THESIS

This is to certify that the

thesis entitled

THE EFFECTS OF SELF-MONITORING AND REHEARSAL
ON THE BEHAVIORAL CORRELATES
OF DECEPTION
presented by

Mark A. de Turck

has been accepted towards fulfillment
of the requirements for

M.A. degree in Communication

Harold R. Miller
Major professor

Date 19 May 1982

O-7639

THE EFFECTS OF SELF-MONITORING AND REHEARSAL ON THE BEHAVIORAL CORRELATES OF DECEPTION

By

Mark A. deTurck

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Communication

1982

Accepted by the faculty of the Department of Communication, College of Communication Arts, Michigan State University, in partial fulfillment of the requirements for the Master of Arts degree.

Gerald R. Miller
Director of Thesis

Guidance Committee: Gerald R. Miller, Chairman
Michael Burgoon
Judee K Burgoon

ABSTRACT

THE EFFECTS OF SELF-MONITORING AND REHEARSAL
ON THE BEHAVIORAL CORRELATES
OF DECEPTION

By

Mark A. deTurck

The present study was designed to determine the effects of self-monitoring and rehearsal on the verbal and nonverbal correlates of deception. High and low self-monitors were videotaped while engaging in rehearsed and unrehearsed deception. Based on drive-reduction learning theory it was argued that communicators engaging in spontaneous deception would display greater rates of message encoding, speech errors, and pause rates. It was found that rehearsed deceivers did exhibit greater rates of speech errors and pauses; however, no difference was found between rehearsed and unrehearsed deceivers for message duration. Low self-monitoring deceivers were found to have greater confidence ratios than their high self-monitoring counterparts. Although it was predicted that high self-monitors with the opportunity to rehearse their deception would display fewer verbal and nonverbal cues associated with deception; however, no such interaction was found.

Dedicated to my parents,

Maurice and Mary Jane

with love

ACKNOWLEDGMENTS

I would like to express my appreciation and gratitude to the members of my committee, Dr. Gerald R. Miller, Dr. Judee K. Burgoon, and Dr. Michael Burgoon, for their guidance, encouragement, and patience.

To Gerald R. Miller, I extend my deepest appreciation for his intellectual inspiration and friendship. He has been the driving force behind my intellectual development. If not for G.R.'s guidance and perseverance, this thesis would not have been completed.

To my wife, Bridget, I extend my deepest appreciation for her encouragement, patience, and comfort. No one knows better the sacrifices made by a graduate student's spouse.

I would also like to thank the graduate students from the department who have facilitated my intellectual growth and coping capacities. If not for those late night dart games, golf tournaments, and drinking seminars, this thesis would not have been completed.

Finally, I would like to thank Grace Rutherford for typing this thesis.

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CHAPTER I

INTRODUCTION

When news of the Watergate scandal reached the public, Americans were shocked to learn their commander-in-chief had betrayed them. The real revelation, however, was the realization that duplicity knows no bounds. Whether we witness a deceptive performance, fall victim to deceit, or occasionally perpetrate a deceptive act, deception infiltrates our everyday interactions with others. While deception embodies a broad class of events, as a communication strategy, deception has generally been defined as "the withholding of and/or substitution of information by an individual with the deliberate intent to create beliefs on the part of others which the individual believes are false or invalid" (Miller, Bauchner, Fontes, Hocking, Kaminski & Brandt, 1981). Given the pervasive nature and potentially harmful relational consequences resulting from deception, researching deceptive messages has become increasingly salient to the communication scholar.

Research investigating deceptive communication has pursued two major avenues of inquiry. First, a substantial body of literature has dealt with the ability of persons to detect deception on the part of a relative stranger (Bauchner, Brandt & Miller, 1977; Bauchner, Kaplan & Miller, 1980; Brandt, Miller & Hocking, 1980; Ekman & Friesen, 1974; Geizer, Rarick & Soldow, 1977; Hocking, 1976; Hocking, Bauchner, Kaminski & Brandt, 1979; Maier & Thurber, 1968). A second line of

research has investigated the verbal and nonverbal correlates of deceptive communication [author(s) unknown, 1981; Berrien & Huntington, 1943; Ekman & Friesen, 1969, 1972, 1974; Ekman, Friesen & Scherer, 1976; Feldman, Devin-Sheehan & Allen, 1978; Knapp, Hart & Dennis, 1974; Kraut, 1978; McClintock & Hunt, 1975; Mehrabian, 1971; Motley, 1974; O'Hair, Cody & McLaughlin, 1981; Streeter, Geller, Olson & Apple, 1977; Zuckerman, DeFrank, Hall, Larrance & Rosenthal, 1979]. The research presented herein is concerned with this latter avenue of study. More specifically, the present investigation examines the verbal and nonverbal behaviors of high and low self-monitoring individuals who perpetrate spontaneous and rehearsed lies.

Unfortunately, when persons are instructed to judge the veracity of communication originating from a relative stranger, their mean accuracy scores tend to cluster around .50 or 50% accuracy (Hocking, 1976; Bauchner et al., 1977, 1980). In other words, persons confronted with detecting deceptive messages from relative strangers usually do no better than if they based their decision on the flip of a coin. Moreover, this sad state of affairs is compounded by the fact that most persons are very confident in their ability to make veracity judgments (Hocking, 1976; Bauchner et al., 1977, 1980).

Miller and Burgoon (1982) report that persons judging the veracity of others' communication are generally looking for some of the same cues which are typically encoded by liars. Despite the fact that observers seeking to make veracity judgments focus on several cues which signal deception, their overall probability of detecting a deceptive performance is no better than chance. Obviously, individuals

decoding deceptive communication are ignoring or misinterpreting behavioral cues which may otherwise reveal the veracity of others' communication. Indeed, if we are to distinguish between deceptive and veridical communicators, first we must become aware of the behavioral correlates of deception.

