backgrounds allows the effects of judge culture on assessments of sincerity to be separated from effects of homogeneity between judge and communicator. Finally, mean detection rates are higher when judges have access to multiple cues, particularly body and verbal content cues (Zuckerman et al., 1981a), than when they are restricted to visual cues alone. Therefore, in order to avoid Atmiyanadana's (1976) problem of chance accuracy rates in the lie detection task, performance was facilitated by having judges make their assessments of the sincerity of the messages based on full audiovisual information.

Using Canadian and Chinese subjects, the present study focuses on three main questions concerning the effects of culture on deceptive communication.

The first question is: Do judges from diverse cultural backgrounds use similar criteria in assessing the sincerity of a communicator?

The results of the questionnaire study reported in Chapter 4 suggest that Canadians and Chinese have different conceptions of how typical deceivers behave. These beliefs may influence how they perceive and judge the veracity of a communicator.

The second question is: Do the behaviours exhibited by deceivers from dissimilar cultural backgrounds, differ?

One way to examine this question is to record and compare the behaviours exhibited by culturally diverse individuals during deception (Refer to Chapter 5). However, such studies can only examine a small subset of individuals' behaviours. A more global assessment of whether Canadian and Chinese deceivers behave differently can be investigated by having naive judges rate the sincerity of messages presented by these communicators and then comparing these ratings.

The third question is: Are judges more accurate at discriminating sincere from deceptive messages when the communicator and the judge are culturally homogeneous than when they are culturally heterogeneous?

In connection with this question, it should be noted that a number of researchers have postulated that sincere communication is more effective when the sender of the message and the receiver of the message share a common cultural background (Gallois & Callan, 1986; LaFrance & Mayo, 1978, Rogers & Shoemaker, 1971),

and this hypothesis has received some empirical support (Albas, McClusky & Albas, 1976; Rosenthal, Hall, DiMatteo, Rogers & Archer, 1979). Whether cultural homogeneity has an impact on deceptive communication is not clear. Although some researchers have hypothesized that cultural homogeneity between the deceiver and the audience facilitates accuracy at detecting lies (Atmiyanandana, 1976; Ekman, 1985), to date, there is little evidence to support or refute a cultural homogeneity effect in deceptive communication.

In addition to cultural factors, the present study investigated the influence of gender, both of communicator and judge, on assessments of communicators' sincerity. Although findings of gender effects in the deceptive communication literature tend to be inconsistent (Zuckerman et al., 1981a), a number of studies have found significant gender differences in the behaviour of deceivers (Cody & O'Hair, 1983; DePaulo, Rosenthal, Rosenkrantz & Green, 1982c), and in the accuracy of lie detectors (DePaulo, Stone & Lassiter, 1985; Feldman, 1979). Therefore gender was incorporated as a variable in the present study.

Method

Subjects

The judges were 48 Canadian (18 males; 30 females) and 48 Chinese (22 males; 26 females) students in introductory psychology classes. The mean ages of the Canadian male and female students were 20.3 years and 19.4 years, respectively. None of the

Canadian subjects had ever lived outside of Canada, and all spoke English as their primary language.

The mean ages of the Chinese male and female students were 21.4 years and 20.5 years, respectively. All Chinese subjects had lived in Canada less than four years. On average, the Chinese male students had lived in Canada for 3.4 years, and the Chinese females had lived in Canada for 2.5 years.

All subjects received course credit for participating in the experiment.

Stimulus Tapes

Four stimulus tapes were made using the videotaped messages from the study presented in Chapter 5. Each of these tapes contained four 30-second messages (i.e., two sincere messages and two insincere messages) presented by eight different speakers. Thus, there were 32 messages on each of the four stimulus tapes.

Speakers were randomly ordered on the tapes with the condition that each tape contain two Canadian male speakers, two Canadian female speakers, two Chinese male speakers, and two Chinese female speakers. All four messages by a speaker were presented in a block.

Procedure

Upon arriving at the laboratory, the subjects were asked to fill out a personal data questionnaire, and to read a short instruction sheet (Refer to Appendix D-1). This instruction sheet, accompanied by oral instructions, informed the subjects that they would see eight individuals speaking on a number of

issues. For each message presented, subjects were asked to use a dichotomous scale (i.e., true or lie) to record whether the opinion presented by the speaker represented his or her true opinion or whether the speaker was lying about how he or she felt about the issue.

All subjects were told that each speaker could be lying on all of the issues, lying on some of the issues or telling the truth on all the issues.

Subjects viewed the tapes in culturally-segregated groups of three to ten individuals. Each judge viewed two of the four stimulus tapes. Messages by the eight speakers on each tape were presented to the judges in the following manner.

The four messages of Speaker #1 were shown to the judges. During the first viewing of each speaker, judges were asked to attend to the speaker, and to refrain from doing any ratings during this time. After the speaker's messages had been viewed by the judges, the tape was rewound, and the first message was shown a second time. At this point, the tape was stopped, and the judges were given eight seconds in which to rate the speaker's message. At the end of the eight seconds, the speaker's second message was shown for a second time, and the judges were given eight seconds to rate this message. The speaker's third and fourth messages were presented and rated in the same manner.

This procedure was followed for all eight speakers on the stimulus tape.

To prevent subject fatigue, judges rated the sincerity of

messages for eight speakers on one day, and then returned the next day to rate the messages of another eight speakers. Each experimental session took approximately 45 minutes to complete.

In total, each judge rated 64 messages presented by 16 different speakers; 4 Canadian male speakers, 4 Canadian female speakers, 4 Chinese male speakers and 4 Chinese female speakers. The tapes were counterbalanced across subjects such that each speaker was rated by 24 Canadian and 24 Chinese judges.

Results

Perceived Truthfulness

To examine the perceived sincerity of the speakers, a 'perceived truthfulness' score for each speaker was calculated by summing the total number of times the speaker was judged to be telling the truth, and dividing these totals by the number of judgements. These scores were calculated separately for Canadian male judges, Canadian female judges, Chinese male judges and Chinese female judges. The four scores for each of the 32 speakers were then analyzed in a 2 (speaker culture) X 2 (speaker sex) X 2 (judge culture) X 2 (judge sex) ANOVA with repeated measures on judge culture and judge sex.

The results showed a significant effect of judge culture on perceived truthfulness of messages, $F(1,28) = 24.47, p < .001$. Thus Canadian judges rated the speakers' messages as sincere significantly less often than did Chinese judges (i.e., mean perceived truthfulness scores were .60 and .67, respectively).

The analysis revealed no other significant effects.

A scatterplot showing Canadian and Chinese judges' assessments of individual speakers' sincerity is presented in Figure 1. As can be seen in this figure, both Canadian and Chinese judges rated the majority of the speakers to be telling the truth more often than they rated them to be lying. It is also apparent from this figure that the Chinese judges are calling the majority of the speakers truthful more often than are Canadian judges. Gender of speaker appeared to have little effect on judges' ratings of the sincerity of the speakers.

In order to test the degree of similarity in Canadian and Chinese judges' ratings of the individual speakers, a Pearson's Product-Moment Correlation was calculated using Canadian and Chinese judges' ratings of all 32 speakers.

This analysis revealed that the correlation between these ratings is statistically significant, $r(30) = .52, p < .01$. This finding suggests that, in general, a speaker who is judged to be sincere by Canadians is also judged to be sincere by Chinese individuals. However, this analysis does not address the question of whether both Canadian and Chinese speakers are being rated similarly by the judges. Therefore, Pearson's r s were calculated separately for ratings of Canadian and Chinese speakers. The results of these two analyses revealed a significant correlation for 'true' ratings of Chinese speakers by Canadian and Chinese judges, $r(14) = .71, p < .01$, but a nonsignificant correlation for their 'true' ratings of Canadian speakers, $r(14) = .34, p > .05$. These results indicate that Canadian and Chinese judges' ratings

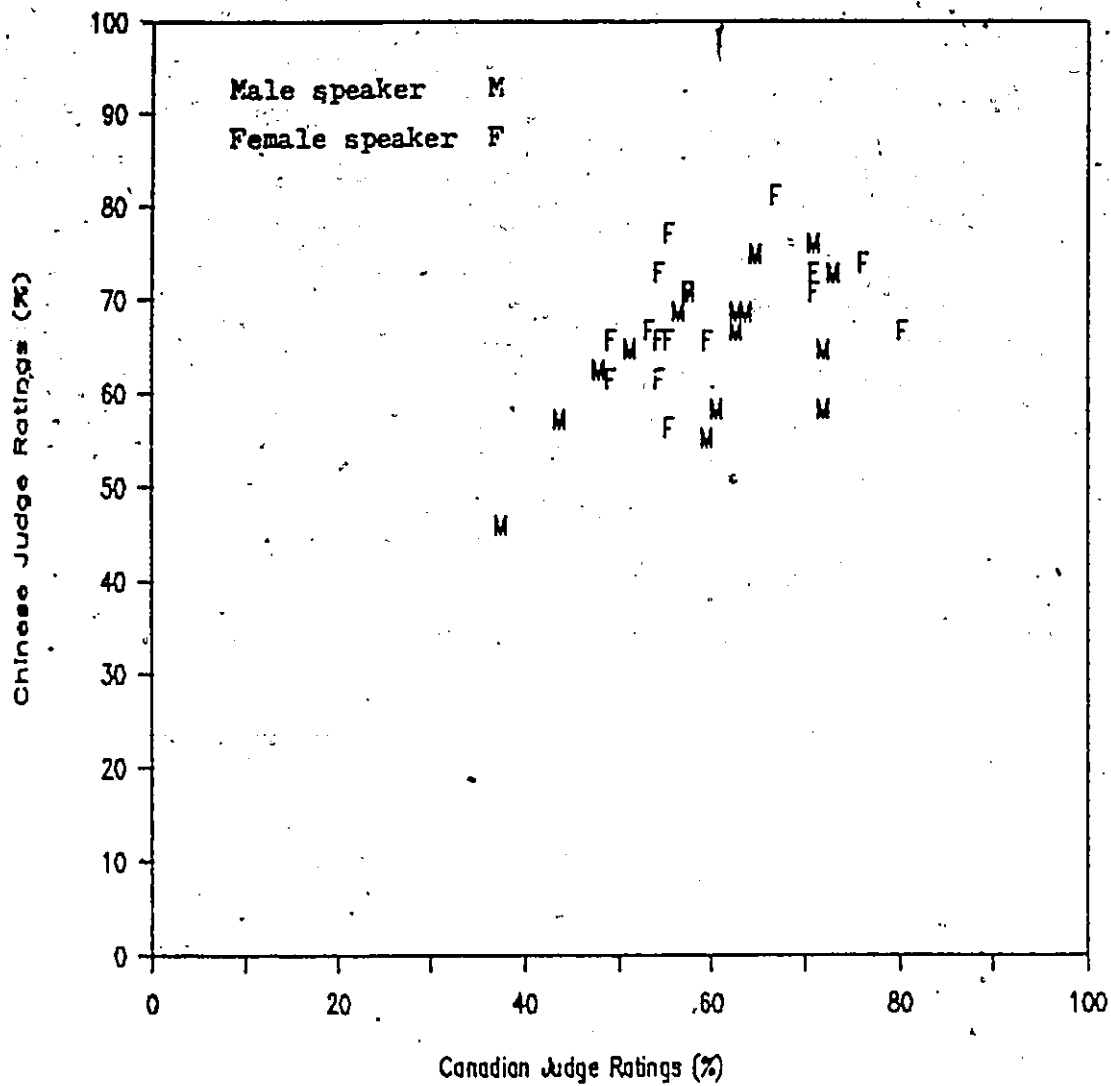


Figure 1. Proportion of 'True' responses by Canadian and Chinese judges for the individual speakers.

of Chinese speakers have 50% of their variance in common.

Canadian and Chinese judges' ratings of Canadian speakers share only 12% of their variance.

In summary, there is a significant main effect of judge culture on the frequency with which communicators are judged as being truthful. Thus, Chinese judges rated the speakers as being sincere significantly more often than did the Canadian judges. This effect was independent of the culture of the speaker.

Apart from the overall difference in frequency of true responses, Canadian and Chinese judges show a significantly similar pattern in their ratings of the individual speakers. However, their ratings of the Chinese speakers show a higher degree of similarity than do their ratings of the Canadian speakers.

Accuracy of Judgements

For each speaker rated, a judge was given an accuracy score reflecting the number of times he or she correctly judged a deceptive message to be a lie (i.e., a hit) minus the number of times he or she incorrectly judged a truthful message to be a lie (i.e., a false alarm). Because each speaker presented two truthful and two deceptive messages, judges' accuracy scores for the individual speakers could range from -2 to 2. On average, judges who cannot discriminate truthful from dishonest messages for a given speaker will receive a score of 0 for that speaker.

To determine whether speakers' deceitful messages were being discriminated from their honest ones, a mean detection score

was calculated for each speaker (i.e., accuracy scores for that speaker were averaged over the number of judges). These mean detection scores were compared in 1-sample t-tests against hypothesized chance-level detection scores of 0. Mean scores for the 16 Canadian and 16 Chinese speakers were analyzed separately, as were the data from the Canadian judges and the Chinese judges. This resulted in four separate t-tests.

These analyses revealed that judgements of messages by both Canadian and Chinese speakers were significantly more accurate than would be expected by chance. Thus, Canadian speakers' deceptive messages were discriminated from their honest messages by both Canadian judges, $t(15) = 5.61$, $p < .001$, and by Chinese judges, $t(15) = 2.85$, $p < .05$. Similarly, Chinese speakers' deceptive messages were discriminated from their honest messages by both Canadian judges, $t(15) = 5.24$, $p < .001$, and by Chinese judges, $t(15) = 6.33$, $p < .001$.

In terms of percentage correct (i.e., percentage of total judgements in which a lie was called a lie, and a truth was called true), the sincerity of messages by Canadian speakers was correctly identified in 62% of the judgements made by Canadian subjects, and in 55% of the judgements made by Chinese subjects. The sincerity of messages by Chinese speakers was correctly identified in 65% of the judgements made by Canadian subjects, and in 63% of the judgements made by Chinese subjects.

To determine whether accuracy at discriminating truths from lies was influenced by culture and/or gender of the speakers

and the judges, a score reflecting proportion of correct judgements was calculated for each speaker. These scores were obtained by summing the total number of correct judgements for each speaker (i.e., the frequency with which true messages were judged as 'true' and the frequency with which lie messages were judged as 'lie'), and dividing these scores by the total number of judgements. (Scores were calculated separately for judgements by Canadian males, Canadian females, Chinese males and Chinese females.) The resulting data were analysed in a 2 (Speaker Culture) X 2 (Speaker Sex) X 2 (Judge Culture) X 2 (Judge Sex) ANOVA with repeated measures on the last two factors.²

The results showed three significant main effects, and three significant two-way interactions. (The ANOVA table for this analysis can be found in Appendix D-5.)

Main effects were found for speaker culture, $F(1,28) = 4.97, p < .05$; judge culture, $F(1,28) = 12.51, p < .005$; and judge sex, $F(1,28) = 9.47, p < .005$. Thus, messages by Chinese speakers were judged more accurately than were messages by Canadian speakers (i.e., mean detection scores were .64 and .59, respectively); Canadian judges were more accurate at assessing message veracity than were Chinese judges (i.e., mean detection scores were .64 and .59, respectively), and male judges were more accurate at assessing message veracity than were female judges (i.e., mean detection scores were .63 and .60, respectively).

