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# DETECTING DECEPTION IN COMPUTER-MEDIATED INTERVIEWING

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## Abstract

*Deception in résumés and job applications is common, and being able to detect deceptive information early is worthwhile for many recruiters. Yet recent studies have revealed that people are not very good at detecting deception successfully, particularly when they are communicating using computer-based communication, with which more and more interviews are being conducted. However, in many computer-mediated settings, communication records are created, and so additional people are able to review the communication that took place. We conducted an experiment to determine how successful individuals can be at detecting deception in résumés when they are reviewing recorded interviews. We varied communication mode for the recorded interview, comparing text transcripts to audio recordings, and we varied warnings about the presence of deception, which manipulated the level of suspicion in subjects. We found that reviewers were more accurate at detecting deceptive information than were participant interviewers in past studies, and we found that a warning about deception's presence improved reviewers' detection accuracy, compared to lack of warnings, and that it did not have any effect on reviewers' number of false alarms. We did not find differences in reviewers' deception detection success or number of false alarms between text and audio media.*

*Keywords: Computer-Mediated Communication, Deception, Interviewing, Information Quality*

# 1 INTRODUCTION

Researchers now recognize that information quality is important for most information and knowledge-intensive activities in organizations (Eppler, Helfert & Gasser 2004). One of these activities is recruiting, where recruiters use information provided by applicants to decide which individuals are the best fit for the organization. Unfortunately, this information is not always high quality, because people lie on their résumés. Past research has shown that up to 40% of all résumés contain information that is simply not true (McShulkis 1997).

Given the costs associated with recruiting, one issue that results from the murky state of most résumés is how to detect false information early on in the process. Early detection prevents hiring people with dishonest résumés (which later prevents public and embarrassing firing of dishonest people), and it prevents inefficiencies that result from having workers without the skills needed for their positions. The problem is that people are not very good at detecting deceptive information in interactive settings such as those where interviews take place (Miller & Stiff 1993). In fact, the average success rate for detecting deception in these settings is only about 35% (Levine, Park & McCornack 1999).

However, these numbers are primarily based on research that looked at face-to-face settings. This is important because many people are now looking for jobs, and many recruiters are searching for applicants, through the Internet (Feldman & Klass 2002; Dineen et al., 2004). It is not uncommon for initial screening interviews to be conducted over the Internet without human intervention or participation. Unfortunately, deceptive information is even harder to detect in interactive computer-mediated settings than in face-to-face settings, which means that companies conducting computer-based interviews may be highly unaware of deception. Recent studies have found that individuals interacting with deceivers in computer-mediated settings have not been able to detect more than 8% of the lies with which they are confronted (George, et al. 2008; Giordano, et al. 2007; Giordano & Tilley 2006). However, since many computer-mediated interviews are easily recordable (many e-mail and instant messaging systems automatically create records), it is possible for organizations to have persons that were not involved in the interview review transcripts for deception. While past research indicates that observers (or reviewers) are generally better at detecting deception than participant communicators (Buller, et al. 1991; Dunbar, et al. 2003), the deception detection tendencies of interview reviewers under different conditions are not clear.

We conducted an experiment to help determine how successful reviewers can be at detecting deception in résumés and in interviews meant to defend dishonest résumés that were conducted in lean communication settings. We varied communication mode, where subjects either listened to a recording of an interview or read a transcript of it, and warnings about how often people lie on their résumés. Varying mode allowed us to compare reviewers' performance using text recordings to those using audio recordings, both of which are easily created using computer-based communication tools. Varying warnings allowed us to manipulate suspicion in subjects. We found that, in general, the detection rates of reviewers were better than those of computer-mediated participant communicators in previous studies. We also found that there was no difference in the detection abilities of audio and text interview reviewers, but warnings made a big difference: Warned reviewers found more lies than unwarned reviewers.

In the next section, we review the relevant literature from communication on deception and its detection and present our hypotheses. We then describe our study and present our findings. We end with a discussion of how our findings apply to both research and practice, especially with regard to detecting low quality, dishonest information on résumés and in related initial online interviews.