Behavioral Correlates of Deception

Unlike the popular Disney character, Pinocchio, not all persons perpetrating a lie are betrayed by such obvious cues as an enlarged nose. However, a considerable body of literature has determined that persons engaging in deceptive communication exhibit a variety of verbal and nonverbal behaviors which distinguish them from truth tellers. The following two sections outline the verbal and nonverbal cues encoded by fabulists.

Nonverbal Correlates of Deception

In a review of the early deception literature, Knapp, Hart, and Dennis (1974) noted that previous research had produced few and sometimes inconsistent results regarding behavioral cues associated with deceptive communication. To determine which verbal and nonverbal behaviors distinguish deceivers from nondeceivers, Knapp et al. (1974) initiated a systematic investigation aimed at exposing the language of liars. Using 38 veterans of military service, Knapp et al. examined how persons instructed to deceive an interviewer differed from persons telling the truth with respect to seven nonverbal cues. Their results indicated that liars engaged in longer adaptors (self and object) and maintained less eye contact than their truthful counterparts. These

findings are consistent with similar studies examining nonverbal sources of leakage (Ekman & Friesen, 1972; McClintock & Hunt, 1975; O'Hair, Cody & McLaughlin, 1981). In addition, Knapp et al. found nondeceivers gazed more frequently at the interviewer, i.e., from a "non-look" to a "look" position, although this difference only approached significance ($p = .09$).

Author(s) unknown (1981) leveled four criticisms against earlier deception research which may account for the lack of significant findings in Knapp et al's. (1974) pioneering study. First, Knapp et al. employed a restricted sample of all males. Second, by providing their intended deceivers with a list of counterarguments, Knapp et al. structured the role playing situation so that the veterans may not have been lying. Contrary to how deception has been operationalized (Knapp & Comadena, 1979), intended deceivers may not have fabricated their view of reality but presented their perception of another's reality based on the lists of arguments they received to help them in their deceptive performance. The third criticism of early deception research concerns the deceivers' motivation for lying. More specifically, the deceivers may not have been provided sufficient personal incentive so as to take their deceptive performance seriously. Finally, since Knapp, Hart, and Dennis prepped their deceivers by giving them lists of arguments, they may have provided deceivers the opportunity to rehearse their "story" prior to deceiving. Their coaching not only foiled the spontaneity of deceptive responses, it may have reduced the anxiety level of deceivers to a point they did not differ significantly from nondeceivers. This writer will discuss how anxiety,

or drive, effects persons' abilities to perform in social situations, later in this chapter.

While Knapp et al. (1974) revealed only two nonverbal indices of dissembling, other investigations studying nonverbal sources of leakage have yielded additional indicators. For example, a number of investigations have indicated that individuals telling a lie smile less than persons communicating the truth (Feldman, Devin-Sheehan & Allen, 1978; McClintock & Hunt, 1975; O'Hair, Cody & McLaughlin, 1981; Zuckerman, DeFrank, Hall, Larrance & Rosenthal, 1979). An increase in smiling is particularly evident when a liar is experiencing a heightened state of anxiety during his/her deceptive performance (Mehrabian, 1971).

Additional nonverbal sources of leakage have consistently distinguished deceptive from honest communicators. Individuals engaged in deceiving another person typically display a configuration of bodily activity indicative of increased anxiety and tension. Included in this configuration of cues are frequent shifts in body positions, more frequent postural body blocks, and excessive limb movement such as frequent leg and foot gestures. Hand gestures have also emerged as a rich source of nonverbal dissembling. Unconsciously signaling their helplessness, deceivers more frequently exhibit hand shrug emblems than truthful communicators (Ekman & Friesen, 1972, 1974). Based on the argument that prevaricators are less enthusiastic than truthtellers, several researchers (Ekman & Friesen, 1972; Ekman, Friesen & Scherer, 1976; Mehrabian, 1971) found liars encode fewer illustrators (hand gestures which appear in conjunction with speech and serve to modify the verbal message) during a deceptive performance.

Results from research examining whether affirmative head nods differentiate between deceivers and nondeceivers have been mixed. Knapp et al. (1974) and Feldman et al. (1978) found deceivers nod their heads more frequently than nondeceivers; however, the differences in the rate of occurrence were not significant. Mehrabian (1971) concluded that persons perpetrating a lie nod their head less frequently in affirmation. More recently, O'Hair et al. (1981) reported deceivers nodded their heads more frequently when given the opportunity to prepare for their deception. If deception is conceived as a persuasive act, persons communicating deceptively should display an increase in affirmative head nods compared to their truthful counterparts (Mehrabian & Williams, 1969).

Verbal Correlates of Deception

Until recently, there was a dearth of research which specifically examined linguistic markers in deceptive communication. Deceptive language is marked by a number of linguistic cues which distinguish it from veridical speech. In their pioneering study, Knapp, Hart, and Dennis (1974) subjected the transcribed verbalizations of their subjects to an automated language analysis. By using the TEXAN program (basically a word frequency analysis), Knapp et al. were able to generate a host of statistics on the linguistic choices of deceivers versus nondeceivers. Their analysis revealed 12 linguistic and paralinguistic markers which distinguished the language of deception from truthful verbalizations.

While many of the findings from Knapp et al. have been duplicated some research endeavors resulted in equivocal or contradictory findings. On the one hand, a majority of studies determined that, compared to truthful persons, deceptive communicators typically pause more frequently, i.e., leave more openings for interviewer probes (Feldman, Devin-Sheehan & Allen, 1978; Knapp et al., 1974), use fewer words [author(s) unknown, 1981; Knapp et al., 1974), employ a more restricted code, i.e., use fewer unique words [author(s) unknown, 1981; Knapp et al.] have longer response latencies [author(s) unknown, 1981; Baskett & Freedle, 1974; Cutrow, Parks, Lucas & Thomas, 1972; DePaulo, Zuckerman & Rosenthal, 1980; Kraut, 1978; Matarazzo, Wiens, Jackson & Manaugh, 1970; Streeter, Krauss, Geller, Olson & Apple, 1976] have a shorter speaking time [author(s) unknown, 1981; Mehrabian, 1971], present more overgeneralizations [author(s) unknown, 1981; Knapp et al., 1974; Kraut, 1978], present fewer factual statements [author(s) unknown, 1981; Knapp et al., 1974; Kraut, 1978], and utter more nonfluencies or quasiverbalisms [author(s) unknown, 1981; Kraut, 1978; Mehrabian, 1971].