These main effects were mediated by three two-way interactions. Thus, there were significant interactions between

speaker culture and speaker sex, $F(1,28) = 6.50, p < .02$; speaker culture and judge sex, $F(1,28) = 4.75, p < .05$; and speaker sex and judge sex, $F(1,28) = 4.39, p < .05$.

Mean accuracy rates for the speaker culture X speaker sex interaction are presented in Table 1. As is evident from this table, judges were most accurate at judging the veracity of the Chinese females' messages, and least accurate at judging the veracity of the Canadian females' messages.

Analysis of the simple main effect of speaker culture (Winer, 1962) showed that there was no significant difference in the accuracy with which messages by male Canadian and male Chinese speakers were assessed, $F(1,28) = .07, p > .05$.

In contrast to the results for the male speakers, analysis of the simple main effect of speaker culture on assessments of messages by female speakers showed that speaker culture had a significant effect on the accuracy with which messages were judged, $F(1,28) = 11.15, p < .005$. Thus messages by female Canadian speakers were judged significantly less accurately than were messages by female Chinese speakers.

With regard to the significant main effect of speaker culture on accuracy, one other point should be noted from these data. The high accuracy with which Chinese speakers' messages were assessed is primarily a result of the high detectability of the Chinese females' messages rather than a high detectability of Chinese speakers' messages per se.

Table 2 shows the mean detection scores for the speaker

Table 1

Mean Percentage of Correct Judgements as a Function of Speaker Culture and Speaker Sex

		Speaker Sex	
		<u>Male</u>	<u>Female</u>
Speaker Culture	Canadian	60	57
	Chinese	59	70

Table 2

Mean Percentage of Correct Judgements as a Function of Speaker Culture and Judge Sex

		Judge Sex	
		<u>Male</u>	<u>Female</u>
Speaker Culture	Canadian	59	58
	Chinese	67	62

culture X judge sex interaction. Analysis of the simple main effects of speaker culture on judgements by male subjects showed that the accuracy of judgements by male subjects differed significantly for messages by Canadian and Chinese speakers, $F(1,28) = 5.78, p < .05$.

Analysis of the simple main effects of speaker culture on judgements by female subjects showed no difference in accuracy for messages by Canadian and Chinese speakers, $F(1,28) = 2.50, p > .05$.

These data indicate that male judges are more accurate at assessing the sincerity of Chinese speakers' messages than they are at assessing the sincerity of Canadian speakers' messages. Female judges do not differ significantly in the accuracy with which they assess messages by Chinese and Canadian speakers.

Mean detection scores for the third significant interaction, speaker sex X judge sex, are presented in Table 3. Analysis of the simple main effect of judge sex on ratings of messages by male speakers showed no significant difference between accuracy of the judgements made by male and female judges, $F(1,28) = .55, p > .05$.

An analysis of the significant simple main effect of judge sex on ratings of messages by female speakers revealed that male judges were more accurate at assessing messages by the female speakers than were the female judges, $F(1,28) = 13.75, p < .005$.

The latter two interactions, judge sex X speaker culture, and judge sex X speaker sex, and the main effect of judge sex can be clarified by examining the accuracy scores presented in Table 4.

Table 3

Mean Percentage of Correct Judgements as a Function of Speaker Sex and Judge Sex

		Judge Sex	
		<u>Male</u>	<u>Female</u>
Speaker Sex	Male	60	59
	Female	66	61

Table 4

Mean Percentage of Correct Judgements by Speaker Culture, Speaker Sex, Judge Culture and Judge Sex

		Judges			
		Canadian		Chinese	
		<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Speakers	Canadian				
	Male	64	65	56	54
	Female	61	60	55	53
Speakers	Chinese				
	Male	61	60	58	56
	Female	75	66	73	64

From the data in this table, it can be seen that male Judges' mean accuracy ratings are slightly higher than those of female Judges in 15 of the 16 cells. However, the primary source of the significantly higher mean accuracy rating that was found for male Judges, compared to female Judges, appears to be Judges' assessments of messages by Chinese female speakers. Thus, even though the messages by female Chinese speakers tended to be judged the most accurately by all subjects, Canadian and Chinese male Judges were more accurate at assessing the messages by these speakers than were their respective female counterparts.

The data in Table 4 also show that the significant judge sex by speaker culture interaction is primarily due to male Judges' superior accuracy at assessing the messages by Chinese female speakers. Thus, although male judges are slightly more accurate at assessing the veracity of messages by Chinese male speakers than are female speakers, the main difference between male and female Judges' mean accuracy scores for Chinese speakers is due to judgements of the messages by Chinese female speakers.

One final point should be noted from the data presented in Table 4; the significant judge sex by speaker sex interaction is also a function of male Judges' high accuracy at discriminating messages by Chinese female speakers. Thus, even though this interaction showed that male Judges were more accurate at assessing message veracity by female speakers than they were at assessing message veracity by male speakers, this effect was true for the Chinese speakers only. In fact, male Judges in both

cultural groups, showed a tendency towards higher accuracy scores for messages presented by male Canadian speakers than for messages presented by female Canadian speakers.

To summarize the findings thus far, the data in Table 4 show that messages by Chinese female speakers are assessed more accurately than messages by any of the other three speaker groups; that male judges are slightly more accurate at assessing message veracity than are female judges, and that male judges are particularly more accurate at assessing messages by Chinese female speakers than are female judges.

In addition to these effects, another significant main effect found in the present study was that Chinese judges are less accurate at assessing the veracity of speakers' messages than are Canadian judges. Unlike the main effects of speaker culture and judge sex, the effect of judge culture on accuracy is not qualified by any significant interactions. However, it should be noted that there was a borderline effect of speaker culture by judge culture, $F(1,28) = 3.27, p < .08$. The mean accuracy rates for speaker culture by judge culture are shown in Table 5.

Although this effect failed to reach significance, it is apparent from these mean accuracy rates that Chinese judges are assessing messages by Chinese speakers only slightly less accurately than are the Canadian judges. Thus the finding that Chinese judges are less accurate at assessing message veracity than are Canadian judges appears to be mainly a function of their decreased accuracy at judging the messages by Canadian speakers.³

Table 5

Mean Percentage of Correct Judgements as a Function of Speaker Culture and Judge Culture

		Judge Culture	
		<u>Canadian</u>	<u>Chinese</u>
Speaker Culture	Canadian	63	55
	Chinese	66	63

It should be noted that Chinese Judges' decreased accuracy at judging messages by Canadian speakers could be the result of their having difficulty assessing the veracity of messages by a few Canadian speakers, or could be the result of a more generalized difficulty with Canadian speakers' messages.

Figure 2 shows a scatterplot of the mean accuracy ratings for Canadian speakers by Canadian and Chinese Judges. As can be seen in this figure, the relatively low accuracy scores for Chinese Judges' assessments of messages by Canadian speakers, is generalized over most of the individual speakers. This finding suggests that the low accuracy of Chinese Judges in assessing messages by Canadian speakers is not a function of difficulty with a small subset of the Canadian speakers, but appears to be a more generalized effect.

A scattergram of mean accuracy ratings for Chinese speakers by Canadian and Chinese Judges is presented in Figure 3. As can be seen in this figure, accuracy of judgements by Canadian and Chinese subjects are more similar for messages by Chinese speakers than for messages by Canadian speakers. It is also clear from this figure that messages by all the female speakers are being judged with a relatively high level of accuracy. Therefore the finding that Chinese female speakers have higher accuracy rates of the four speaker groups is not a function of a few Chinese females being detected with a high level of accuracy but appears to result from a generalized effect over all Chinese female speakers.

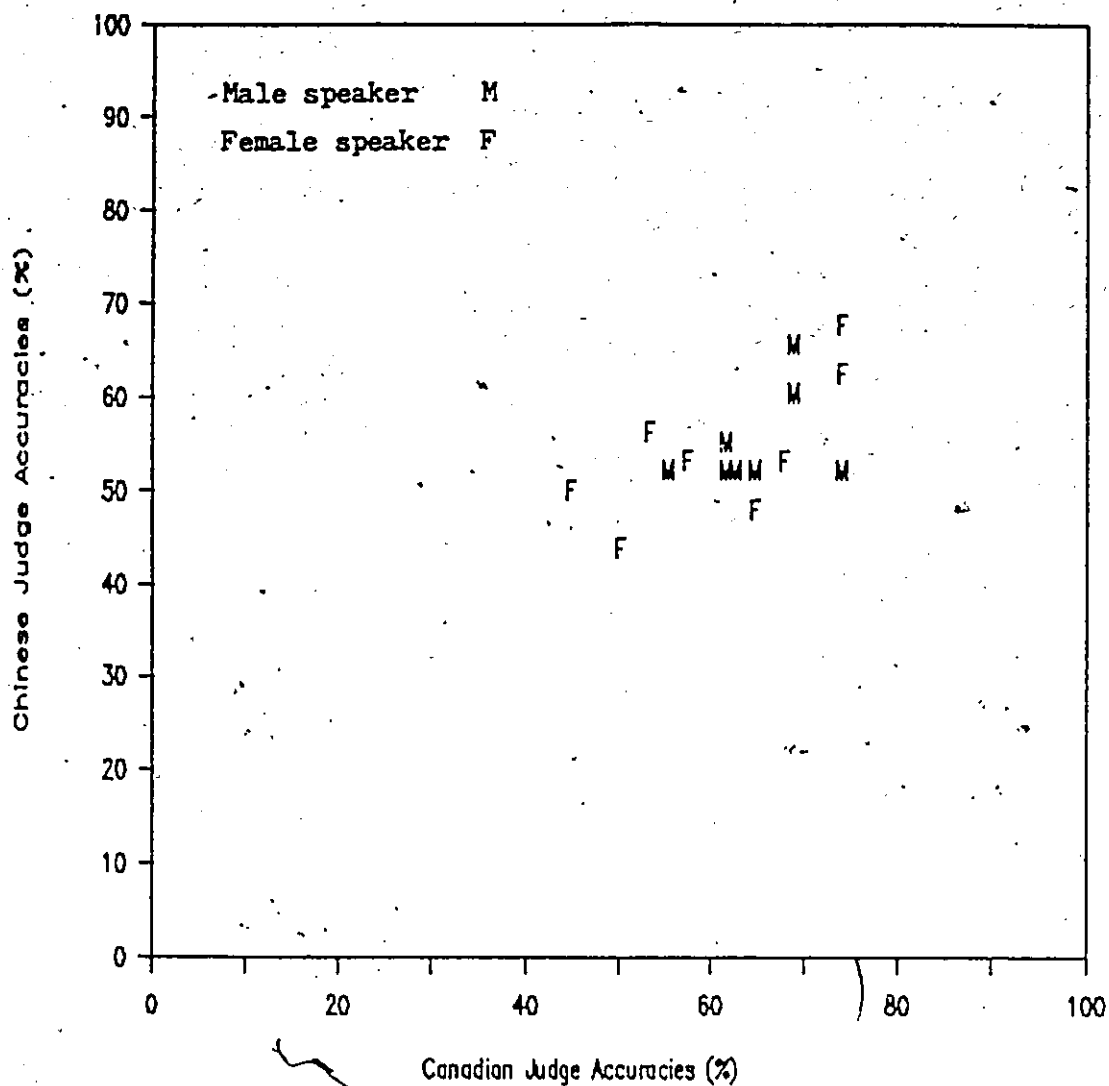


Figure 2. Proportion of correct judgements by Canadian and Chinese judges for the individual Canadian speakers.

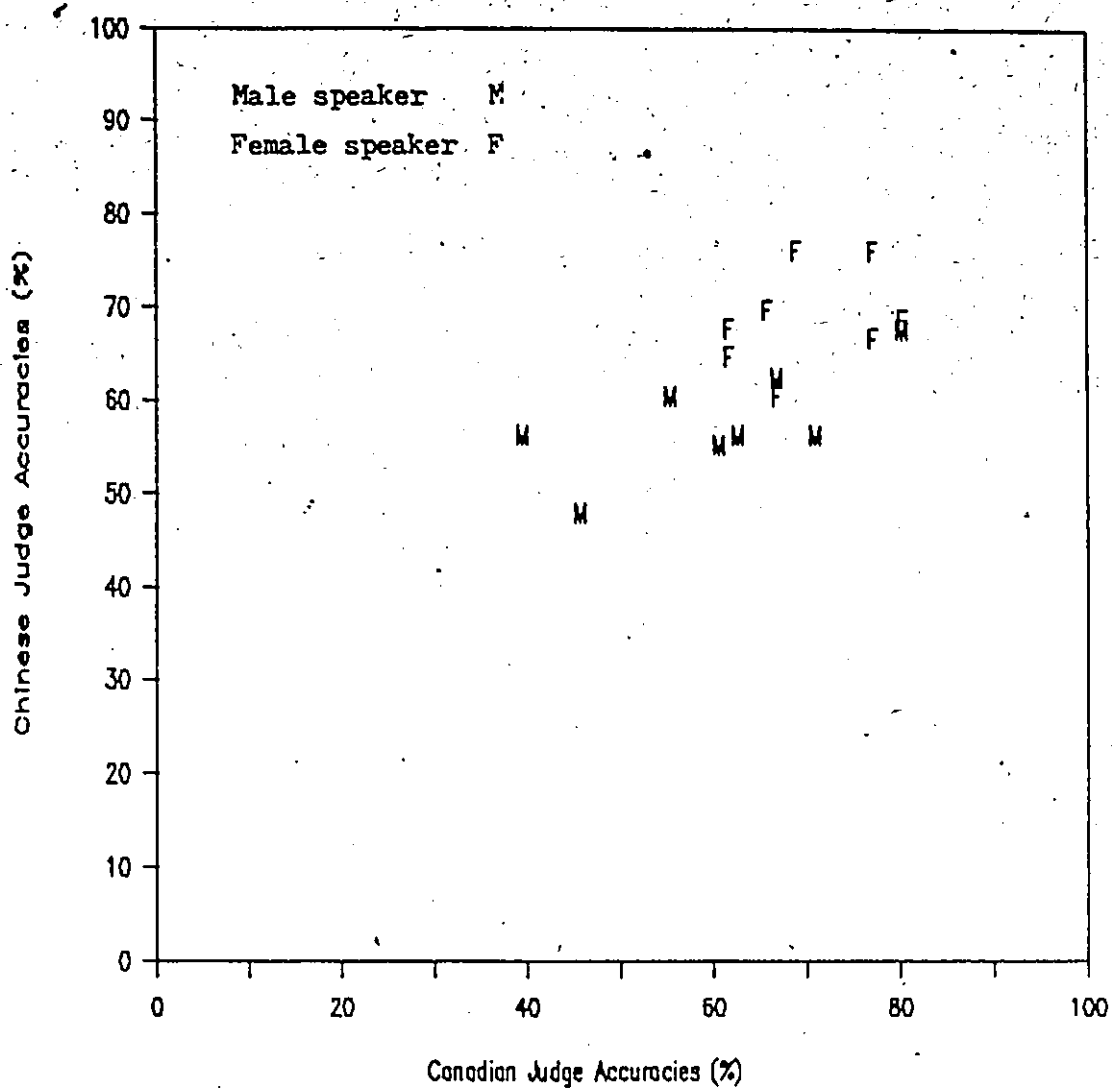


Figure 3. Proportion of correct judgements by Canadian and Chinese judges for the individual Chinese speakers.

In order to investigate further whether Canadian and Chinese judges found the same individual speakers easy or difficult to assess, it was necessary to compare patterns of mean accuracy scores for the individual speakers. Therefore, two Pearson Product-Moment correlations were calculated; one using Canadian and Chinese judges' mean ratings of messages by the Canadian speakers, and the other using their mean ratings of messages by the Chinese speakers.