## 2 LITERATURE

Deception and its detection have been studied for many years in such diverse fields as psychology, communication, organizational behavior, and management information systems. Until recently, much of the work in this area has been based on the assumption that people rely primarily on the verbal and non-verbal behaviors of the deceiver when deciding the honesty of communicated information (Park, et al. 2002). Interpersonal Deception Theory (IDT) attempts to explain the deception process in an interactive communication setting. According to IDT, deception is a dynamic process, and the decision to deceive is a strategic one (Buller & Burgoon 1996). The deceiver works to make the person (or persons) being lied to, commonly called the receiver, believe the deception is true. Should the receiver notice any potential cues to deception, the deceiver, observing the receiver's reaction, can then adjust his or her behavior in order to mitigate the receiver's suspicions.

Individuals that are observers or reviewers of a communication event, such as interview team members that are reviewing the information contained in an interview recording, are not part of this interactive process, and so some of their tendencies are different. Several of these tendencies might hinder their ability to detect deception. First, they are not able to follow up on their suspicions or question a deceiver when reviewing a message from a deceiver. Second, they may not understand all of the meaning associated with a communicated message since they are detached and lack the deeper understanding of the conversation, its context, and the subtle nuances of meaning available only to participants. Burgoon and Newton (1991, p. 109) say: "Participants, due to their proximity to one another, are awash in a stream of subtle and visceral nonverbal cues that the observer, standing on the banks, as it were, cannot detect." Even though these factors could negatively affect a reviewer's ability to detect deception, there are several other factors that counter and likely outweigh these negative factors.

First, since reviewers will not be part of the strategic processes outlined by IDT, they will likely be less fooled by deceivers' attempts to strategically hide their cues from the receiver. These attempts will be created with the receiver in mind, and they may not answer the questions of the reviewer. Also, for participants, the efforts necessary to listen to a partner, and to craft and deliver relevant responses, may prevent them from attending to other things, like detecting deception. As Stafford and colleagues say, "the very act of participating in conversation activates a unique information processing perspective that is different from the observer role (Stafford, et al. 1989, p. 605)." This information processing perspective will be cognitively taxing, and it will distract receivers from abstract cues to deception.

Another factor that favors reviewers over receivers is the "honesty effect." Receivers who interact directly with deceivers generally have more favorable reactions to deceivers than do observers of the same interaction (Granhag & Stromwell 2001). It is thought that receivers might pay attention to different deceiver behaviors than do more neutral observers. Recent research has shown that there are differences in how participants and observers remember and interpret an interaction (Stafford, et al., 1989), and participants have been found to rate their communication partners as more favorable, intimate, composed and equal, and as more dominant and informal, than observers (Burgoon & Newton 1991). These factors are likely why past research has found that observers or reviewers were better able to detect deception than were participants (Buller, et al. 1991; Dunbar, et al. 2003).

There are some influences that strongly affect all individuals confronted with deception, regardless of whether they are receivers or reviewers, and one of these is the truth bias. The truth bias is a decision making heuristic that promotes believing what people say unless given a reason to do otherwise (Stiff, et al. 1992). The truth bias is thought to be one of the chief reasons for why people perform so poorly at detecting deception (Miller & Stiff 1993). Researchers have found one possible solution to the problem of the truth bias, and this is warning individuals about deception. Warning an individual about deception arouses their suspicions and sometimes allows them to mitigate or overcome the truth bias and become aware of deception (Biros, et al. 2002). For interview reviewers, who would not be

subject to the honesty effect, this affect should be particularly evident, and so inducing suspicion through warnings about deception should improve the reviewer's ability to successfully detect deception. Our first hypothesis then, is:

Hypothesis 1: Warned reviewers of dishonest interviews should be better at deception detection than unwarned reviewers.

Cues to deception come in many forms, from language-based to verbal to paralinguistic to physical (DePaulo, et al. 2003). While some communication modes, such as face-to-face can convey all of these cues, other modes are more limited. Audio modes cannot convey physical cues; text-based modes cannot convey physical or verbal or paralinguistic cues.

If more cues to deception mean better detection, then detection should be the most successful when the media used for deception conveys the most information. However, other characteristics of lean media can enhance deception detection, even if the media themselves carry relatively few cues. For example, text-based media may be easily examined repeatedly (Carson, et al. 2004; Hancock, et al. 2004). Although these media may convey few cues, those few cues are amplified through their permanence and the access to them.