On the other hand, several studies have failed to confirm or have found conflicting results with a few of the findings just cited. Earlier studies examining vocal correlates of deception, for example, found some communicators respond more quickly to queries when lying (English, 1926; Hemsley, 1970; Marston, 1920; Matarazzo et al., 1970). Similarly, contradictory and/or ambiguous results have been found regarding deceivers' nonfluency rate (Knapp et al., 1974) and message duration (Knapp et al., 1974; Matarazzo et al., 1970). Despite these

ambiguities, it is apparent from this review that when persons engage in deceptive communication their language is marked by a number of linguistic cues which distinguish it from the language encoded by truthful communicators.

Although there exists a number of empirical conclusions regarding how persons behave when they seek to deceive, most of the studies have been atheoretical. The following section outlines a theoretical perspective that extends Ekman and Friesen's (1969) leakage hypothesis and explicates the psychophysiological processes governing a liar's behavior.

A Theoretical Perspective of Deceptive Behavior

In 1969, Ekman and Friesen advanced a theoretical perspective positing that sources of nonverbal leakage betray verbal messages during a deceptive encounter. According to Ekman and Friesan (1969), nonverbal gestures originating from our extremities are encoded at a lower level of consciousness than our facial expressions, and therefore, may contradict or betray the communicator's carefully composed verbal fabrication. More specifically, they argued that the face has the greatest sending capacity in terms of expressive cues whereas the hands, and to a lesser extent the feet, have very little capacity for transmitting expressive cues. Ekman and Friesen hypothesized that because of the face's greater potential for sending cues signaling deception, deceptive communicators will monitor their facial expressions more closely than other bodily activity. In a program of

research designed to test their leakage hypothesis, Ekman and Friesen (1969, 1972, 1974) and Ekman, Friesen, and Scherer (1976) generally found support for their predictions; i.e., compared to facial cues, deceivers' feet, legs, and hands are a prime source of information for detecting deception.

According to Ekman and Friesen (1969), internal feedback, or the extent to which a person monitors his/her behavior, is the key to the behavioral variations found between deceptive and truthful communicators. Ekman and Friesen's leakage hypothesis argues that deceivers consciously monitor their facial expressions to a greater extent than persons telling the truth. This assumes that communicators perpetrating a lie are aware of the sending capacity of facial expressions and intentionally concentrate on controlling these cues more so than other nonverbal behaviors. Yet Ekman and Friesen (1969) fail to document how neuroanatomical differences in sending capacity motivate deceivers to focus on internal feedback originating in a person's face. The purpose of this section is to provide a more conceptually satisfying approach to explain how a deceptive context influences a fabulist's verbal and nonverbal sources of leakage based on underlying psychophysiological processes. More specifically, the basic argument of this section states that deceivers do not intentionally monitor their facial expressions due to sending capacity; rather, liars concentrate more on facial cues for guiding their deceptive performance because of their increased anxiety, or drive level.

Given the inconsistency of findings in research investigating verbal and nonverbal sources of leakage, several researchers have echoed the need to more closely examine the context in which deception occurs (Knapp & Comadena, 1979; Hart & Dennis, 1974; Miller & Burgoon, 1982). One of the most important features of a deceptive performance is a liar's motivation to fabricate. According to drive-reduction learning theories, drive, or motivation, is a generalized energizer which increases the probability of all possible response tendencies (Bolles, 1967; Brown, 1961; Duffy, 1962).

Easterbrook (1959) argued that the most important consequence of drive is the effect it has on the utilization of environmental cues for organizing behavior. More specifically, an increase in drive will consistently serve to reduce the range of cues, or the total number of environmental stimuli a person utilizes to organize his/her behavior. When individuals utilize a reduced range of cues for coordinating some behavioral activity, they process fewer peripheral cues in the environment while relying more heavily on central cues. Whether a person's performance is facilitated or inhibited by an increase in drive is a function of the behavioral complexity and the range of cues available to an actor in his/her heightened motivational state (Easterbrook, 1959; Farber, 1955; Farber & Spence, 1953; Lazarus, Deese & Osler, 1952; Martens & Landers, 1970). Easterbrook defined task complexity in terms of the number of cues which must be utilized simultaneously so as to master the behavioral requisites of a given task.

Although many of us take our social interactions for granted, communicating with another person is an intricately orchestrated

sequence of events. Indeed, communication must be approached with the same cognitive and motor precision found in the fine brush strokes of a Michelangelo masterpiece. Easterbrook argued that persons required to communicate in an experiment are faced with a particularly difficult task: "The task of encoding words in a psychological experiment may be regarded as one of the most demanding tasks in the sense defined" (1959, p. 187). In terms of communicating deceptively, Miller and Burgoon posited an inverse relationship between a communicator's drive state and the probability of successfully deceiving another:

> For complex activities, such as communicating, high drive inhibits performance; more specifically, it produces the kind of verbal and nonverbal disruptions associated with lying. Increased drive can be triggered by various antecedents, only one of which is knowledge of intent to deceive another. (1982, p. 186)

To be sure, deception is one type of communicative context which evokes a great deal of communicator anxiety (Gustafson & Orne, 1964, 1965). Communicators intent on deceiving another person typically experience motivational states unparalleled by other communicative contexts. To the extent deception evokes increased drive, or arousal, communicators perpetrating a lie can be expected to utilize fewer environmental cues than their candid counterparts when orchestrating their deceptive performance. Moreover, that deceptive communicators utilize a restricted range of cues when lying should be manifest in their behavioral idiosyncrasies.