The results of the two correlational analyses show that the pattern of accuracy scores for Canadian and Chinese judges are significantly similar for both Canadian speakers, $r(14) = .63$, $p < .01$, and for Chinese speakers, $r(14) = .66$, $p < .01$. Thus, although Chinese judges are generally less accurate at discriminating honest from dishonest messages by the speakers, especially by the Canadian speakers, the relative detectability of the individual speakers is similar in the two groups of judges.

In order to assess whether Canadian and Chinese judges were equally likely to make a correct judgement about a truthful message as a deceptive message, conditional probabilities for truthful and deceptive messages (i.e., the probability of a correct response given the message was true, and the probability of a correct response given the message was a lie) were calculated for each speaker. These values were analyzed in a 2(Speaker culture) X 2(Speaker sex) X 2(Judge culture) X 2(Judge sex) by 2(Experimental Condition) ANOVA with repeated measures on the last 3 variables.

Table 6.

Mean Conditional Accuracy for Truthful and Deceptive Messages as a Function of Speaker Culture and Judge Culture

		Judge Culture			
		Canadian		Chinese	
		<u>True</u>	<u>Lie</u>	<u>True</u>	<u>Lie</u>
Speaker Culture	Canadian	.71	.54	.73	.36
	Chinese	.77	.55	.79	.47

The results showed a significant main effect of experimental condition on accuracy such that truthful messages are judged correctly more often than deceptive messages, $F(1,28) = 97.24$, $p < .001$. Thus the mean probability of a message being judged correctly given it is sincere is .75, whereas the mean probability of a message being judged correctly given it is deceptive is .48. (Refer to Appendix D-6 for the mean values in each cell.)

The analysis also revealed that experimental condition interacted significantly with only one other variable, judge culture, $F(1,28) = 22.74$, $p < .001$. Mean conditional accuracies for Canadian and Chinese judgements in true and lie conditions are presented in Table 6. As can be seen from these data, Canadian and Chinese judges are equally accurate at judging speakers' truthful messages, but compared to Canadian judges, Chinese judges are less accurate at judging deceptive messages. Thus Canadians judged deceptive messages to be lies more often than they judged them to be truths. Chinese judged deceptive messages, especially deceptive messages by the Canadian speakers, to be truths more often than they judged them to be lies.

Discussion

One main goal of the current study was to investigate whether Canadian and Chinese judges assess the sincerity of communicators in a similar manner.


Analysis of judges' ratings of speaker truthfulness revealed a significant main effect of judge culture;

specifically, Chinese judged both Canadian and Chinese speakers to be truthful significantly more often than did Canadians. The reason for the relatively high sincerity ratings by the Chinese judges is not clear but there exist a number of possible explanations for this finding.

Chinese and Canadian judges may perceive and assess message sincerity similarly, but Chinese judges may have a response bias such that they tend to respond 'true' even when they suspect the speaker is lying. In other words, given that Chinese judges believe a particular message is sincere or insincere, the criterion level they use to label the speaker as either telling the truth or lying is higher for 'lie' responses than for 'true' responses. (The Canadian judges, like Chinese judges, label the messages truthful more often than deceptive, but this bias is less extreme than that of the Chinese judges.)

The hypothesis that Chinese judges have a higher 'true' response bias than do Canadians is consistent with observations that the Chinese place a high value on maintaining harmony in interpersonal interactions (Bond & Hwang, 1986; La Barre, 1947). Because labelling someone as deceptive is disruptive to social harmony, the Chinese judges may use a higher criterion to label someone as a liar than do Canadian judges.

One way to evaluate whether, compared to Canadians, Chinese judges use a higher criterion to label a speaker as deceptive is to examine confidence ratings of messages on which judges responded 'true' and 'lie'. If Chinese judges are using a



higher criterion to label speakers as deceptive, then it might be expected that when Chinese judges respond 'lie' they are more confident of the accuracy of this response than when they respond 'true'. In other words, regardless of whether a Chinese judge is certain a speaker is telling the truth or uncertain that the speaker is telling the truth, he or she will call the speaker sincere. Only if the judge is confident that the speaker is lying will he or she call the message a lie. If this hypothesis is correct, then mean confidence ratings should be higher on the messages that Chinese judges call 'deceptive' than on the messages that they call 'true'. Similarly, if Canadian judges have a lower criterion for labelling speakers as deceptive than do Chinese judges, then they may show this same effect but to a much smaller degree than the Chinese.

Analysis of judge confidence ratings does not support this hypothesis (Refer to Appendix D-3 for the results of this analysis). Using a 5-point scale, mean confidence ratings for 'true' and 'lie' responses were 3.45 and 3.04 for Canadian judges, and 3.44 and 2.86 for Chinese judges. Thus both groups of judges were less, not more, confident of their 'lie' judgements than of their 'true' judgements. This finding does not support the hypothesis that Chinese judges give more 'true' responses than Canadian judges because they use a higher criterion to respond 'lie' and therefore only respond 'lie' when very confident that the speaker is lying.

A second hypothesis as to why Chinese judges call the

speakers true more often than Canadian judges is that the Chinese judges are more interpersonally trusting than the Canadian judges. In other words, Chinese judges are not just politely calling the speakers truthful unless strongly convinced otherwise, (i.e., as postulated in Hypothesis 1). Rather, compared to Canadian judges, the Chinese judges have a more trusting nature. Thus they genuinely believe most of the speakers' messages to be sincere. If they experience doubt about a message's sincerity, they rate the message as a lie but do so with little confidence that the speaker is actually being deceptive. Note that according to this hypothesis, it is not that the specific speakers in this study appear more sincere to the Chinese judges than to the Canadian judges, but that all people appear more honest to the Chinese judges.

The fact that 30 of the 32 speakers were rated as more sincere by Chinese judges than by Canadian judges suggests that this effect is less a function of the individual speakers than a function of the judges. However, other research does not provide much support for the hypothesis that Chinese are more interpersonally trusting than Canadians.

In a comprehensive study of value dimensions in 40 countries, Hofstede (1984) found that the Chinese score higher on a collectivism dimension (i.e., they place more value on group interests than individual interests) than do Canadians. Because cultures scoring high on collectivism tend to be very distrustful of individuals outside their groups (Hofstede, 1984), this finding

suggests that Chinese may be less interpersonally trusting than the individualistic Canadians.

The Chinese have also been found to have high scores on a power-distance dimension (i.e., they place high value on status differentials), and to score higher on authoritarianism than either British or American subjects (Earle, 1969; Hofstede, 1984; Meade & Whittaker, 1967). High scores on authoritarianism (Deutsch, 1960; Goldsen, 1960) and high scores on the power-distance index (Hofstede, 1984) have been found to correlate with decreased interpersonal trust. These results also suggest that Chinese judges should be less, rather than more, interpersonally trusting than Canadian judges.

Additional evidence that the high rate of 'true' responses by the Chinese judges does not reflect a generally high level of interpersonal trust comes from the results of administering Rotter's Interpersonal Trust Scale (Rotter, 1967) to 46 Canadian and 46 Chinese students (Refer to Appendix E). Chinese students obtained significantly lower scores on this scale than did Canadian students, $F(1,88) = 4.15, p < .05$. (Mean scores for Canadian and Chinese subjects were 70.6 and 67.0, respectively) Because this scale was not designed for cross-cultural purposes, this finding cannot be interpreted to mean that Chinese are less interpersonally trusting than Canadians. However, it does not support the hypothesis that the Chinese judges in the present study are calling the speakers truthful more often than Canadian judges because they are more interpersonally trusting than are

Canadian Judges.

Finally, evidence from the questionnaire study reported in Chapter 4 does not support the hypothesis that Chinese Judges are more interpersonally trusting than are Canadian Judges. When asked to estimate how frequently people lie, Chinese respondents showed a tendency to rate lying as occurring more frequently, not less frequently, than did Canadian respondents.

In conclusion, there is little evidence to support the hypothesis that the high ratings of speaker sincerity by the Chinese Judges reflects a high level of interpersonal trust.

A third hypothesis for the high rate of 'true' responses by the Chinese Judges is that the specific speakers in this study convey a more sincere appearance to the Chinese Judges than to the Canadian Judges. In other words, Canadian and Chinese Judges differ in their use or interpretation of the speakers' verbal and/or nonverbal behaviours in assessing sincerity.

If Canadian and Chinese Judges are using different cues to assess the sincerity of the speakers then their ratings of the individual speakers should be relatively independent. However, although the correlation between 'true' responses for Canadian and Chinese ratings of Canadian speakers is not statistically significant, the similarity of ratings of the Chinese speakers is statistically significant. Thus, although Canadian and Chinese Judges may be using different cues to assess the veracity of the Canadian speakers, they appear to be using similar cues to assess the veracity of the Chinese speakers. Because Chinese Judges call

Canadian and Chinese speakers sincere equally often, these results provide only partial support for the hypothesis that Chinese Judges are calling the speakers truthful more than Canadian Judges because they are basing their assessments of the speakers on different behavioural cues.


It should also be noted that the relationship between the high rate of 'true' responses by the Chinese Judges in the present experiment and Chinese respondents' beliefs about deceivers' behavioural changes in the questionnaire study is not obvious. Compared to Canadians, Chinese responses on the questionnaire (Refer to Chapter 4) indicated a belief that deceivers show fewer and smaller behavioural changes. Based on this belief, Chinese Judges might be expected to use a lower criterion of behavioural change to judge a speaker as deceptive, and thereby result in their rating the speakers as deceptive more often, not less often, than Canadians.

To summarize, Canadian and Chinese judges did not rate the speakers as being equally sincere; rather Chinese judges rated both Canadian and Chinese speakers as being truthful significantly more often than did Canadian judges. Whether Chinese judges called the speakers truthful because they have a higher criterion for judgements of 'lie', are more interpersonally trusting in general, or actually perceived the specific stimulus speakers as being more sincere than did the Canadian judges is not known. However, if Chinese have a higher criterion to label a speaker as deceptive, this bias is not reflected in judges' confidence

ratings of their assessments. Nor does the evidence indicate that the Chinese are more trusting of people in general, and therefore tend to perceive the communicators as sincere more often than do the Canadian judges. Finally, the evidence provides only limited support for the hypothesis that Chinese judges rate the speakers as more sincere than do Canadian judges because these judges are using different cues to assess sincerity.

Further research is necessary before the source of the difference in Canadian and Chinese ratings of the sincerity of the speakers can be identified. If different criterion levels are involved, varying the costs and benefits of detecting lies and truths could isolate this difference in Canadian and Chinese judges. If general differences in interpersonal trust are involved, then developing and administering a cross-cultural version of Rotter's Interpersonal Trust Scale to Canadian and Chinese subjects could be used to verify this hypothesis. If Canadian and Chinese judges are using different cues to assess communicator sincerity then controlling and systematically varying specific behaviours by the speakers could help to assess the behaviours that are being assessed differentially by these judges. In any case, the results of the present study show that Canadian and Chinese judges differ significantly in their ratings of the sincerity of the stimulus speakers.

A second question of interest is whether Canadian and Chinese judges differ in the accuracy with which they assess the sincerity of the speakers' messages. Before looking at the



effects of judge culture on accuracy of judgements, it is first necessary to ask whether naïve Canadian and Chinese judges can discriminate sincere from insincere messages by these speakers.

The answer to this question is yes. Both Canadian and Chinese judges were able to discriminate speakers' truthful messages from their deceptive messages with accuracy rates significantly above chance.

The data also show that both groups of judges could assess message veracity whether the speaker was culturally homogeneous to themselves, or whether the speaker was culturally heterogeneous to themselves. Thus, cultural dissimilarities between the judges and the speakers did not prevent the discrimination of speakers' true messages from their false ones.

Mean accuracy rates ranged from 5% above chance (i.e., 55%) for Chinese judges' ratings of Canadian speakers' messages, to 15% above chance (i.e., 65%) for Canadian judges' ratings of Chinese speakers. Compared to the 45-60% accuracy rates found in the majority of lie detection studies (Zuckerman et al., 1981a), these accuracy rates are relatively high.

The fact that judges are discriminating between true and deceptive messages suggests there must be cues present in the speakers' messages that vary as a function of message veracity. These cues may be visual, vocal or verbal in origin, or may depend on relationships between cues in different channels. However, the available data suggest that one important source of these cues may be verbal information. Thus, prior behavioural analyses of the

stimulus tapes (Refer Chapter 5) found that verbal behaviours differentiated truthful from deceptive messages, whereas vocal and visual behaviours did not. In addition, Atmiyananadana (1976) found that judges could not distinguish between true and deceptive messages on the basis of visual information alone. Because Atmiyanadana's (1976) study is very similar in design to the present one, this finding is consistent with the hypothesis that verbal cues are playing a major role in judges' assessments of the speakers' messages.

Although both Canadian and Chinese judges can discriminate truthful from deceptive messages within this experimental paradigm, the results also demonstrate that speaker culture and judge culture have an important effect on the accuracy with which message sincerity can be assessed. Thus Chinese judges are less accurate at judging speakers' messages than are Canadian judges and messages by Chinese speakers are assessed significantly more accurately than are messages by Canadian speakers.

Why are Chinese judges less accurate than Canadian judges at discriminating truthful from deceptive messages?

One hypothesis is that Chinese judges are less fluent in English than are Canadian judges, and therefore are comprehending less of the specific verbal content of the speakers' messages. In other words, Chinese judges don't always understand what the speakers are saying, and consequently they have less information on which to base their judgements of sincerity.

A second and closely related hypothesis is that Chinese

Judges have less experience with English and therefore are not as sophisticated at decoding verbal or vocal subtleties in the English language as are Canadian judges. In other words, Chinese judges understand the speakers' messages but because they are less sensitive to verbal or paralinguistic nuances than are native English speakers, they have less information on which to make their judgements of the speakers.

The premise underlying these first two hypotheses is that there are valid cues for assessing sincerity in the verbal and/or vocal channels, and these cues play a significant role in facilitating the accuracy with which truthful messages can be discriminated from dishonest messages.

A third hypothesis, also related to the fact that the Chinese judges' assessed the messages in English rather than in Cantonese, suggests that performing the experimental task in a second language may have caused Chinese judges to focus their attention on the verbal channel and thereby cause them to miss important vocal or visual information in the messages. This hypothesis assumes that valid cues to the sincerity of a message are available in the visual and/or vocal channels as well as in the verbal channel. By focussing their attention on the verbal channel, Chinese judges are losing the information in the other channels, and therefore are at a disadvantage in assessing the sincerity of messages.

A fourth hypothesis is that Chinese judges are generally poor decoders of emotional expression, or more specifically, poor

decoders of cues related to the sincerity or insincerity of messages. Thus regardless of the language of the task, Chinese judges are less accurate at assessing the sincerity of the speakers than are Canadian judges. This hypothesis, like the third hypothesis, assumes there are nonverbal or vocal cues that are valid indicators of the sincerity of a speaker's message.

At present, there is insufficient information to determine which, if any, of these hypotheses explains the low accuracy rates of the Chinese judges in the present study. However, the evidence does support the contention that information in the verbal channel is important in the accurate assessment of message sincerity. Thus, not only has the verbal channel been found to be the single best channel in which to assess message sincerity (Zuckerman et al., 1981a), but, as was shown in Chapter 5, the speakers' messages in the present study contain cues that differ as a function of the sincerity of the speaker. If Chinese judges are at a disadvantage in assessing verbal information because the messages are presented in English, then they might be missing important verbal cues that Canadian judges can use in their assessments.