Returning to the concept of internal feedback, we can now piece together the antecedent conditions which determine the extent persons will monitor their own behavior during social interactions. In symbolic exchange, facial cues are instrumental in transmitting emotional

content while the body carries information about the intensity of an emotion (Burgoon & Saine, 1978). Thus, facial expressions are central nonverbal cues whereas other bodily activity such as leg and feet gestures are peripheral cues. Since in their heightened motivational state, liars are restricted to more central cues for organizing their deceptive performance, facial expressions are the major nonverbal cues under the control of deceivers seeking to present a facade of honesty. Using drive-reduction learning theories as a conceptual backdrop, internal feedback assumes a new conceptual posture. Instead of being a consciously monitored process, as argued by Ekman and Friesan (1969), an arousal interpretation would argue that internal feedback is simply a response to environmental contingencies, particularly drive, involving the assimilation of environmental cues needed to perform a given task.

Unfortunately, the present investigation cannot provide a test of the relative merits of the leakage hypothesis and the arousal model discussed above. Since the videotapes used in the present study were made prior to this investigation, there was no way to obtain a measure of communicator/deceivers' arousal or some measure of intentional behavioral control as posited by Ekman and Friesan (1969). This study should be considered exploratory with regard to an arousal interpretation of deceptive behavior and a necessary first step in developing a more formal test of an arousal model.

One beginning step in examining the viability of an arousal interpretation of the behavioral correlates of deception consists of examining the verbal and nonverbal indicators of anxiety under

conditions which presumably evoke greater arousal in some communicators than in others. Moreover, since some persons are better able to adapt to anxiety-producing communication situations, it would be useful to explore if individual differences affect people's capacity to communicate deceptively.

One condition which should reduce deception-induced anxiety is rehearsal. When compared to deceivers who lie spontaneously, giving deceivers the opportunity to rehearse their deception should serve to reduce their anxiety. In addition, an individual difference variable that influences communicative ability is self-monitoring. The remainder of this thesis is devoted to examining whether these two variables influence the verbal and nonverbal behavior of deceivers.

The Effects of Rehearsal and Self-Monitoring on Deception

Based on the review of findings presented earlier, it is readily apparent that the research on deception has yielded some discrepant results. It would be an oversimplification to assume the same behavioral cues are leaked across all communicative contexts. Just as the experimental designs vary in deception research, so do the communicative contexts in "natural settings" where deception occurs. Two of the most salient factors of a communicative context which affect communication output are the actors and the novelty of the situation. The present study is designed to determine how the individual difference variable of self-monitoring and the context variable of the opportunity to rehearse one's fabrication influence a person's verbal and nonverbal communication while perpetrating a lie.

Rehearsal

Although a deceptive performance is definitely drive-producing for the vast majority of people, rehearsing one's fabrication may serve to reduce the anxiety accompanying deception. To be sure, not all communicators have the same opportunity to rehearse their "story." Some individuals may have ample opportunity to conjure a deceptive scenario whereas others may have to respond spontaneously. Given the substantial body of folklore and conventional wisdom, we would expect rehearsal to improve an individual's deceptive performance (Goffman, 1959). However, there is a dearth of empirical data which has tested this intuitive hypothesis. On the one hand, deceivers given the opportunity to rehearse their fabrication may experience less deception-induced anxiety; while, on the other hand, liars contemplating their upcoming deceptive performance may experience greater anxiety triggered by the knowledge they intend to deceive another person. For instance, witness the anxiety of a child who has allegedly committed some improper act and is told by his/her mother, "Wait until your father gets home!"

Only a handful of studies have examined the behavioral consequences of lying spontaneously versus encoding a prepared deceptive message. In the first of two studies, Kraut (1978) reported liars engaged in spontaneous deception had longer response latencies and gave less plausible answers. Compared to veridical communicators, Mehrabian (1971) found that when liars are given ten minutes to prepare for their deception, they respond with fewer affirmative head nods,

fewer leg/foot and hand gestures, shorter response duration, more frequent speech errors, and more smiling than do truth tellers.

In a similar vein, Matarazzo, Wiens, Jackson, and Manaugh (1970) allowed persons to prepare thoughtful deceptive responses. Even after practicing their lies, deceivers had longer response latencies than nondeceivers; however, Matarazzo and his associates found no significant differences between deceivers and nondeceivers for either eye contact or message duration. Post-experimental interviews revealed some persons in the deception condition consciously maintained eye contact with the interviewer. This indicates that would-be liars exercise some control over their behavior.

Most recently, O'Hair, Cody, and McLaughlin (1981) systematically investigated prepared versus spontaneous lies in an effort to tease out the verbal and nonverbal sources of leakage in these two deceptive conditions. The results of their study tend to contradict the popular platitude "practice makes perfect." Compared to veridical communicators, prepared liars responded to a critical question more quickly, talked less, had shorter laugh/smile durations, longer affirmative head nod durations, and longer body adaptor durations. Communicators who lied spontaneously only differed from veridical communicators in that they engaged in longer body adaptors. After reviewing the scant body of research examining rehearsal effects in deception, a few consistent findings emerge which distinguish truthful communicators from rehearsed and unrehearsed liars.

While the research reported above has compared the behavior of prepared and spontaneous liars to nonliars, no research has directly investigated how rehearsed liars differ from unrehearsed liars. Yet the findings on rehearsed versus unrehearsed deception suggest there are several behavioral differences between prepared and unprepared liars. Formally:

H1: Liars given the opportunity to rehearse will have shorter message durations than liars who engage in spontaneous deception.

H2: Liars given the opportunity to rehearse will have smaller speech error rates than liars who engage in spontaneous deception.

H3: Liars given the opportunity to rehearse will have smaller pause rates than liars who engage in spontaneous deception.

Since there is insufficient evidence to posit additional behavioral differences between rehearsed and unrehearsed deceivers, the following research question was formulated.

Q: Will liars given the opportunity to rehearse differ from liars who deceive spontaneously with respect to other selected verbal and nonverbal cues associated with deception?