One piece of evidence that supports a 'language proficiency' hypothesis is that there are significant positive correlations between the accuracy scores of Canadian and Chinese judges for both Canadian and Chinese speakers. Thus, a speaker whose sincerity is assessed with a high degree of accuracy by Canadian judges is also assessed with a relatively high degree of

accuracy by Chinese judges. A speaker whose sincerity is assessed with a low degree of accuracy by Canadian judges is also assessed with a low degree of accuracy by Chinese judges. This finding suggests that there is similarity in the cues that Canadians and Chinese are using to judge the speakers' messages. If this is true, then the consistently lower accuracy scores of Chinese judges could result from the Chinese judges using some cues, perhaps verbal, less effectively than the Canadian judges.

One way to test this hypothesis is to have judges make their assessments of the speakers in the absence of verbal information. If Canadian and Chinese judges use the same cues to assess the veracity of communicators but Chinese judges make less efficient use of verbal cues, then in the absence of verbal information, Canadians and Chinese should be equally accurate at assessing the veracity of the messages.

A pilot experiment was conducted to test this hypothesis.

> In this experiment, Canadian and Chinese judges assessed the sincerity of messages in which the speakers' words had been obscured through use of a content filter. (A content filter eliminates the verbal content of messages by filtering out the high frequency sounds which are necessary for word recognition.) Unfortunately the results showed that neither Canadian nor Chinese judges could assess the veracity of the speakers' messages at a level that differed from chance. Thus it could not be determined whether, in the absence of verbal information, Canadian and Chinese judges are equally accurate at assessing communicator

sincerity.

Another way to assess the hypothesis that language has an important impact on the accuracy with which Chinese judges assess message veracity is to compare Chinese judges' assessments of messages presented in English with their assessments of messages presented in Cantonese. The results of a study in which Chinese judges assessed the sincerity of 16 Chinese speakers who presented their messages in both English and Cantonese are presented in Appendix F. The results of this study showed a significant effect of language on accuracy at assessing the sincerity of messages. Thus, judges were significantly more accurate at assessing the veracity of messages that were presented in Cantonese than they were at assessing the veracity of messages that were presented in English, $F(1,30) = 5.40, p < .05$. This finding supports the hypothesis that language can influence the accuracy with which Chinese judges can assess the sincerity of messages.

In summary, there is some evidence to support the hypothesis that language has an effect on the accuracy with which Chinese judges rate the veracity of messages. Whether this effect is a result of the Chinese judges' comprehending less of the verbal content of the message (i.e., Hypothesis 1), a result of the Chinese judges' missing subtle verbal and/or vocal cues in the speakers' messages (i.e., Hypothesis 2), or a result of Chinese judges focussing attention on the verbal channel because of the higher effort required to comprehend the English-language

message (i.e., Hypothesis 3), is not clear. However, there are a number of reasons to suggest that the low accuracy of the Chinese Judges is not a result of their missing significant amounts of the verbal content of the messages because of their poor English language comprehension.

First, the Chinese Judges in this study are university students who not only rate themselves as being fluent in English, but who have passed the university's English comprehension exam and are currently attending university classes taught in English. These facts suggest that the Chinese students who participated in the present study are relatively competent in comprehension of English. Further, it is notable that the Chinese speakers are not using less complex words than those used by the Canadian speakers. (Refer to Chapter 5)

Second, if Chinese Judges are less accurate at assessing the veracity of messages because of a problem in language comprehension, then judgements by Chinese individuals might be expected to be less accurate if speakers are talking quickly than if speakers are talking more slowly. In other words, the accuracy of ratings by Chinese Judges might be expected to show an inverse correlation between speech rate and accuracy at discriminating true from false messages. In order to test this hypothesis, a Pearson's Product-Moment correlational analysis was used to assess the relationship between speaker accuracy scores and number of words spoken. The results of this analysis revealed no significant correlation between these two variables for either

Chinese ratings of Canadian speakers, $r(14) = -.29, p > .05$, or for Chinese ratings of Chinese speakers, $r(14) = .24, p > .05$. Similar correlations were observed for Canadian ratings of Canadian speakers, $r(14) = -.22, p > .05$, and Canadian ratings of Chinese speakers, $r(14) = .24, p > .05$.

Third, if Chinese Judges are having difficulty comprehending the verbal messages of the speakers then this problem would be particularly debilitating with the Canadian speakers because of their rapid and complex speech patterns. If this is true, then Chinese Judges should be less confident of their assessments of Canadian speakers' messages than of their assessments of Chinese speakers' messages. In other words, if the Chinese Judges cannot understand the content of the Canadian speakers' messages, then they should lack confidence in their assessments of the sincerity of these messages.

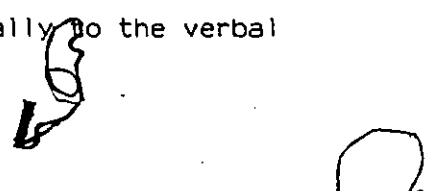
This hypothesis can be assessed by looking at the Judges' ratings of how confident they were of the correctness of each of their decisions. A 5-point scale was utilized for these ratings, and the data were analyzed in a 2(Judge culture) X 2(speaker culture) X 2(speaker sex) X 2(response correctness) ANOVA with repeated measures on the last three factors. (Refer to Appendix D-4 for the results of this analysis). If Chinese Judges are having more difficulty understanding the verbal content of the Canadian speakers' messages than that of the Chinese speakers' messages, then they might be expected to be less confident of their judgements of Canadian speakers' messages than of their

Judgements of Chinese speakers' messages.

The results of this analysis showed that Canadian and Chinese Judges are equally confident of the correctness of their Judgements over all speakers, $F(1,92) = 0.19, p > .05$, (mean scores were 3.27 and 3.12, respectively). Thus, the Chinese Judges are no less confident than the Canadian Judges about their assessments of sincerity. Further, there is a significant interaction between speaker culture and judge culture on confidence in Judgements, $F(1,92) = 13.89, p < .001$. However, analysis of the simple main effect of speaker culture on Canadian and Chinese Judges shows that this effect applies primarily to ratings by the Canadian Judges. Thus, Canadian Judges were differentially confident as a function of speaker culture, $F(1,92) = 44.92, p < .001$, but Chinese Judges were equally confident of their Judgements regardless of whether the messages were presented by Canadian or by Chinese speakers, $F(1,92) = 2.40, p > .05$. These data do not support the hypothesis that the Chinese Judges have difficulty understanding the content of the speakers' messages.

In conclusion, there is little support for the hypothesis that the Chinese Judges are failing to comprehend the verbal content of the speakers' messages because of a lack of fluency in English.

The hypotheses that Chinese Judges are either losing subtle vocal and verbal information in the verbal channel (Hypothesis 2), or are attending preferentially to the verbal



channel to the detriment of the other information channels (Hypothesis 3) are more difficult to assess. However, in connection with these hypotheses it is interesting to note the results of a pilot experiment in which judges rated the sincerity of speakers' messages based on transcripts of the audiovisual tapes used in the present experiment. Although the judges' scores were significantly better than chance, accuracy rates of Canadian judges for these transcribed messages were lower than those found in the present study. This finding suggests that there are some vocal and/or visual cues that correlate with veracity in the audiovisual stimulus tapes, and that Canadian judges were using these cues to make their judgements.

In contrast, accuracy rates for Chinese judges in the transcript experiment were very similar to those obtained in the present experiment. This finding supports the hypothesis that Chinese judges in the present experiment might have been focussing on the verbal channel and ignoring vocal and/or visual cues in the speakers' messages.

Evidence that Chinese judges do use nonverbal information to assess the sincerity of messages comes from a pilot study in which Chinese judges assessed the sincerity of messages presented in Cantonese. Judges were given access to full audiovisual information or limited to audio information alone. The results showed that Chinese judges in the audio information group were less accurate at assessing the sincerity of messages than judges in the audiovisual information group. This finding suggests that,

at least when performing the task in their native Cantonese, Chinese Judges do attend to nonverbal cues in making assessments of message sincerity.

To summarize thus far, the verbal channel appears to be an important source of information about the veracity of communicators in the present experiment (i.e., neither Canadian nor Chinese can assess message veracity better than chance without access to the verbal channel, and both Canadians and Chinese can assess message veracity at levels above chance on the basis of verbal content alone). The finding that Chinese Judges assess message sincerity more accurately if messages are presented in Cantonese than in English supports the hypothesis that their relatively low accuracy in the present study may be related to their performing the task in a second language. The finding that the loss of visual and/or vocal information has a detrimental effect on their accuracy at assessing messages in Cantonese but appears to have had little influence on their accuracy at assessing messages in English suggests that the Chinese Judges may be ignoring visual and/or vocal information when making judgements about English-language messages.

Apart from an effect of language, it is possible that the low accuracy rates of Chinese Judges in the present study is a result of their being poor decoders of nonverbal expressions of emotion in general, or poorer decoders of the cues associated with veracity in particular (i.e., Hypothesis 4). In other words, Chinese Judges are not ignoring vocal and/or visual cues in the

speaker's messages but are just not using them as effectively as the Canadian judges.

Unfortunately, there exists little empirical information on the ability of the Chinese to encode and decode emotional messages. Although a number of researchers have found evidence of differences in the general ability of other cultural groups to decode emotional expression (Dickey & Kower, 1941; Giovanni & Ricci Bitti, 1981; McCluskey & Albas, 1981), no one has looked at whether Chinese are any better or worse than Canadians at decoding or interpreting nonverbal emotional expressions. Nonetheless, the available evidence would suggest that the Chinese are better decoders of nonverbal information than Canadians. Thus Hall (1976) classifies cultures as either 'high context' or 'low context' cultures based on whether nonverbal or verbal channels are the more important source of information in the culture. Western cultures, (e.g., Canadian culture), tend to be 'low context' cultures and to transmit a lot of information through the verbal channel (Hall, 1976). Chinese culture, on the other hand, is a 'high context' culture which emphasizes the importance of nonverbal channels in conveying information (Gudykunst & Nishida, 1986; Okabe, 1983). These data suggest that the Chinese should be better at attending to and decoding nonverbal communication than the Canadians.

In summary, the results of the present study showed that Chinese judges were less accurate at assessing the sincerity of speakers' messages than were the Canadian judges. Four hypotheses

were proposed as to the source of the Chinese Judges' low accuracy in this task; three of them based on the fact that Chinese judges are performing the task in English, which is not their first language. It was suggested that Chinese Judges are not fully comprehending the verbal content of the messages; are not able to detect subtle verbal and/or vocal cues in the message, or are overly attentive to the verbal channel to the detriment of other nonverbal sources of information, all three hypotheses are derived from the premise that the Chinese Judges are not as proficient in English as are the Canadians.

The available evidence suggests that there are verbal cues in the speakers' messages that differ as a function of message veracity. Any factor that decreases a Judge's access to these cues has the potential of decreasing the accuracy with which the Judge can assess the sincerity of messages. There is little evidence to suggest that Chinese Judges are not fluent enough in English to be comprehending the verbal content of the messages. Therefore it is likely that Chinese Judges are either missing subtle verbal or vocal cues in the messages that Judges more experienced in English are utilizing, and/or that Chinese judges are paying excessive attention to the verbal channel because of the higher cognitive effort involved in comprehending the verbal message. It is also possible that the Chinese are not good at decoding nonverbal information, but the available evidence provides little support this hypothesis.

It should be noted that these hypotheses are not mutually

exclusive, and any or all of them may have influenced the accuracy with which Chinese judges assessed the speakers' messages in the present study. It is also of note that a breakdown of the accuracy scores by condition showed that judges made more correct judgements about true messages than about deceptive messages, and that compared to Canadian judges, Chinese judges were equally likely to judge truthful messages correctly but were significantly less likely to judge deceptive messages correctly. This finding suggests that the Chinese judges may recognize true messages as frequently as Canadian judges, but may be less likely to recognize deceptive messages. Unfortunately it is difficult to separate effects of a 'true' response bias in the judges, the speaker's demeanor bias (i.e., speakers may appear honest or dishonest consistently regardless of the sincerity of their messages), and actual differences in recognition of the cues associated with true and deceptive messages. A first step towards investigating accuracy for honest and dishonest statements might be to ask judges to describe the reasons for each of their judgements. These responses may provide some information about whether judges are looking for the presence or absence of cues related to sincerity, the presence or absence of cues related to insincerity or a combination of both. Varying the instructional set (i.e., have judges search for lies or have judges search for truths) or the rewards for correctly detecting lies or truths could provide additional information about Canadian and Chinese judges' accuracy in assessing true and deceptive messages.

The second issue of concern in the present study is whether Canadian and Chinese deceivers behave in a similar manner. Based on the frequency of 'true' responses, neither Canadian nor Chinese judges differentiated between speakers from the two cultural groups. However, Canadian and Chinese speakers do differ in the accuracy with which their messages are assessed by the judges. Thus, the veracity of messages by Chinese speakers was judged significantly more accurately than was the veracity of messages by Canadian speakers. This main effect was modified by two significant interactions, speaker culture by speaker sex, and speaker culture by judge sex.

The main effect of speaker culture, and the speaker culture by speaker sex interaction are due to the high accuracy with which messages by Chinese female speakers were judged. Thus, all four groups of judges were most accurate at assessing messages by the Chinese female speakers. This finding suggests that female Chinese speakers are revealing more cues about the veracity of their statements than are the other speakers.

Examination of the speaker culture by judge sex interaction showed that male judges were less accurate at assessing the veracity of messages by the Canadian speakers than they were at assessing the veracity of messages by the Chinese speakers. In contrast, female judges showed no difference in the accuracy with which they assessed messages by Canadian and by Chinese speakers.

A third significant interaction was found for speaker sex

by judge sex. This finding revealed that female judges were equally accurate at assessing messages by male and female speakers, but that male judges were more accurate at assessing messages by female speakers than by male speakers.

As was shown in Table 4, both the speaker culture by judge sex, and the speaker sex by judge sex effects are primarily due to the high accuracy with which male judges assessed the veracity of messages by the Chinese female speakers. Thus, although both male and female judges assessed messages by the Chinese female speakers with a high degree of accuracy, male judges were more accurate than female judges at assessing these messages. This finding is true of both Canadian and Chinese male judges' ratings.

That male judges are more accurate than female judges at discriminating messages by the Chinese female speakers is an intriguing finding. This effect suggests that Chinese females are exhibiting cues to the deceptive nature of their messages and that these cues are being used more effectively by male than by female judges. This is particularly interesting because the effect is specific to the female Chinese speakers. It is not a function of speaker gender; messages by Canadian female speakers did not show the large discrepancy between accuracy of judgements for male and female judges. Nor is it a function of speaker culture per se; messages by Chinese male speakers did not show a large discrepancy between accuracy of judgements by male and female judges. Nor is it a function of judge sex per se; although male judges tended to be more accurate than female judges, this difference was slight

for all the groups of speakers except the Chinese females.

Finally, the effect is very similar regardless of the culture of the male judge. Thus, Canadian and Chinese male judges showed a similar degree of accuracy in assessing the messages of the Chinese female speakers.

In conclusion, it appears that Chinese female speakers are exhibiting cues that male judges are using to increase the accuracy of their assessments of the veracity of these speakers. Why the female Chinese speakers are revealing more cues about the veracity of their messages than are male Chinese speakers is not known. However, it is notable that accuracy rates for both truths and lies are higher for Chinese female speakers than for Chinese male speakers. (Refer to Appendix D-6)


One possible hypothesis is that the Chinese females have not lived in Canada as long as the males, and therefore aren't as proficient at managing their verbal and nonverbal expressions in an English-language setting. However, the evidence does not support this hypothesis. Although the Chinese males have lived in Canada approximately seven months longer than the Chinese females, the fact that messages by the Chinese male speakers aren't assessed more accurately than those of the native-born Canadians suggests that their relative lack of experience with Canadian culture is not sufficient to explain why Chinese females are such detectable liars and/or truth-tellers.

In order to investigate what behavioural cues might be specific to the Chinese female speakers, individual comparisons of

the visual, vocal and verbal behaviours analyzed in Chapter 5 were conducted for Chinese male and female speakers. The results of these analyses revealed no significant differences between Chinese male and female speakers in either truthful or deceptive conditions for any of these behaviours. This indicates that the cues exhibited by Chinese female speakers are not related to any of the 18 behaviours analyzed in Chapter 5, are a function of the relationship between behaviours in different channels (e.g., a discrepancy between vocal tone and body movements), or involve a more global or gestalt-like effect.

Whatever the differences are between the behaviours of Chinese male and Chinese female speakers, it is interesting that speaker gender had no effect on the accuracy with which messages by Canadians were judged. This finding suggests that there may be culturally-based sex differences in the behaviours that accompany deceptive communication. Regarding this point, it is notable that Feldman (1979) found that lies by Grade 7 and college-aged Korean females were more detectable than those of their male counterparts. These results are consistent with those of the present study such that messages by Chinese females were assessed more accurately than messages by Chinese males. The possibility of culturally-based sex differences in deceptive communication is an intriguing one and investigation of this question may provide a fruitful direction for future research.

In summary, one of the main goals of this research was to ascertain whether the cultural background of a communicator



could influence judges' ratings of his or her sincerity. The results of the present study support an influence of speaker culture on judgements of sincerity. Thus, messages by Chinese females were assessed significantly more accurately than messages by male and female Canadian speakers, or messages by Chinese male speakers. In addition, messages by Canadian male and female speakers were judged with a similar degree of accuracy, whereas messages by Chinese male and female speakers were not judged with a similar degree of accuracy.

The third main purpose of the present study was to investigate the effect of cultural homogeneity on the accuracy with which judges assess the veracity of communicators. In other words, are judges more accurate at discriminating truthful from dishonest messages when the encoder is culturally homogeneous to themselves than when the encoder is culturally heterogeneous to themselves?

The answer to this question requires testing the significance of the speaker culture by judge culture interaction. If accuracy at assessing the sincerity of messages is higher when the encoder and the decoder share a common cultural background, then Canadian judges should be more accurate at assessing the veracity of messages by the culturally homogeneous Canadian speakers than by the culturally heterogeneous Chinese speakers. Similarly, Chinese judges should be more accurate at assessing the veracity of messages by the culturally homogeneous Chinese speakers than by the culturally heterogeneous Canadian speakers.

Analyses of the data show a borderline significant effect of speaker culture by judge culture on accuracy at assessing message veracity (i.e., $p < .09$). Examination of the mean accuracy rates shows that Canadian judges' accuracy at discriminating true from false messages is independent of the cultural background of the speaker. Therefore these results do not support the hypothesis that cultural homogeneity between judge and communicator facilitates accuracy at assessing the veracity of messages.

However, analysis of judges' confidence ratings of the accuracy of their judgements (Refer to Appendix D-4) showed that Canadian Judges were significantly more confident of their judgements of Canadian speakers' messages than of their judgements of Chinese speakers' messages. This finding suggests that Canadian Judges feel more confident about their judgements of the culturally-homogeneous Canadian speakers than they do about their judgements of the culturally-heterogeneous Chinese speakers.

Compared to accuracy rates for the Canadian judges, mean accuracy rates for the Chinese judges show a different pattern of results. Thus there is a tendency for Chinese judges to be less accurate at assessing the veracity of messages by Canadian speakers than at assessing the veracity of messages by Chinese speakers. These results are consistent with those predicted by a cultural homogeneity hypothesis. However, unlike the Canadian judges, Chinese judges do not differentiate between Canadian and Chinese speakers in their confidence ratings. Chinese are equally

confident of their judgements regardless of whether the communicator is Canadian or Chinese.

To summarize, the hypothesis that accuracy at assessing the veracity of messages is higher if the judge and the communicator share a common cultural background than if the judge and communicator do not share a common cultural background, received only partial support in the present study. Although there was a tendency for Chinese judges to be less accurate at assessing the veracity of Canadian speakers than of Chinese speakers, Canadian judges were equally accurate at assessing the veracity of messages by both Canadian and Chinese speakers.

In conclusion, in the present study Canadian and Chinese judges assessed the veracity of the messages presented by Canadian and Chinese speakers as described in Chapter 4. The results showed that naive judges can discriminate sincere from insincere messages with accuracy rates ranging from 55% to 65%, and that judges are able to discriminate truthful from deceptive messages both when the communicator is culturally similar to themselves, and when the communicator is culturally dissimilar to themselves.

This is an important finding if simply because it is the first study to have investigated whether a deceiver from one cultural group emits cues as to veracity that are detectable by a judge from a diverse cultural group.

The results also showed that the cultural background of the communicants has an important influence on the deceptive communication process. Based on the accuracy with which their

messages are being assessed, Chinese female communicators appear to be presenting their messages very differently from Chinese male communicators, whereas Canadian female and male communicators appear to be presenting their messages quite similarly. Although the source of this differential accuracy could not be identified in the present study, it is clear that the Chinese female speakers are leaking more information about the veracity of their statements than are the Chinese male speakers. The fact that gender appears to influence the detectability of Chinese speakers' messages but not Canadian speakers' messages is an interesting finding and suggests the possibility of a relationship between societal sex roles and gender differences in deceptive communication.

Another interesting finding in the present study is that Chinese judges were less accurate at assessing message veracity than were Canadian judges. Whether this result reflects the influence of assessing messages in a second language, or is a result of Chinese judges' poorer decoding skills requires future investigation. In either case, this finding suggests that Chinese individuals may be at a distinct disadvantage in assessing the sincerity of English-speaking communicators. Given the large number of Chinese immigrants, visitors and students in Canada, the fact that Chinese judges are less able to discriminate between honest and dishonest messages in English could have important consequences for Canadian-Chinese interactions.

With regard to the influence of cultural homogeneity on

accuracy at assessing message sincerity, the results of the present study provide only limited support. Although there was a tendency for Chinese judges to be less accurate at assessing the veracity of messages by Canadian speakers than they were at assessing the veracity of messages by Chinese speakers, Canadian judges were equally accurate at assessing messages by both the Canadian and the Chinese speakers. This finding suggests that the Chinese judges, but not the Canadian judges, were influenced by the degree of cultural homogeneity between themselves and the speakers. However, this conclusion is not completely valid. Although Canadian judges did not differentiate between Canadian and Chinese speakers by the accuracy of their judgements, they were significantly more confident of their judgements of Canadian speakers than they were of their judgements of Chinese speakers. Thus, cultural homogeneity affected the accuracy of the judgements by Chinese subjects, and the confidence of the judgements by Canadian subjects.

Chapter 6 notes:

1. In addition to making dichotomous judgements (i.e., true or lie) about the sincerity of each of the speakers' statements, subjects were asked to use a 7-point scale to indicate their level of agreement with the speakers' arguments, and a 5-point scale to indicate how confident they were in each lie/true judgement they made. As they are not of direct concern to the focus of the present thesis, the results of analyses of these two dependent measures are presented in Appendix D.

2. As use of proportional data in an ANOVA may violate the assumption of homogeneity of variance, an arcsine transformation was used to stabilize the variances (Winer, 1962). The results of analysis based on the transformed scores paralleled the results based on the untransformed scores. Therefore the results reported here are based on analysis of the untransformed proportional data.

3. Note that accuracy and perceived truthfulness ratings are not independent measures. If a judge consistently calls speakers truthful 75% of the time, (i.e., gives 3 'true' responses per speaker) his or her maximum accuracy score becomes 75% instead of 100% because all speakers present two honest and two dishonest messages. The fact that Chinese judges respond 'true' more often than Canadian judges might be postulated as an explanation for why the Chinese judges have lower accuracy rates than the Canadian judges. However, the fact that Chinese judges rate Canadian and Chinese speakers as equally truthful but are less accurate at discriminating the messages of Canadian speakers than of Chinese speakers suggests that the higher level of 'true' responding cannot solely account for Chinese judges' lower accuracy in assessing Canadian speakers' messages.

Chapter 7

CONCLUDING COMMENTS

A number of researchers have suggested that cultural factors play a role in the deceptive communication process. For example, Hocking and Leathers (1980) emphasized the importance of cultural stereotypes of deceiver behaviours; Ekman and Friesen (1972), Feldman (1979) and Littlepage and Pineault (1981) claimed that culture plays an important role in determining the behavioural changes that accompany deception; and Ekman (1985) and Atmiyanandana (1976) asserted that cultural homogeneity between deceiver and judge can influence accuracy at detecting insincere messages. However, to date, there has been no empirical support for contentions that cultural factors have any influence on beliefs about deception, the behavioural cues exhibited by deceivers, or the accuracy with which judges can discriminate truthful from deceptive communications.

The main focus of the present thesis was to investigate the influence of culture on the deceptive communication process, and to determine whether there are cultural differences in attitudes towards deception, in beliefs about how deceivers behave, in the behaviours exhibited by deceivers, or in assessments of the sincerity of communicators.

The following is a brief review of some of the more interesting findings that emerged from this research.

First, the results from the questionnaire study reported in Chapter 4 provides evidence that culture can influence attitudes towards deception. Thus, Chinese respondents rated lying as being significantly less wrong than did Canadian respondents. This finding was true both for general ratings of lying in everyday life, and for ratings of lying in specific situations. A principal components analysis of the subjects' ratings of the 23 scenarios revealed that the lies that were rated as significantly less wrong by Chinese than by Canadians consisted primarily of nonaltruistic lies to outgroup members. Altruistic lies and nonaltruistic lies to friends and family were not rated significantly differently by Canadian and Chinese respondents.

One hypothesis for this finding is that moral attitudes towards lying reflect broader cultural values. Thus, compared to Canadians, the Chinese may believe lying to be less of a moral wrong because they place more value on harmonious social interactions than on sincerity (LaBarre, 1946; Wells, 1908). In other words, if given a choice between lying and maintaining social harmony, or telling the truth and disrupting social harmony, the Chinese may be more likely than Canadians to choose social harmony over truthfulness.

However, the Chinese are also highly collectivist and highly collectivist groups tend to trust and depend on group members to a significant degree (Hofstede, 1984). Because lying does not promote interpersonal trust, the Chinese may believe that lies to group members are less morally acceptable than lies to

nongroup members. This emphasis on social harmony and group membership may explain why the Chinese showed a general tendency to rate all lies as less morally wrong than did Canadians, but to differ the least from the Canadians in their ratings of lies to ingroup members.

The hypothesis that Chinese are more liberal in their attitudes towards lying to outsiders than in their attitudes towards lying to ingroup members is also consistent with the fact that Chinese culture is a 'high context' culture. Cultures that are classed as 'high context' cultures make greater distinctions between ingroup members and outgroup members than do 'low context' cultures such as Canadian culture (Hall, 1976).

Compared to Chinese, Canadians place a high value on individualism and self-sufficiency. Consequently, Canadians place less importance on group membership and may tend to discriminate less between ingroup and outgroup members than do Chinese.

In connection with these hypotheses is of note that the mean rated acceptability of nonaltruistic lies to strangers and nonaltruistic lies to ingroup members differed more for Chinese respondents than for Canadian respondents.

One other point of interest in respondents' ratings of the acceptability of lying in the various scenarios concerns the ratings of altruistic lies. Mean responses for Canadian and Chinese respondents were very similar regarding the acceptability of lying in the scenarios where the lie is intended to benefit someone other than the liar. This finding suggests that lying per

se is not being assessed differently by Canadians and Chinese.

Rather, in assessing the morality of different lies, both Canadians and Chinese appear to take into account the intent of the lie. However, respondents from these two cultural groups differ significantly in their moral evaluations of lies to outgroup members that benefit the liar.

Whether these differences are related to broader cultural values such as collectivism and individualism, or are specific to Chinese and Canadian respondents is not known. However, it would be interesting to compare other cultural groups on their moral attitudes towards lying and to investigate whether Hofstede's (1984) ranking of a culture as high or low on collectivism, or Hall's (1976) ranking of a culture as a high or low context culture could predict the types of lies that are considered morally acceptable or unacceptable within a cultural group.

A second important finding that emerged from the questionnaire data was the finding that both Canadians and Chinese believe that deceivers behave differently from nondeceivers. Furthermore, in both planned and unplanned lie conditions, Chinese respondents expected deceptive communicators to exhibit fewer and smaller behavioural changes than did Canadian respondents.

It is consistent with the fact that Chinese respondents consider lying to be less morally ~~wrong~~ than do Canadians that they may not expect deceivers to feel as anxious or as guilty as do Canadians. If Chinese believe that few behavioural changes accompany deception because of a more liberal attitude towards

lying, it might be expected that other cultural groups that have liberal attitudes towards lying may also believe that deceivers exhibit relatively few behavioural changes.

• An alternative but not mutually exclusive hypothesis as to why the Chinese believe fewer behavioural changes accompany deceptive messages than do Canadians relates to behavioural control. In general, the Chinese discourage imposing one's feelings on another through the verbal or nonverbal displays of emotion (Bond & Huang, 1986). As a consequence of cultural rules prohibiting the open display of emotion, the Chinese may have, or believe they have, better control over the behavioural changes that accompany deception. This may explain why Chinese respondents expect a deceiver to exhibit fewer and smaller behavioural changes than do Canadian respondents.

If Chinese believe deceivers exhibit few behavioural cues because, compared to Canadians, they believe people control their behaviour better, it might be expected that other cultural groups that have display rules emphasizing high behavioural control (e.g., the Japanese, Germans, British) may also believe that deceivers exhibit relatively few behavioural changes.

To date, there are insufficient data to assess the validity of either of these hypotheses. However, the relationship between beliefs about deceivers, attitudes towards deception and beliefs about behavioural control may provide some interesting directions for future research on beliefs about deceptive communicators.

A third important finding that emerged from the questionnaire data was the finding that Chinese respondents believed that planning had a larger effect on a deceiver's behaviour than did Canadians. Although both Canadians and Chinese respondents believed that planning reduced the magnitude of behavioural changes that would be exhibited by the deceiver, the Canadians expected similar behavioural changes to accompany the telling of planned and unplanned lies whereas the Chinese expected different behavioural changes to accompany the two types of lies.

Respondents' ratings of the most important cues in detecting lies were consistent with this finding. Canadians showed a high similarity in the behaviours that they rated as important in the detection of unplanned lies and planned lies. Chinese respondents showed little similarity in the behaviours that they rated as being important in the detection of unplanned lies and the behaviours that they rated as being important in the detection of planned lies.

There are two interesting points about this finding.

First, this finding suggests that respondents believe people telling planned lies are less physiologically or emotionally aroused, experience less cognitive difficulty and/or control their behaviours more successfully than do deceivers telling unplanned lies. Although it has been suggested that planning may influence beliefs about deceivers' behaviours (Zuckerman, Koestner & Driver, 1981b), this hypothesis has never been investigated. Data from the questionnaire study in the present thesis provide strong

support for this hypothesis, and demonstrate that planning a lie acts to decrease the behavioural changes that are believed to accompany lying.