Self-Monitoring

That I have consistently referred to deceptive communication as an orchestrated performance is not a theatrical slip of the pen. If successful deception is conceived as skillful behavior management (Goffman, 1959), we would expect some actors to be more adept at lying than others. Self-monitoring is one individual difference variable which exerts a great deal of influence on an individual's

communicative behavior (Snyder, 1974, 1979). According to Snyder (1979), persons who score high on his self-monitoring scale are especially concerned with managing their self-presentations so others will form a favorable impression of them. To do this, high self-monitors cognitively ask and behaviorally answer the question, "Who does this situation want me to be and how can I be that person?" (Snyder, 1979, p. 102).

Compared to their low self-monitoring counterparts, high self-monitors are more attuned to their social environments. In terms of cue utilization, high self-monitors process a broader range of cues for organizing their communication. Low self-monitors, however, primarily utilize their own salient attitudes and beliefs for coordinating interactions with others. As a result, high self-monitors are more adept at tailoring their behavior to conform with the demands of a given social context whereas low self-monitors do not evince the same social aplomb.

In a series of experiments, Snyder (1974) determined that high self-monitors are able to manipulate their bodily and vocal cues so as to communicate accurately an emotional state which need not be congruent with their actual emotional experience. Lippa (1974) investigated the impact of self-monitoring on an individual's ability to portray accurately various expressive behaviors when cast in the role of a mathematics instructor. When compared to low self-monitors, high self-monitoring individuals were significantly more adept at communicating the expressive behaviors demanded by the

situation (Lippa, 1974). Moreover, the data reported by Lippa (1974) indicates that high self-monitors are facile at managing their behaviors from situation to situation so as to accurately portray divergent impressions across social contexts. Thus, like social chameleons, high self-monitors are capable of camouflaging their emotional states by arbitrarily "turning on" whatever facade the social environment dictates.

High self-monitors stand to profit from their social skills when confronted with a situation that "asks" them to lie (Elliot, 1978). This argument is buttressed by the fact that high self-monitors perpetrating a rehearsed lie are more adept at escaping detection than low self-monitors engaging in spontaneous deception (Miller & Kalbfleisch, 1981).

Moreover, when placed in the position of detecting a deceptive performance, high self-monitoring individuals are significantly more successful than low self-monitors at spotting a liar (Geizer, Rarick & Soldow, 1977). Based on the above line of argument, the following interaction hypothesis was formulated.

H4: High self-monitors will exhibit fewer verbal and nonverbal sources of leakage than low self-monitors, but this effect will be particularly pronounced when high self-monitors have rehearsed their deception.

CHAPTER II

METHOD

Definitions

In this section, conceptual and operational definitions will be presented for the following constructs: self-monitoring, rehearsal, deception, and the verbal and nonverbal correlates of deception discussed in chapter 1.

Self-Monitoring was defined as the extent to which people can and do exercise control over their self-presentations.

Self-monitoring was operationalized according to respondents' scores on Snyder's (1974) self-monitoring scale. Respondents scoring in the upper 20 percent (20-25) were classified as high self-monitors while those with a score in the lower 20 percent (0-5) were considered low self-monitors.

Rehearsal was defined as the opportunity for an actor to prepare for an upcoming social event.

In the present study, rehearsal was operationalized by providing persons in this condition 20 minutes to preview the experimental stimuli (stimulus slides) and prepare both truthful and deceptive responses for their experimental interview.[1] Persons in the no

[1]For a detailed description of the procedure employed in the interview, see the section in this chapter labeled "Procedure."

rehearsal condition were directly ushered to the interviewing room and instructed to follow the directions appearing in the instruction slides for what they were to do during the interview.

Deception was conceptually defined in the first chapter as "the withholding of and/or substitution of information by an individual with the deliberate intent to create beliefs on the part of others which the individual believes are false or invalid" (Miller et al., 1981).

Consistent with the conceptual definition presented above, deception was operationalized by instructing communicators to report the opposite of their true feelings when a lie instruction slide was shown. Similarly, communicators were instructed to report their feelings accurately when a truth instruction slide was shown.

Nonverbal Behaviors

The first chapter identified 5 nonverbal behaviors which have been shown to distinguish between deceivers and nondeceivers. Definitions of the nonverbal correlates of deception are summarized in Table 1.

These nonverbal correlates of deception were operationalized by measuring the rate of occurrence for each behavior. Initially, coders examined videotapes and measured each behavior either as a duration of time or as a frequency. More specifically, behaviors denoted by an "f" in Table 1 were measured by counting how often a communicator displayed that particular behavior during the test segment of the experimental interview. Behaviors denoted by a "d" were measured by timing how long a communicator engaged in that

Table 1

Definitions of Nonverbal Behaviors[a]

Nonverbal Behaviors	Definitions
Eye-shifts (f)	Anytime the subject looks away from the interviewer or the stimulus slides, e.g., looking up, down, or to the side.
Feet and leg gestures (d)	Anytime a subject moves his/her legs and/or feet, e.g., crossing and uncrossing of legs, nervous twitches in the feet, etc.
Hand gestures (d)	Anytime a subject moves his/her hand(s) and/or arm(s), gesturing horizontally or vertically, i.e., anytime when a subject's hands were not in a motionless or touching position.
Response latency (d)	The amount of time between the end of the interviewer's question and the beginning of the subject's answer.
Message duration (d)	The amount of time a subject spends talking.

[a]Behaviors denoted with an (f) indicate they were measured as a frequency of occurrence; behaviors denoted with a (d) indicate they were measured as a duration of time.

particular behavior during the test segment of the experimental interview. The rate of each behavior was determined by dividing its frequency (or duration) by the total duration of the interview, except for response latency message duration.

Verbal Behaviors

Definitions of the verbal correlates of deception are summarized in Table 2. The list of verbal behaviors in Table 2 were operationalized in the following manner. First, verbatim transcripts of each communicator's experimental interview were generated from the videotapes. From the transcripts the frequency of occurrence during the test segment for each behavior was compiled by two trained coders. The rate of occurrence for each behavior was determined by dividing the behavior's frequency in each test segment by the duration of interaction in that same segment.

Procedure

Sample

Communicators were 32 students enrolled in a variety of communication courses at Michigan State University. Selection was based on students' scores on Snyder's (1974) self-monitoring scale. According to the criteria for operationalizing self-monitoring, eight males and females were selected from the upper 20 percent (20-25) as high self-monitors and eight males and females were selected as low self-monitors from the lower 20 percent (0-5).

Table 2

Definition of Verbal Behaviors

Verbal Behaviors	Definitions
Word/phrase repetitions	Words or phrases which are duplicated in a series and are not interrupted by a pause, or a speech error, or a question by the interviewer.
Speech errors	Nonfluencies or quasiverbalisms like uh, ah, er, um, mm, etc.
Pauses	Periods of silence of two seconds or more following an utterance or speech error by the subject and followed by an utterance or speech error by the subject, i.e., uninterrupted by the interviewer.

Creating the Stimulus Tape

Two weeks after communicators responded to the self-monitoring scale they received a letter from the Department of Communication inviting them to participate in a study. Communicators were randomly assigned to rehearsal and no rehearsal conditions, with equal numbers of high and low self-monitoring males and females in each condition.

All communicators participated in a 15-minute interview during which they were exposed to two types of stimulus slides: pleasant landscapes and third-degree burn victims. Each communicator viewed four sets of slides, two of landscapes and two of burn victims, with four of the same kind of slides in each of the four sets. Prior to the presentation of a set of slides, a slide instructed the communicator

to lie or to tell the truth when he or she responded to the interviewer's queries. The interivew protocol appears in Table 3. Each communicator lied and told the truth when exposed to the pleasant stimulus slides and lied and told the truth while viewing the unpleasant slides.

Since motivation to lie plays an integral role in deception research (Knapp & Comadena, 1979; Knapp, Hart & Dennis, 1974; Miller & Burgoon, 1982), communicators were informed their interviews would be videotaped and shown with several others to a group of observers who would be making veracity judgments. In an effort to increase motivation to deceive, they were told that the person who fooled the observers most often would receive five record albums or the cash equivalent, while the person who was the second most successful deceiver would receive two record albums or the cash equivalent.

In the no rehearsal condition, communicators were immediately ushered to the videotaping/interviewing room. Those in the rehearsal condition were provided with identical pictures of the pleasant and unpleasant stimulus slides they were about to view during the interview, and were instructed to examine the photographs for 20 minutes and to prepare both truthful and deceptive responses concerning their emotions when they viewed the photographs. The interviews were taped individually and at separate times so as to avoid arousing suspicion over the opportunity to rehearse.

Table 3

Protocol for Experimental Interview

I'm sure she's told you what we would like you to do here today. But before I'll be giving the slides, I'd like to ask you a few questions.

Biographical Questions

1. What is your name?
2. What is your home town?
3. What is your major?
4. What is your favorite sport?
5. What are some of your hobbies?

Test Segment Questions

6. What kind of feelings are you having right now?
7. What kind of mood do these slides create?
8. What other experiences have you had which convey the same feelings as these slides?
9. What are your feelings now that the slides are over?

After each communicator arrived at the videotaping/interviewing room, he or she was asked to sit in a chair directly facing the interviewer and approximately 15 feet from her. The stimulus slides were projected on a screen located behind and slightly to the left of the interviewer. Two video cameras were also located in the room. One of the cameras provided a full frontal view of the communicator's head and body while the second camera was focused on his/her head.

The interviews began by asking communicators several biographical questions. Responses to these questions were not included in the present data set since the questions served primarily as truthful stimuli for another study. Following the biographical questions, communicators were shown four sets of slides: one set of four pleasant landscape slides preceeded by a "truth" instruction slide, one set of four pleasant landscape slides preceeded by a "lie" instruction slide, one set of four unpleasant burn victim slides preceeded by a "truth" instruction slide, and one set of four unpleasant burn victim slides preceeded by a "lie" instruction slide. The order of presentation was randomized across interviews as well as the ordering of slides within each set of slides.

After completing the interviews, all communicators were debriefed and requested not to discuss their interview with other participants. Since all communicators were competing for prizes, they were reminded that discussing their interview with other participants might give them an unfair advantage in their deceptive performances and effectively reduce the communicator's chances of winning the prizes.

Coding

Nonverbal behaviors. Coding of the videotapes was completed by two trained coders. Training for the coders consisted of learning the list of definitions in Table 1 and viewing sample tapes. After studying the definitions and practicing on sample tapes, the coders began coding the experimental tapes. The training period lasted approximately six hours.

When coding smiles, head nods, eye shifts, and face play, coders employed the videotapes with the head-only view of communicator. The rest of the nonverbal behaviors were coded from the videotapes which provided a frontal view of the communicator's head and body. Both coders had no knowledge concerning the purpose of the study. The inter-coder reliabilities for the nonverbal behaviors appear in Table 4. The inter-coder reliabilities ranged from .47 to .99. Aside from the relatively low reliability of coding for response latency, the other nonverbal behaviors were coded with more than adequate reliability.

Verbal behaviors. Coding for the verbal behaviors was accomplished by two trained coders not used to code the nonverbal behaviors. Training for coders consisted of learning the definitions in Table 2 and practicing on sample transcripts. After both coders demonstrated agreement in coding the verbal behaviors, they began coding the experimental transcripts.

Verbatim transcripts from each communicator's interview were generated from the videotapes. Care was taken in the transcription

Table 4

Inter-Coder Reliabilities for Nonverbal Behaviors[a]

Nonverbal Behaviors	Inter-Coder Reliabilities
Eye shifts	.95
Adaptors	.98
Message duration	.98
Response latency	.47
Leg gestures	.99

[a]Reliability coefficients computed using Cronbach's Alpha.

to retain as many of the extra-linguistic cues as possible such as pauses, nonfluencies, stutters, etc. Each coder was provided her own set of transcripts for coding. The inter-coder reliabilities for the verbal behaviors appear in Table 5. For the verbal behaviors, the inter-coder reliabilities range from .71 to .99. These reliability coefficients represent more than adequate inter-coder agreement.