Second, ratings by Chinese respondents showed a negative correlation between the behavioural changes expected to accompany planned lies and the behavioural changes expected to accompany unplanned lies. Ratings by Canadian respondents showed a positive correlation between these behavioural changes.

One hypothesis for this finding is that the Chinese believe that if deceivers are allowed to prepare their deceptive messages, then they are successful in controlling some of the behavioural changes that accompany deception. In other words, the behaviours that are expected to alter the most during unplanned lies are expected to be controlled by the deceiver during planned lies. The result is an inverse correlation between the behavioural changes expected in unplanned and planned lie conditions. (Note that this hypothesis is consistent with the notion that Chinese respondents believe deceivers exhibit few behavioural changes overall because they believe that people can and do control their nonverbal and verbal behaviours.)

Alternatively, Chinese respondents may believe that deceivers telling planned lies differ from deceivers telling unplanned lies in terms of their physiological, emotional or cognitive responses to the act of deception.

In summary, it is clear that both Canadian and Chinese respondents believe that the planning of a lie influences a

deceiver's behaviour. This finding has important implications for future research on individuals' beliefs about the behavioural changes that accompany deception because it demonstrates the importance of specifying the type of lie involved.

The results also show that Canadians and Chinese have different conceptions of how planning a response influences the behaviour of a deceiver. The source of this difference is not clear but the hypotheses presented above could be tested by comparing Canadian and Chinese beliefs about why deceivers exhibit behavioural changes during planned and unplanned lies, and what kinds of physiological, emotional and cognitive responses typically accompany deception.

Whether cultural differences in beliefs about deceivers can influence the behaviour of a deceiver or of a lie detector is not known. If, as Hocking and Leathers (1980) contend, people's beliefs about deceivers influence their own behaviours when deceiving, then deceivers from different cultural backgrounds may behave differently as a function of these beliefs. Although not based specifically on beliefs about deceivers, other researchers have also hypothesized an effect of culture on deceivers' behaviours (Ekman & Friesen, 1972; Feldman, 1979; Littlepage & Pineault, 1981). With respect to this hypothesis, the present thesis provides some, albeit limited, support.

Analyses of speakers' visual, vocal and verbal behaviours revealed no significant difference between Canadian and Chinese communicators as a function of the sincerity of their messages.

However, an analysis of judges' assessments of the sincerity of messages by these speakers revealed a significant effect of speaker culture on the accuracy of these judgements. (Refer to Chapter 6) This effect was found to be specific to the Chinese female speakers. Thus, judges were significantly more accurate at assessing the sincerity of messages by Chinese female speakers than they were at assessing the sincerity of messages by any of the other three groups of speakers. This finding suggests that Chinese females are behaving differently than Chinese males, Canadian males or Canadian females.

Why messages by the Chinese females are assessed more accurately than messages by any of the other groups of speakers is not clear. The results of the analysis of accuracy for true and deceptive conditions revealed that both truthful and deceptive messages by Chinese females were assessed correctly more often than were messages by the other speakers. This suggests that female Chinese communicators, compared to the other communicators, are exhibiting more behavioural cues associated with sincerity when presenting honest messages and/or are exhibiting more behavioural cues associated with insincerity when presenting deceptive messages.

Analyses of 18 different behaviours of Chinese male and Chinese female speakers during sincere and insincere messages failed to reveal any significant differences. These results suggest that either Chinese females are exhibiting different or more subtle behavioural cues than those assessed in Chapter 5, or

that the cues that judges are using to assess messages by these speakers are based on the relationship between behaviours in different channels or on a Gestalt-like impression. In any case, it is clear that messages by Chinese female speakers are being assessed with a higher degree of accuracy than are messages by the other groups of speakers, and therefore, it is likely that the nonverbal and/or verbal behaviour of these speakers differs from the nonverbal and/or verbal behaviour of the other speakers.

Another interesting difference between the Chinese and Canadian speakers is that messages by male and female Canadian speakers are assessed with equivalent degrees of accuracy, whereas messages by male and female Chinese speakers are not assessed equivalently. This may indicate that male Chinese communicators and female Chinese communicators generally utilize different nonverbal or verbal behaviour, or that male and female Chinese respond differently to the presentation of deceptive messages.

Alternatively, this finding may reflect a difference in the speakers' proficiency in the English language. In connection with this latter hypothesis, it should be noted that on the average, the Chinese male speakers had lived in Canada eight months longer than the Chinese female speakers, and therefore may have been more experienced with communicating in English.

Further research on deceptive communication in Chinese males and females is necessary before the reasons underlying the high detectability of Chinese female deceivers can be ascertained. However, if this difference is culturally related, it might be

worthwhile to examine the behaviours of deceivers in traditional and non-traditional cultures. It may be that deceivers from societies that are high in sex-role differentiation, the Chinese for example (Bond & Hwang, 1986), show more gender-related differences in their detectability than do male and females from societies that are low in sex-role differentiation. In any event, the results presented in this thesis show that messages by male and female Chinese communicators are assessed with differential degrees of accuracy whereas the messages by male and female Canadian communicators are assessed with similar degrees of accuracy. This finding suggests that culture has an important influence on the behaviours exhibited by deceivers.

In addition to the effect of culture and/or language on the detectability of a deceiver, the present thesis also provides support for the hypothesis that cultural background and/or language influence an individual's assessment of the sincerity of a communicator. Analysis of judges' ratings of the speakers revealed that Chinese judges were significantly less accurate at assessing the veracity of Canadian speakers' messages than were Canadian judges. This finding may reflect cultural differences in decoding emotional messages, cultural differences in strategies of lie detection and/or reflect the effect of decoding messages in a second language. Further research is necessary before the influence of culture and of language on assessments of the sincerity of a communicator can be clarified. However, regardless of its source, the fact that the cultural background of a judge

can influence his or her accuracy at assessing the sincerity of communicators is an important finding for researchers in the area of deceptive communication.

In addition to their lower accuracy rates, Chinese Judges' assessments of the communicators' messages differed from those of Canadian Judges in another important way. Chinese Judges rated the speakers as truthful significantly more often than did Canadian Judges. This effect was not mediated by either the culture of the communicator or the gender of the communicator.

A number of hypotheses for this finding were suggested. For example, Chinese subjects may have a stronger 'true' response bias than Canadian subjects; the collectivist nature of Chinese culture may prohibit labelling someone as a liar even on videotape; the Chinese may be labelling speakers as truthful because of inadequate English comprehension (i.e., they cannot understand what the speakers are saying); or the Chinese may be more trusting of people in general than are the Canadians. However, none of these hypotheses could be strongly supported by available evidence and therefore the answer to the question of why Chinese Judges rated the speakers as telling the truth more often than did Canadian Judges must await further investigation.

Assessments of the sincerity of communicators' messages by Canadian and Chinese Judges showed one other interesting difference. The mean frequency of 'true' responses for Chinese speakers was significantly similar for Canadian and Chinese Judges, but was not significantly similar for Canadian speakers.

In other words, Judges from these two cultural groups rated the sincerity of the individual Chinese speakers more similarly than they rated the sincerity of the individual Canadian speakers.

This finding suggests that Canadian and Chinese Judges may not be using the same cues to assess the sincerity of the Canadian speakers. Further research is necessary to assess the validity of this hypothesis. However, if there are cultural differences in perceptions of communicator sincerity, this could have important consequences for intercultural communication.

It has been hypothesized by researchers in the area of deceptive communication that accuracy at assessing the sincerity of messages is higher if the communicator and the Judge are culturally homogeneous (Atmiyahadana, 1976; Ekman, 1985). With regard to this hypothesis, the results of the present thesis provide only partial support. Although, consistent with this hypothesis, Chinese Judges were less accurate at assessing messages by Canadian speakers than messages by Chinese speakers, Canadian Judges were equally accurate at assessing messages by either Canadian or Chinese speakers. However, it is noteworthy that Canadian Judges' confidence in their ratings was influenced by the culture of the speakers. Thus Canadian Judges were less confident of the accuracy of their judgements of Chinese speakers than of their judgements of Canadian speakers. These findings suggest that cultural similarity between communicator and Judge may have a facilitating effect on judging communicator sincerity.

To summarize, the results reported in the present thesis

support the hypothesis that cultural factors influence deceptive communication. Thus, Canadian and Chinese subjects showed differences in their attitudes towards deception, in their beliefs about the behaviour of deceivers, in the accuracy with which their sincerity could be assessed when presenting messages, in the accuracy with which they could assess the sincerity of others' messages, and in the frequency with which they judged speakers to be telling the truth. In the process of exploring cultural influences in deceptive communication, this research has raised a number of intriguing questions regarding cultural influences in attitudes towards deception, the existence of cultural stereotypes about deceivers, the influence of second-language use on lying and on the detection of lies, and the influence of culture on gender differences in deceptive communication. Investigation of these and other related questions can provide valuable insights into the phenomenon of deceptive communication. This research can also help to facilitate intercultural communication by promoting increased awareness of cultural differences in attitudes towards deception, and by identifying the cues associated with sincerity and with insincerity in different cultures. The present thesis represents an initial step towards opening the door on this fascinating and virtually unexplored area of deceptive communication.

APPENDICES

Appendix A: Questionnaire to Assess Beliefs and Attitudes.

CONFIDENTIAL

Personal Information

1. How old are you? _____ years.

2. Sex: male _____ female _____

3. Are you presently in high school? yes _____ no _____

If yes, what grade are you in? _____

Are you presently in university? yes _____ no _____

If yes, which year are you in? _____

4. What is your religion? _____

If Hindu, please specify caste:

Brahmin _____ Kshatriya _____ Vaishya _____ Shudra _____

5. What is your first language? _____

If not English:

How well do you speak English?

How well do you read in English?

How well can you write in English?

very well	quite well	can get by	a little	not at all

6. What language is usually spoken at home? _____

7. If English is not your first language, have you attended English medium schools?

yes _____ no _____

8. Starting with the country in which you were born, list all the countries in which you have lived.

<u>Country</u>	<u>Length of Time Lived There</u>
country of birth _____	_____
_____	_____
_____	_____
_____	_____

9. Where were your parents born?

Father _____
Province/region _____

Country

Mother Province/region

Have your parents always lived in this country? yes no

If no, where else have your parents lived?

Country		How Long?	
Father			

Country		How Long?	
Mother			

10. What languages do your parents speak?

Father _____

Mother _____

11. What was the principal occupation of your parents while you were growing up? (Please be specific - For example, don't say 'service' but say 'waiter in a hotel', or don't say 'business' but say 'owned small grocery', etc.)

Occupation

Father _____

Mother _____

12. Do you regularly read a newspaper? yes no

If yes, which newspaper(s) do you usually read?

13. Do you regularly read any magazines? yes ____ no ____

If yes, which magazine(s) do you usually read? _____

14. Do you watch television? yes ____ no ____

If yes, list your favourite programmes. _____

Attitudes and Beliefs Concerning Lying

The purpose of this questionnaire is to survey the ways people assess whether or not someone else is telling the truth. Listed below are 34 different behaviours. Please read each behaviour carefully and then write the number beside that behaviour which best reflects your opinion of whether a person engages in more or less of that behaviour when he or she is lying than when he or she is telling the truth. As you may expect a person to behave differently when he or she has prepared the lie (i.e., a planned lie) than when he or she must make up a lie without any preparation (i.e., an unplanned lie), rate each behaviour twice: once for a planned lie and once for an unplanned lie. Assume the speakers are from your culture and are speaking in your native language. The numbers are defined as follows:

- 1 This behaviour decreases tremendously when a person is lying.
- 2 This behaviour decreases a lot when a person is lying.
- 3 This behaviour decreases moderately when a person is lying.
- 4 This behaviour decreases slightly when a person is lying.
- 5 This behaviour is not related to lying and thus does not increase or decrease when a person is lying.
- 6 This behaviour increases slightly when a person is lying.
- 7 This behaviour increases moderately when a person is lying.
- 8 This behaviour increases a lot when a person is lying.
- 9 This behaviour increases tremendously when a person is lying.

For example: If the behaviour listed is yawning,

If you think a person yawns a lot more when he or she is telling a planned lie than when he or she is telling the truth, you would write 6 beside the word yawning under the planned lie column.

If you think a person yawns moderately less when he or she is telling an unplanned lie than when he or she is telling the truth, you would write a 3 beside the word yawning under the unplanned lie column.

	<u>Planned Lie</u>	<u>Unplanned Lie</u>
i.e. yawning	6	3

If you think a person laughs slightly less when he or she is telling a planned lie than when he or she is telling the truth, you would write a 4 beside the word laughing under the planned lie column.

If you think a person laughs a lot more when he or she is telling an unplanned lie than when he or she is telling the truth, you would write a 8 in the unplanned lie column beside the word laughing.

	<u>Planned Lie</u>	<u>Unplanned Lie</u>
i.e. laughing	4	8

When a person lies, this behaviour

<u>decreases tremendously</u>	1
<u>decreases a lot</u>	2
<u>decreases moderately</u>	3
<u>decreases slightly</u>	4
<u>neither increases nor decreases</u>	5
<u>increases slightly</u>	6
<u>increases moderately</u>	7
<u>increases a lot</u>	8
<u>increases tremendously</u>	9

Please rate all the following behaviours for both planned and unplanned lies using a number from 1 to 9. Do not leave any blanks. For each behaviour listed, ask yourself if this behaviour is likely to increase, decrease or stay constant when a person is lying.

	<u>Planned Lie</u>	<u>Unplanned Lie</u>
pupil size	_____	_____
smiling	_____	_____
blinking	_____	_____
twisting hair	_____	_____
perspiring	_____	_____
rubbing hand against some part of the body	_____	_____
turning away from the listener	_____	_____
changing sitting or standing position	_____	_____
nail biting	_____	_____
using hands to illustrate speech	_____	_____
length of time spent answering question	_____	_____
voice pitch (voice gets higher or lower in tone)	_____	_____
use of ahs and uhhs during speech	_____	_____
use of incorrect words	_____	_____

When a person lies, this behaviour decreases tremendously 1
decreases a lot 2
decreases moderately 3
decreases slightly 4
neither increases nor decreases 5
increases slightly 6
increases moderately 7
increases a lot 8
increases tremendously 9

	<u>Planned Lie</u>	<u>Unplanned Lie</u>
how fast he or she speaks	_____	_____
biting or licking lips	_____	_____
frequently changing the direction in which he or she is looking	_____	_____
looking into the eyes of the other person	_____	_____
wrinkling forehead	_____	_____
covering mouth with the hand	_____	_____
flushing or turning red	_____	_____
scratching	_____	_____
rubbing hand against some object (e.g. pen, arm of chair, etc.)	_____	_____
head movement	_____	_____
standing or leaning away from the listener	_____	_____
overall body movement	_____	_____
hand movement not related to speech	_____	_____
after a question is asked, the time it takes the person to begin answering	_____	_____
hesitations or silent breaks in speech	_____	_____

When a person lies, this behaviour

decreases tremendously	1
decreases a lot	2
decreases moderately	3
decreases slightly	4
neither increases nor decreases	5
increases slightly	6
increases moderately	7
increases a lot	8
increases tremendously	9

	<u>Planned Lie</u>	<u>Unplanned Lie</u>
steadiness or strength of voice	_____	_____
stuttering	_____	_____
tapping or moving foot	_____	_____
making jokes	_____	_____
coughing or swallowing	_____	_____

Please list any behaviours which are not mentioned above and which you think may increase or decrease in frequency when a person is lying as opposed to when he or she is telling the truth. Please be specific in describing these behaviours.

<u>Behaviour</u>	<u>This behaviour increases or decreases when a person is lying. (Use the numbers from 1 to 9 to indicate how this behaviour changes when a person is lying)</u>	
	<u>Planned Lie</u>	<u>Unplanned Lie</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

You have received a separate page which lists the previous 34 Behaviours by number. Of all the behaviours listed, which 10 are the most important in assessing whether another person is lying? Please list these behaviours in order, from the most important behaviour to the least important. Place the appropriate number identifying the behaviour (i.e. from 1 to 34) in the space provided.

Planned Lies

Unplanned Lies

- (most important) 1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Below are listed 12 situations in which people may lie. Please read each situation carefully and then rate how wrong or acceptable is lying in that situation. Also note the likelihood that a person would lie in that situation.

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

Please rate all the situations; do not leave any blanks.

- A) On his way home from the factory one day, Kei-Tak stopped at a shop to pick up a few items for dinner. As the shop keeper handed Kei-Tak his change, he said "That's the correct change, isn't it? Although Kei-Tak knew he had received more money than he should have, he replied "Yes, that's the correct change."

How wrong/acceptable is Kei-Tak's lie? ____

How likely is it that a person would lie in this situation? ____

- 3) Sat-Fei is a teacher in a small town. One day some of the local officials asked Sat-Fei to be the judge in a short story contest. Sat-Fei agreed but was busy with other work and never got time to read any of the stories. When asked to pick the best story, Sat-Fei said he had carefully read all the stories and gave the name of the paper at the top of the pile as being the best story.

How wrong/acceptable is Sat-Fei's lie? ____

How likely is it that a person would lie in this situation? ____

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

- c) Wai-Koak's teacher instructed him to work on a group project with four of his classmates. The five students divided the work up evenly between them. As it got close to the time when the project was to be handed in, Wai-Koak's classmates asked him if he had completed his share of the work. Although he hadn't started the work, he lied and said it was all completed. Wai-Koak never did complete his share of the work, and when the project was finally handed in, it was incomplete. All the students in the group received a lower grade due to Wai-Koak's lie.

How wrong/acceptable is Wai-Koak's lie? _____

How likely is it that a person would lie in this situation? _____

- d) On-Ming has been living in a foreign country for over a year. While on his way to work one day, he meets a fellow countryman who is looking for work. Although he has never seen this man before, On-Ming takes the man to see his supervisor and asks his supervisor to give him a job. On-Ming swears the man is an old friend and an excellent workman.

How wrong/acceptable is On-Ming's lie? _____

How likely is this lie to have occurred? _____

- e) Kwok-Yuen has just moved to a new town and decides to join a local political party. Although Kwok-Yuen is a waiter and has had no experience with politics, he lies to the members of the party about how highly experienced he is in dealing with political problems, and convinces the party to let him become a leader of the group. As a result of Kwok-Yuen's inexperience, the party loses a lot of its support.

How wrong/acceptable is Kwok-Yuen's lie? _____

How likely is it that a person would lie in this situation? _____

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

- F) Ying-Sing's brother wants to start a small business and asks Ying-Sing if he could afford to lend him some money. Although Ying-Sing is already deeply in debt, he lies to his brother and says he can easily lend him all the money he wants.

How wrong/acceptable is Ying-Sing's lie? _____

How likely is it that a person would lie in this situation? _____

- G) Tak-Ming has just started a new job in a business office. On his first day, Tak-Ming is given more work than he can handle. Lok-Tak, another office employee, sees Tak-Ming needs help. Although Lok-Tak is very busy and will have to work late himself, he tells Tak-Ming that he has nothing else to do and offers to do some of Tak-Ming's work for him.

How wrong/acceptable is Lok-Tak's lie? _____

How likely is it that a person would lie in this situation? _____

- H) Mr. Wong owns a small business. In order to avoid paying high taxes, when the government official comes around to see his books, Mr. Wong lies and tells the official he is much poorer than he really is.

How wrong/acceptable is Mr. Wong's lie? _____

How likely is it that a person would lie in this situation? _____

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

- I) Mr. Lee is trying to win a high political office in the local government. Although he has no intention of lowering any taxes, Mr. Lee attempts to win votes by promising the people that he will lower taxes if he is elected.

How wrong/acceptable is Mr. Lee's lie? _____

How likely is it that a person would lie in this situation? _____

- J) Ka-Wai, who desperately wants to play on the school cricket team, hears that there is one position open and decides to try out for it. On his way to the tryouts, Ka-Wai sees his best friend Hing-Wo who asks him where he is going. Afraid that Hing-Wo, who happens to be an excellent cricket player, may also decide to try out for the position, Ka-Wai lies about going to the cricket tryouts.

How wrong/acceptable is Ka-Wai's lie? _____

How likely is it that a person would lie in this situation? _____

- K) Wing-Yuen is applying for a job as a floor sweeper in a small factory. Although he has a very bad temper and was fired from his last two jobs because of it, Wing-Yuen tells the interviewer that he left his two previous jobs to take better positions elsewhere.

How wrong/acceptable is Wing-Yuen's lie? _____

How likely is it that a person would lie in this situation? _____

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

- L) Although they have never met, Chung-Wah and Si-Wai work for the same company. One day Chung-Wah hears of an executive position opening in the company and he immediately applies for it. The next day, Chung-Wah is introduced to Si-Wai by a mutual friend. As they are talking, Si-Wai asks Chung-Wah if he knows anything about an executive position coming open. Worried about possible competition for the job, Chung-Wah lies to Si-Wai and tells him that the position has already been filled.

How wrong/acceptable is Chung-Wah's lie? ____

How likely is it that a person would lie in this situation? ____

- M) Ka-Fai is a well-known lawyer in a small city. One day a teacher from one of the city's public schools approaches Ka-Fai and asks him to speak to the students on the role of law in society. Because he dislikes speaking to students, Ka-Fai lies to the teacher and says that he would love to speak to the students but unfortunately would be out of town for the next few weeks and thus was not able to do so.

How wrong/acceptable is Ka-Fai's lie? ____

How likely is it that a person would lie in this situation? ____

- N) Wai-Kwan is arrested on charges of stealing food from the market in which he works. Although guilty of the charges, Wai-Kwan swears in court that he has never stolen anything from the store.

How wrong/acceptable is Wai-Kwan's lie. ____

How likely is it that a person would lie in this situation? ____

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

- O) Luk-Nai makes his living selling herbal ointments. Although Luk-Nai knows that the ointment doesn't really work, he tells people that the ointment has cured severe skin conditions in many people.

How wrong/acceptable is Luk-Nai's lie? ____

How likely is it that a person would lie in this situation? ____

- P) Sai-Choi is introduced to Pui-Ching at a party and during their conversation, Sai-Choi discovers that Pui-Ching is from the same small town in which Sai-Choi's father was born. As Pui-Ching is new in the city, Sai-Choi offers to show him around. Pui-Ching accepts the offer and asks if Sai-Choi is busy the following day. Sai-Choi has a very important business meeting the next day, but not wanting to offend Pui-Ching, lies and says he is not busy at all.

How wrong/acceptable is Pui-Ching's lie? ____

How likely is it that a person would lie in this situation? ____

- Q) Chong-Kian has always wanted to write poetry. One day his school has a poetry contest and Chong-Kian decides to enter his favourite poem. Before he enters it, he asks his best friend to read it and tell him what he thinks of it. Although his friend thinks the poem is poorly written and uninteresting, he tells Chong-Kian that the poem is well written and shows talent.

How wrong/acceptable is the friend's lie? ____

How likely is it that a person would lie in this situation? ____

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

- R) Mr. Ho's son has just graduated from school and wants to work in a local company. To help his son get a job, Mr. Ho asks his friend Mr. Cheung to write a reference letter. Although Mr. Cheung has never seen Mr. Ho's son, he writes a letter to the company saying that he has known Mr. Ho's son for years and considers him to be an honest and reliable worker.

How wrong/acceptable is Mr. Cheung's lie? _____

How likely is it that a person would lie in this situation? _____

- S) Dr. Chan is leaving the hospital one day and accidentally backs into the car behind him. As he is driving off, the owner of the other car arrives and asks Dr. Chan if he saw who dented the fender of his car. Dr. Chan says he didn't see anyone near the car and has no idea who hit it.

How wrong/acceptable is Dr. Chan's lie? _____

How likely is it that a person would lie in this situation? _____

- T) On a visit to another country, Kam-Kwong buys some gold jewelry. To avoid paying duty on the jewelry, Kam-Kwong tells the customs official that he did not buy anything while in the other country.

How wrong/acceptable is Kam-Kwong's lie? _____

How likely is it that a person would lie in this situation? _____

Use the numbers listed below to rate the acceptability of lying in each situation.

1. extremely wrong
2. very wrong
3. quite wrong
4. slightly wrong
5. neither wrong nor acceptable
6. slightly acceptable
7. quite acceptable
8. very acceptable
9. extremely acceptable

Use the numbers listed below to rate how likely it is that a person would lie in this situation.

1. extremely likely
2. very likely
3. quite likely
4. slightly likely
5. neither likely nor unlikely
6. slightly unlikely
7. quite unlikely
8. very unlikely
9. extremely unlikely

- U) Mr. Yeung had to leave his class unattended while he went to speak with the principal. While he was gone, several members of the class played with the movie screen, pulling it up and letting it snap back. Suddenly it made a grinding noise and fell to the floor. Mr. Yeung returned, demanded to know who had broken the screen, and said the entire class would be kept after school if the guilty person was not identified. Yuen-Cheung, who had nothing to do with breaking the screen, raised his hand and confessed to being responsible. The rest of the class went home while Yuen-Cheung had to stay behind.

How wrong/acceptable is Yuen-Cheung's lie? _____

How likely is it that a person would lie in this situation? _____

- V) Kwok-To works in a large city. His job is to hire people to work for small companies. One day a high paying job opens up in a local company. Although Kwok-To has been told to find someone quickly for the job and a number of qualified people have applied for the job, Kwok-To lies to his supervisor and says that no qualified people have applied. The real reason that Kwok-To doesn't hire anyone for the job is because his brother-in-law and his family are moving to the city and Kwok-To wants to hold the job open for him.

How wrong/acceptable is Kwok-To's lie? _____

How likely is it that a person would lie in this situation? _____

- W) While visiting friends in a distant city, Tsang-Kwan sees a radio for sale in a local shop. Tsang-Kwan asks his cousin Eng-Hen to have a look at the radio and tell him if he thinks the radio is worth buying. Eng-Hen goes to the shop and decides to buy the radio himself. Rather than telling Tsang-Kwan that he bought the radio, Eng-Hen tells Tsang-Kwan that the radio had been sold to another customer.

How wrong/acceptable is Eng-Hen's lie? _____

How likely is it that a person would lie in this situation? _____

Below is a question concerning how right or wrong it is to lie. The numbers on the scale are defined as follows:

- | | |
|---------------------|---------------------|
| 1. extremely wrong | 6. a little right |
| 2. very wrong | 7. somewhat right |
| 3. moderately wrong | 8. moderately right |
| 4. somewhat wrong | 9. very right |
| 5. a little wrong | 10. extremely right |

1. On the scale of 1 to 10, in general how wrong or right is it to tell a lie?
(Circle the number that best indicates how right or wrong you think it is to tell a lie.)

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Below is a question concerning the necessity of lying in everyday social life. The numbers in the scale are defined as follows:

- | | |
|-------------------------|---------------------------|
| 1. extremely necessary | 6. a little unnecessary |
| 2. very necessary | 7. somewhat unnecessary |
| 3. moderately necessary | 8. moderately unnecessary |
| 4. somewhat necessary | 9. very unnecessary |
| 5. a little necessary | 10. extremely unnecessary |

2. Do you feel that lying is necessary in everyday social life?
(Circle the number that best indicates how necessary you think lying is in social situations.)

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Below are two questions concerning the frequency of telling lies. Use the following scale from 1 to 7 to indicate your answers.

- | | |
|--------------------|--------------|
| 1. always | 5. sometimes |
| 2. extremely often | 6. rarely |
| 3. very often | 7. never |
| 4. quite often | |

-
3. How frequently do you tell lies?
(Circle the number that best indicates how often you think you tell lies.)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

4. How frequently do you think other people tell lies?
(Circle the number that best indicates how often you think other people tell lies.)

1	2	3	4	5	6	7
---	---	---	---	---	---	---

R/DWC12

Appendix B: Mean Ratings of the Likelihood of Lying in the Scenarios

Situation	Canadians	Chinese	t(165)	p
A	3.3	3.4	-0.36	.721
B	5.5	4.0	4.63	.000 *
C	4.2	4.9	-2.10	.038
D	4.3	5.6	-3.75	.000 *
E	5.8	6.0	-0.33	.740
F	5.4	5.4	0.00	.997
G	4.8	5.2	-1.16	.247
H	3.1	3.3	-0.46	.647
I	2.3	3.2	-3.01	.003
J	3.3	3.9	-2.04	.043
K	2.4	2.9	-2.38	.019
L	3.1	3.5	-1.64	.103
M	3.1	3.4	-1.35	.180
N	3.7	3.8	-0.49	.623
O	2.8	3.6	-2.32	.022
P	5.3	5.1	0.31	.759
Q	2.6	3.9	-5.15	.000 *
R	3.6	3.8	-0.53	.598
S	3.6	3.4	0.86	.391
T	1.9	3.3	-4.98	.000 *
U	7.5	6.7	2.70	.008
V	3.6	3.7	-0.36	.719
W	4.8	4.4	1.09	.276

* significant at alpha = .05 using a Bonferroni adjustment for multiple tests.

Appendix C-1: Behaviours Scored During Presentation of Deceptive and Nondeceptive Messages

<u>Visual Channel</u>	<u>Measure</u>
Direct gaze	number of seconds gazing directly at camera
Blinking	frequency of blinks
Illustrators	duration of hand movements designed to modify/supplement verbal message
Adaptors	duration of self or object manipulations not directly related to speech
Chair swings	frequency of swinging chair to right of left of centre
Movement index	scored on a 7-point scale ranging from extreme lack of movement (1) to extreme excess of movement (7)
<u>Vocal Channel</u>	<u>Measure</u>
Filled pauses	frequency of ahs, uhms and ers
Speech errors	frequency of nonfluencies, word and/or sentence repetition, incomplete sentences, incorrent use of word (Kasi & Mahl, 1965)
Silent pauses	frequency of silent pauses longer than 2 seconds
Speech rate	number of words spoken in 30 second segment
Word complexity	number of syllables divided by number of words
Response latency	number of seconds between the end of the question and the beginning of the speaker's response
<u>Verbal Channel</u>	<u>Measure</u>
Nonimmediacy	frequency of indirect forms of expression (e.g., "People believe metric is easier to use" is less immediate than "Metric is easier to use") (Wiener & Mehrabian, 1968, Chp. 4)
Linguistic certainty	frequency of absolute verbs (e.g., "Not wearing a seat belt is dangerous" expresses more linguistic certainty than "Not wearing a seat belt can be dangerous"
Logical developement	scored on a 7 point scale - extent to which the speaker's arguments were logically developed in his or her response
Articulation	scored on a 7 point scale - extent to which the speaker's points were clearly expressed
Concreteness	scored on a 7 point scale - extent to which the speaker's arguments were specific and detailed
Plausibility	scored on a 7 point scale - extent to which the response was consistent with common sense about the world in general

Appendix C-2: Interrater Reliability for Scoring the Behavioural Measures

<u>Visual Channel</u>	<u>r(30)</u>
Gaze	.89
Blinking	.98
Illustrators	.87
Adaptors	.94
Chair swings	.95
Movement Index	.72

<u>Vocal Channel</u>	<u>r(30)</u>
Filled pauses	.98
Silent pauses	.88
Speech errors	.78
Number of words	.99
Mean word length (syllables)	.94
Response latency	.87

<u>Verbal Channel</u>	<u>r(30)</u>
Nonimmediacy	.81
Absolute Verbs	.98
Logical Developement	.82
Level of Articulation	.77
Concreteness	.73
Plausibility	.80

Note. Correlations are based on 32 ratings of segments and were calculated using Pearson's r statistic.