Table 5

Inter-Coder Reliabilities for Verbal Behaviors[a]

Verbal Behaviors	Reliability Coefficients
Speech errors	.99
Pauses	.99
Word/phrase repetitions	.98
Confidence ratio:	
Total words	.98
Total different words	.71

[a]Reliability coefficients computed using Cronbach's Alpha.

CHAPTER III

RESULTS

This chapter presents the results of the analyses for the hypotheses and research question posited in chapter 1. The results for the hypotheses and research question will be addressed in the order in which they appear in chapter 1. To test the hypotheses and answer the research question from chapter 1, a 2 (high self-monitoring/low self-monitoring) X 2 (rehearsal/no rehearsal) analysis of variance design was employed. The .05 level of significance was used for all statistical tests. Analysis of the data yielded the following results.

Hypothesis 1

The first hypothesis predicted that communicators who rehearse deception will have shorter message durations than spontaneous deceivers. The results of the analysis of variance (Table 6) do not support this hypothesis. Although communicators who rehearsed had somewhat shorter message durations, the mean rate of message encoding is not significantly different from spontaneous liars.

Hypothesis 2

The second hypothesis predicted spontaneous liars will have greater speech error rates than rehearsed liars. The results of

Table 6

Analysis of Variance for the Effects of Rehearsal and Self-Monitoring on Message Duration[a]

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Main effects	4431.95	2	2365.98	2.89	.072
Rehearsal	2691.95	1	2691.95	3.29	.080
Self-monitoring	2040.01	1	2040.01	2.49	.126
2-Way interaction	197.51	1	197.51	.24	.627
Rehearsal X self-monitoring	197.51	1	197.51	.24	.627
Explained	4929.46	3	1643.15	2.01	.136
Residual	22904.97	28	818.04		
Total	27834.43	31	897.88		

Pattern of Means

		No Rehearsal	Rehearsal
Self-monitoring	Low	55.00	41.62
	High	75.94	52.63

[a]Measured in seconds.

the analysis of variance (Table 7) support Hypothesis 2. Communicators lying spontaneously have greater speech error rates than rehearsed deceivers.

Hypothesis 3

Hypothesis 3 predicted spontaneous deceivers would have greater pause rates than prepared deceivers. The results of the analysis of variance (Table 8) support this hypothesis. When communicators lied spontaneously, they displayed greater rates of pausing than communicators who had time to prepare their deceptive messages.

Research Question

To answer the research question posited in chapter 1, the same 2 X 2 analysis of variance design was employed. The dependent measures for these analyses are the remaining seven verbal and nonverbal behaviors for which no specific predictions were formulated. The results of these analyses are presented in Table 9. Based on the findings in Table 9, there are no additional effects due to rehearsal.

Hypothesis 4

To determine the joint effects of self-monitoring and rehearsal on the verbal and nonverbal correlates on deception, I will refer to the analysis of variance table reported. For the research question, a review of Table 9 indicates there are no self-monitoring by rehearsal interactions as predicted in Hypothesis 4. While the fourth hypothesis was not supported, there was one significant main effect for self-monitoring with respect to confidence ratio. The results in Table 9

Table 7

Analysis of Variance for the Effects of Rehearsal and Self-Monitoring on Speech Error Rates

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Main effects	.006	2	.003	2.74	.082
Rehearsal	.005	1	.005	4.91	.035
Self-monitoring	.001	1	.001	.57	.458
2-Way interactions	.000	1	.000	.21	.649
Rehearsal X self-monitoring	.000	1	.000	.21	.649
Explained	.006	3	.002	1.90	.153
Residual	.028	28	.001		
Total	.034	31	.001		

Pattern of Means

		No Rehearsal	Rehearsal
Self-monitoring	Low	.05	.02
	High	.05	.03

Table 8

Analysis of Variance for the Effects of Rehearsal and Self-Monitoring on Pause Rates

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
Main effects	.004	2	.002	5.66	.009
Rehearsal	.003	1	.003	5.80	.004
Self-monitoring	.001	1	.001	1.53	.226
2-Way interaction	.001	1	.001	2.09	.160
Rehearsal X self-monitoring	.001	1	.001	2.09	.160
Explained	.005	3	.002	4.47	.011
Residual	.010	28	.000		
Total	.015	31	.000		

Pattern of Means

		Rehearsal	
		No Rehearsal	Rehearsal
Self-monitoring	Low	.04	.01
	High	.02	.01

Table 9

Summary of Analysis of Variance Results for Research Question

Behaviors	Means				F Values		
	Low S-M Rehearsal	High S-M Rehearsal	Low S-M No Rehearsal	High S-M No Rehearsal	Rehearsal	S-M	Rehearsal X S-M
Eye shift rate	.03	.04	.04	.06	1.35	1.26	.18
Leg gestures	36.00	22.00	38.25	19.25	.00	1.37	.03
Hand gestures	1.88	5.63	1.44	6.31	.00	1.93	.03
Adaptors	17.25	9.00	45.75	7.25	1.09	3.33	1.39
Response latency	2.12	1.86	2.52	1.98	.58	1.40	.16
Confidence ratio	1.73	1.33	1.80	1.29	.01	6.76*	2.29
Word/phrase repetition rate	.00	.01	.01	.01	2.02	3.11	.01

*$p < .05$.

indicate that low self-monitors have a greater confidence ratio than high self-monitors. Although the pattern of means was in the predicted direction for many of the behaviors, the differences did not reach significance.

CHAPTER IV

DISCUSSION

The purpose of this chapter is twofold: first, to discuss the results presented in chapter 3; second, to recommend directions for future research examining the behavioral correlates of deception. These two topics will be addressed in separate sections in this chapter.