Appendix C-3: Results of Multivariate Analyses of Variance for Visual, Vocal and Verbal Channel Behaviours

Source of Variation	Channel		
	Visual	Vocal	Verbal
	F(6,23)	F(6,23)	F(6,23)
Experimental Condition	.68	1.15	7.30 *
Speaker Culture	2.36	9.40 *	11.37 *
Speaker Sex	1.36	.66	.81
Condition X Culture	1.65	1.12	2.10
Condition X Sex	.34	.95	1.10
Culture X Sex	.58	1.09	2.21
Condition X Culture X Sex	.79	.69	1.86

* $p < .05$

Note. Wilks' Lambda has been converted to an exact F using Rao's statistic

Appendix C-4: Mean Scores on the Six Verbal Measures as a Function of Experimental Condition

Canadian Speakers

	TRUTHS		LIES	
	<u>Mean</u>	<u>SE</u>	<u>Mean</u>	<u>SE</u>
Nonimmediacy	9.1	.99	9.9	1.80
Linguistic certainty	4.9	.43	5.0	.42
Logical development	4.8	.12	4.6	.16
Articulation	5.1	.10	5.2	.14
Concreteness	5.2	.11	5.4	.35
Plausibility	4.9	.17	4.3	.19

Chinese Speakers

	TRUTHS		LIES	
	<u>Mean</u>	<u>SE</u>	<u>Mean</u>	<u>SE</u>
Nonimmediacy	5.6	1.18	7.7	1.13
Linguistic certainty	3.6	.31	2.6	.32
Logical development	4.0	.17	4.3	.12
Articulation	3.8	.18	4.2	.12
Concreteness	4.2	.18	4.4	.14
Plausibility	4.2	.19	4.1	.19

Appendix C-5: Mean Scores on Six Visual Behaviours as a Function of Speaker Culture

Variable	Canadian		Chinese	
	Mean	SE	Mean	SE
Gaze	18.54	2.07	16.90	2.48
Blinking	25.67	3.98	17.25	1.99
Illustrators	4.86	1.49	7.97	2.40
Adaptors	12.22	1.84	7.95	2.01
Chair swings	2.95	0.69	2.24	0.53
Movement index	3.33	0.30	2.78	0.31

Appendix D

In the study reported in Chapter 6, judges assessed whether videotaped messages were sincere or insincere, how confident they were in each assessment and how much they agreed or disagreed with each message. Analyses of these ratings are presented in this appendix. Note that the analyses involving judges' agreement and confidence ratings use judges as the units of analysis. Analyses involving the accuracy with which the speakers' messages are assessed use speakers as the units of analysis.

Appendix D-1: Personal Data Questionnaire for Judges

Name _____ Age _____ Sex _____ Student # _____

Area of study _____

Your first language _____ Other languages spoken _____

Place of birth _____
City _____ Country _____

Other than your place of birth, what other countries have you lived in?

Country	Length of time lived there
_____	_____
_____	_____
_____	_____

What countries have your parents lived in?

Father _____

Mother _____

What languages do your parents speak?

Father _____

Mother _____

What language is usually spoken at home? _____

Have you ever had any training or experience in any of the following areas? (Write no or yes beside each area)

acting _____ announcing (radio, T.V.) _____ debating _____

public speaking _____ sales or advertising _____

Please describe your experience in these areas and indicate how much time you spent in these involvements on the back of this page.

Appendix D-1: Judges' Instruction Sheet

You will be viewing a videotape which contains 8 people expressing opinions on a variety of issues. Each person on the tape speaks on 4 different topics. On any or all of the topics, the speaker may be expressing his or her true opinion, or the speaker may be lying about his or her opinion on the topic. Your task is to judge whether each message is a true opinion or is a lie. For each of the 4 topics presented by a speaker, please answer the following three questions on the answer sheet provided.

A) Do you agree or disagree with the arguments this person is making?

- 1 Strongly Agree
- 2 Moderately Agree
- 3 Slightly Agree
- 4 Don't Agree or Disagree
- 5 Slightly Disagree
- 6 Moderately Disagree
- 7 Strongly Disagree

(Please mark the number that most closely corresponds to how much you agree with this person's arguments on the answer sheet provided)

B) Does the opinion being expressed by this person represent his or her true opinion or is it a lie?

(Please mark TRUE or LIE on the answer sheet)

C) How confident are you in your decision concerning whether or not this person is telling the truth?

(Please mark the number that most closely corresponds to how confident you feel about your judgement on the answer sheet provided)

- 1 Not at all confident
- 2 Slightly confident
- 3 Moderately confident
- 4 Fairly confident
- 5 Absolutely confident

Appendix D-2

Results of a 2 (Judge Culture) x 2 (Speaker Culture) x 2 (Speaker Sex) x 2 (Response True or Lie) Analysis of Variance of Judges' Ratings of their Agreement with the Speakers' Messages.

<u>Source of Variance</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between Subjects	95		
Judge culture (A)	1	12.2104	9.68 *
Error (between)	94	1.2614	
Within Subjects	672		
Speaker culture (B)	1	6.4460	8.50 *
Speaker sex (C)	1	8.9126	11.89 *
Response (D)	1	334.7868	189.60 *
B x C	1	2.5282	3.01
B x D	1	4.1819	3.76
C x D	1	.0051	< 1
B x C x D	1	1.6573	2.02
A x B	1	1.7366	2.29
A x C	1	.5021	< 1
A x D	1	6.1550	3.48
A x B x C	1	.3541	< 1
A x B x D	1	5.8940	5.29 *
A x C x D	1	.0117	< 1
A x B x C x D	1	1.877	< 1
Error (B)	94	.7578	
Error (C)	94	.7497	
Error (D)	94	1.7658	
Error (BC)	94	.8384	
Error (BD)	94	1.1134	
Error (CD)	94	.7085	
Error (BCD)	94	.8210	
Total	767		

* $p < .05$

Mean Ratings of Judges' Agreement with the Speakers' Messages

		<u>Judges</u>	
		<u>Canadian</u>	<u>Chinese</u>
Speakers	Canadian male	true 3.14	3.13
		lie 4.85	4.18
	Canadian female	true 2.94	2.96
		lie 4.87	4.14
	Chinese male	true 3.13	3.11
		lie 4.45	4.34
	Chinese female	true 3.03	2.75
		lie 4.07	3.86

Appendix D-3

Results of a 2 (Judge Culture) x 2 (Speaker Culture) x 2 (Speaker Sex) x 2 (Response True or Lie) Analysis of Variance of Judges' Ratings of their Confidence in each Judgment.

<u>Source of Variance</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between Subjects	95		
Judge culture (A)	1	1.8784	1.02
Error (between)	94	1.8452	
Within Subjects	672		
Speaker culture (B)	1	11.2922	36.58 *
Speaker sex (C)	1	2.0279	< 1
Response (D)	1	50.8491	83.31 *
B x C	1	4.4366	16.97 *
B x D	1	2.5764	10.04 *
C x D	1	1.3850	4.50 *
B x C x D	1	.5690	1.73
A x B	1	2.7740	8.99 *
A x C	1	.1009	< 1
A x D	1	1.2463	2.04
A x B x C	1	.0043	< 1
A x B x D	1	.1296	< 1
A x C x D	1	.0275	< 1
A x B x C x D	1	.2970	< 1
Error (B)	94	.3087	
Error (C)	94	.3313	
Error (D)	94	.6104	
Error (BC)	94	.2614	
Error (BD)	94	.2567	
Error (CD)	94	.3080	
Error (BCD)	94	.3273	
Total	767		

* $p < .05$

Judges' Mean Confidence Ratings in the Correctness of their Judgements

		<u>Judges</u>	
		<u>Canadian</u>	<u>Chinese</u>
Speakers	Canadian male	1 true 3.49	3.35
		lie 3.23	2.88
	Canadian female	true 3.69	3.50
		lie 3.26	3.07
	Chinese male	true 3.35	3.44
		lie 2.94	2.86
	Chinese female	true 3.28	3.46
		lie 2.65	2.55

Appendix D-4

Results of a 2 (Judge Culture) x 2 (Speaker Culture) x 2 (Speaker Sex) x 2 (Correctness of Response) Analysis of Variance of Judges' Ratings of their Confidence in each Judgment.

<u>Source of Variance</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between Subjects	95		
Judge culture (A)	1	2.7634	1.46
Error (between)	94	1.8899	
Within Subjects	672		
Speaker culture (B)	1	9.1917	31.55 *
Speaker sex (C)	1	.0654	< 1
Accuracy (D)	1	41.5157	96.46 *
B x C	1	3.1605	10.73 *
B x D	1	5.6473	18.46 *
C x D	1	2.2970	7.86 *
B x C x D	1	3.0736	9.98 *
A x B	1	3.2063	11.00 *
A x C	1	.0006	< 1
A x D	1	.0157	< 1
A x B x C	1	.0036	< 1
A x B x D	1	.8780	2.87
A x C x D	1	.1816	< 1
A x B x C x D	1	.3893	1.26
Error (B)	94	.2914	
Error (C)	94	.3284	
Error (D)	94	.4304	
Error (BC)	94	.2945	
Error (BD)	94	.3059	
Error (CD)	94	.2922	
Error (BCD)	94	.3078	
Total	767		

* $p < .05$

Judges' Confidence Ratings for Correct and Incorrect Judgements

		<u>Judges</u>		
		<u>Canadian</u>	<u>Chinese</u>	
Speakers	Canadian Male	Right	3.55	3.24
		Wrong	3.18	2.99
	Canadian Female	Right	3.66	3.29
		Wrong	3.29	3.13
	Chinese Male	Right	3.36	3.34
		Wrong	2.94	2.96
	Chinese Female	Right	3.36	3.51
		Wrong	2.63	2.51

Appendix D-5

Results of a 2 (Speaker Culture) x 2 (Speaker Sex) x 2 (Judge Culture) x 2 (Judge Sex) Analysis of Variance of the Correctness of Judges' Ratings.

<u>Source of Variance</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between Subjects	31		
Speaker culture (A)	1	.2130	4.97 *
Speaker sex (B)	1	.1140	2.66
A x B	1	.2917	6.81 *
Error (between)	28	.0428	
Within Subjects	96		
Judge culture (C)	1	.1780	12.51 *
Judge sex (D)	1	.0581	9.47 *
C x D	1	.0020	< 1
A x C	1	.0465	3.27
A x D	1	.0300	4.90 *
B x C	1	.0034	< 1
B x D	1	.0257	4.20 *
A x B x C	1	.0012	< 1
A x B x D	1	.0141	2.31
A x C x D	1	.0015	< 1
B x C x D	1	.0005	< 1
A x B x C x D	1	.0001	< 1
Error (C)	28	.0142	
Error (D)	28	.0061	
Error (C x D)	28	.0093	
Total	128		

* $p < .05$

Appendix-D-6: Results of a 2 (Speaker Culture) x 2 (Speaker Sex) x 2 (Judge Culture) x 2 (Judge Sex) x 2 (Experimental Condition)
Analysis of Variance of the Correctness of Judges' Ratings.

<u>Source of Variance</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between Subjects	31		
Speaker culture (A)	1	.2130	4.97 *
Speaker Sex (B)	1	.1140	2.66
A x B	1	.2917	6.81 *
Error (Between)	28	.0428	
Within Subjects	224		
Judge culture (C)	1	.1780	12.51 *
Judge sex (D)	1	.0581	9.47 *
Exp. Condition (E)	1	4.6142	97.24 *
C x D	1	.0020	< 1
C x E	1	.3498	22.74 *
D x E	1	.0320	3.55
C x D x E	1	.0009	< 1
A x C	1	.0465	3.27
A x D	1	.0301	4.90 *
A x E	1	.0002	< 1
B x C	1	.0034	< 1
B x D	1	.0247	4.02
B x E	1	.0299	< 1
A x B x C	1	.0012	< 1
A x B x D	1	.0141	2.31
A x B x E	1	.0103	< 1
A x C x D	1	.0015	< 1
A x C x E	1	.0458	2.98
A x D x E	1	.0005	< 1
B x C x D	1	.0005	< 1
B x C x E	1	.0176	1.14
B x D x E	1	.0005	< 1
A x B x C x D	1	.0001	< 1
A x B x C x E	1	.0034	< 1
A x B x D x E	1	.0007	< 1
A x C x D x E	1	.0320	2.42
B x C x D x E	1	.0000	< 1
A x B x C x D x E	1	.0011	< 1
Error (C)	28	.0142	
Error (D)	28	.0061	
Error (E)	28	.0474	
Error (CD)	28	.0093	
Error (CE)	28	.0154	
Error (DE)	28	.0090	
Error (CDE)	28	.0132	
Total	255		

* $p < .05$

Correctness of Judgements for Truthful and Deceptive Statements

		<u>Judges</u>				
		<u>Canadian</u>		<u>Chinese</u>		
		<u>male</u>	<u>female</u>	<u>male</u>	<u>female</u>	
Speakers	Canadian male	true	.69	.75	.72	.71
		lie	.59	.55	.40	.38
	Canadian female	true	.68	.73	.76	.73
		lie	.54	.48	.34	.33
	Chinese male	true	.73	.71	.71	.72
		lie	.49	.48	.46	.41
	Chinese female	true	.85	.77	.88	.84
		lie	.65	.56	.58	.45

Note. Scores are proportions of correct judgements for truthful and deceptive messages.

Appendix E

Results of a 2 (Culture) x 2 (Sex) Analysis of Variance of 46 Canadian and 46 Chinese subjects' scores on Rotter's Interpersonal Trust Scale (Rotter, 1967).

<u>Source of Variance</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Culture (A)	1	271.78	4.15 *
Sex (B)	1	269.80	4.12 *
A x B	1	15.73	< 1
Error	92	65.47	

* $p < .05$

Mean Scores obtained by these subjects:

	<u>Males</u>	<u>Females</u>
Canadian	72.8 (19)	68.4 (27)
Chinese	68.4 (14)	65.6 (32)

Note. Numbers in () indicate the numbers of subjects on which each mean is based. High scores indicate a high level of interpersonal trust.

Appendix F

A pilot study was conducted in which 32 Chinese judges rated the sincerity of videotaped messages presented by Chinese speakers. Judges rated all the messages twice; once in English and once in Cantonese. Mean correct judgements were analyzed in a 2 (Order of presentation) x 2 (Language) x 2 (Speaker Sex) analysis of variance. The following are the results of this analysis.

<u>Source of Variance</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between Subjects	31		
Order (A)	1	3.13	< 1
Error	30	35.42	
Within Subjects	96		
Language (B)	1	72.00	5.40 *
Speaker Sex (C)	1	.13	< 1
B x C	1	12.50	1.94
A x B	1	32.00	2.40
A x C	1	3.12	< 1
A x B x C	1	18.00	2.79
Error (B)	30	13.33	
Error (C)	30	18.02	
Error (B x C)	30	6.45	
Total	127		

* $p < .05$

Note. If converted to proportion correct, mean scores for English language and Cantonese language messages were .63 and .67, respectively.

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