Discussion of Findings

The present study examined the effects of rehearsal and self-monitoring on a number of potential verbal and nonverbal correlates of deception. Of the four hypothesized relationships, two received support. Hypothesis 2 and 3 were confirmed; spontaneous deceivers had greater pause and speech error rates than deceivers who rehearsed. Hypothesis 1 and 4 were not confirmed; deceivers who rehearsed did not differ significantly from spontaneous deceivers with respect to the other verbal and nonverbal cues. Similarly, there were not any rehearsal by self-monitoring interactions as predicted in the fourth hypothesis. There were, however, several nonpredicted main effects due to rehearsal and to self-monitoring. To what can we attribute these mixed findings, and how do they relate to the arousal model posited in chapter 1?

At least two important factors may have contributed to the failure to achieve significant differences on some of the variables. First, and most important, is the small sample size. There were only 32 communicator/deceivers in the present study. When testing for main effects, there were only 16 communicator/deceivers per cell; and for the interaction tests, there were only eight communicator/deceivers per cell. Due to the small sample size, the power of the statistical tests was low; in other words, the mean differences had to be quite pronounced for the effects to reach significance.

The absence of significant findings does not necessitate abandoning further examination of the data. It does, however, preclude drawing any conclusions from data that failed to meet the present .05 decision criterion. Although no specific hypotheses were formulated for the effects of rehearsal on many of the verbal and nonverbal behaviors, the pattern of means consistently suggests that prepared liars are more likely to engage in behaviors typically associated with deception, except for leg gestures and eyeshift rates. This consistency in the pattern of means warrants further investigation.

While the present study does not conclusively test the arousal model of deceptive behavior set forth in chapter 1, the consistency in the pattern of effects for rehearsal does shed some light on the plausibility of an arousal interpretation of the verbal and nonverbal correlates of deception. Since the present verbal and nonverbal behaviors were selected as indicators of communicator anxiety, the mean differences between prepared and spontaneous liars on the verbal

and nonverbal measures suggests unprepared liars were more anxious than prepared liars. This conclusion is tempered by the fact that prepared and unprepared liars did not differ with respect to two salient deceptive cues, i.e., leg gestures and eye-shift rates. An eventual, more conclusive test of an arousal model must include a measure of deceivers' anxiety.

The second factor which may contribute to the frequent lack of significant findings is the individual difference variable of self-monitoring. Self-monitoring had no systematic influence on the behavioral correlates of deception measured in the present study. For some behaviors, high self-monitors exhibited greater rates of responding than low self-monitors; while on others, the opposite pattern emerged. For instance, compared to low self-monitors, high self-monitors spent more time talking, gesturing with their hands, and had greater speech error and word/phrase repetition rates. Conversely, high self-monitors had shorter response latency, spent less time engaging in adaptors and leg gestures, had smaller eye shift and pause rates, and manifested smaller confidence ratios. Compared to the consistent effects of rehearsal, self-monitoring had no consistent effect on the behavioral correlates of deception.

The preceding comparison of the mean behavior patterns should not be construed as a test of the arousal model outlined in chapter 1. The following section of this chapter briefly proposes how such a test might proceed. Examining the pattern of means for rehearsal served to illustrate that with a greater sample size, many of the present mean

differences between rehearsal and no rehearsal conditions would probably meet the .05 decision criterion. Moreover, the present consistency in the patterns of response for spontaneous deceivers, coupled with earlier research which found some rehearsal effects, suggests this facet of deception warrants further investigation to determine the exact types of behaviors which are influenced by the opportunity to rehearse deception.

Recommendations for Future Research

Although the design of the present study does not lend itself to testing Ekman and Friesen's (1969) leakage hypothesis against an arousal interpretation of deceptive behavior, the present results did yield several interesting findings which suggest directions for future research. If an attempt were made to design a critical study testing Ekman and Friesen's leakage hypothesis against an arousal model of deceptive behavior, several stimulus and measurement issues need to be considered very carefully. This section briefly outlines possible avenues for inquiry for testing these two theoretical interpretations of the behavioral correlates of deception.

Since self-monitoring did not yield a consistent pattern of responding in the present study, it may be more useful to select another manipulation which does influence communicators' level of arousal. Moreover, studies examining the effects of Machiavellianism on the behavioral correlates of deception have yielded very little concerning this individual difference variable (Knapp, Hart & Dennis, 1974; O'Hair, Cody & McLaughlin, 1981). These same studies, as well

as others, have consistently shown that when persons lie they exhibit greater frequencies of behaviors typically associated with arousal. Thus, a 2 (rehearsal-nonrehearsal) X veracity (truth-deception) design would provide an excellent foundation for testing the present arousal model against Ekman and Friesen's leakage hypothesis.

In chapter 1 it was mentioned that to test these two models of deceptive behavior it would be necessary to measure both communicators' level of arousal and their intention to control their behavior when deceiving. An arousal model of deceptive behavior would predict a positive linear relationship between communicative context and arousal. More specifically, pre-communicative arousal should assume the following linear function: Veridical communicators who rehearse their communication should experience the least anxiety; veridical communicators communicating spontaneously should experience somewhat more anxiety; deceptive communicators who have rehearsed their deceptive messages should report even more anxiety; and persons having to deceive spontaneously should experience the most anxiety. Moreover, if the leakage hypothesis model does not accurately fit the data, there should be no difference between veridical or deceptive communicators with respect to the extent they claim to consciously monitor their behavior (internal feedback) or others' behavior (external feedback) when they communicate.

The above discussion has contrasted the leakage hypothesis and an arousal model as competing explanations for the same social phenomenon. It may be the case, however, that both models are simply one state in a causal string of events. Stated differently, when communicators lie,

they experience an increase in arousal which, in turn, causes them to more closely monitor central cues in their social environment, and subsequently, to exhibit with greater frequency behaviors typically associated with deception. Thus, the leakage hypothesis and arousal model may be complementary conceptual frameworks which provide a better interpretation of deceptive behavior when cast together as a causal string.

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