One might expect these influences to balance out (number of cues available vs. cue permanence and access), which would mean that there would not be a significant difference in individuals' detection abilities between media such as text and audio. However, individuals involved in a live communication event often do not see this happen because of other influential tendencies brought about by the communication process. In an interactive setting, cues lead to a feeling of realness for communicators (Short, et al. 1976), and so individuals in very lean communication settings, such as text-based settings, normally feel a very low level of realness. A low level of realness causes these individuals to pay less attention to the behavioural cues of those they are communicating with (Short, et al. 1976), lowering their ability to detect deception. Therefore, deception detection is extremely difficult in very lean (such as text-based) live communication settings. However, unlike participants of a live communication event, reviewers of a communication event will not be affected by these influences, and so the effects of permanence and the number of cues to deception available should balance out. We therefore predict:

Hypothesis 2: Communication mode will have no effect on deception detection for reviewers of dishonest interviews.

Although warnings about deception increase individuals' levels of suspicion, decrease the truth bias, and can lead to better deception detection, they can also lead to more incorrect judgments about honest information, which are known as false alarms (Burgoon, et al. 1994; Miller and Stiff 1993; Parasuraman 1984). False alarms are problematic because they lower deception detection accuracy and can cause correct judgments about information to be ignored. When participant communicators are warned, their suspicions continue to be countered by the truth bias and by distractions coming from the communication process, so their overall number of judgments about deception (including false alarms) is low, and this is likely why one recent study found no differences in the number of false alarms between warned and unwarned participant receivers (Giordano and Tilley 2006). However, in the case of reviewers of communication records, suspicions from warnings will likely lead to more deceptive judgments since reviewers are not as affected by the truth bias and the communication process. Also, reviewers (or observers) generally view communicators as being less favourable than do participant communicators (Granhag & Stromwell 2001), and so they should produce more overall judgments about deception than participant communicators. Since cues to deception are sparse in recordings of computer-mediated communication, and since reviewers lack understanding of the meaning of much of the information they are basing their judgments on (given their lack of access to contextual information), a number of their judgments will be likely be incorrect in computer-mediated settings. We therefore hypothesize that:

Hypothesis 3: Warned reviewers of dishonest interviews will generate more false alarms than unwarned reviewers.

As previously mentioned, the number of communication cues differs in different communication media (DePaulo, et al. 2003), however, so does the permanence of the communication record. While reviewers of richer communication may make more veracity judgments because they have more communication cues on which to base their judgments, reviewers of lean computer-mediated communication will have a record that they can easily review multiple times to help find cues to deception. The relative advantages that these media characteristics have should cancel each other out, however, leading to a similar number of judgments for reviewers in different communication settings. Reviewers of audio interactions will likely make veracity judgments based on the multitude of cues to deception they are privy to, but they will miss other cues because they do not have the ability to easily re-examine the audio interaction. Reviewers of text-based interactions will likely have fewer cues to deception to detect, given the nature of text, but what cues are available will be made salient and identifiable through re-examination of the text. This situation will not hold true for participant receivers, who feel different levels of realness in different communication settings based on the number of cues transmitted (Short, et al. 1976). A higher level of realness can lead to more active participation and more judgments about deception in participant receivers (Giordano and Tilley 2006). However, we predict that reviewers should not be affected by this influence:

Hypothesis 4: Communication mode will have no effect on the number of false alarms generated by reviewers of dishonest interviews.

### **3 STUDY DESIGN**

Subjects were students from the business school at a large US university. They were recruited from a variety of business classes to ensure that students from multiple majors participated in the study. Potential subjects were told that they would be participating in an interview-related research project that would require 20 - 30 minutes of their time. The instructors of the classes offered their students extra credit to participate. A total of 110 subjects took part in the study.

Subjects reported for the experiment and joined other subjects for the experimental session in a room that held about 30 people. After a welcome and the signing of consent forms, subjects listened to or read a transcript of an interview where an upper-level business student was interviewing for a scholarship. The interviews that were used were drawn from a previous study that looked at interactive deception in interviews (George, et al. 2008). In these interviews, deceivers were told that they were needed to help their department develop a list of minimum requirements for a top scholarship under development. They were instructed to make themselves appear to be a top candidate on a computer-based application, and after enhancing their resume, they were then told that they would be asked to defend the enhanced resume in an interview. Each interviewer then conducted an unstructured interview to determine if they thought the deceiver was a good candidate for a top scholarship.

The three interviews used in this study were chosen in an attempt to achieve some degree of variance in both the number of lies on the scholarship applications and in the length of the interviews, so that findings could not be attributed to the idiosyncrasies of any particular interview. The resumes contained between 5 and 14 deceptive items, and the interviews lasted between 530 and 750 seconds. All three of the interviews were initially conducted via audio so that both audio and transcribed versions of each interview could be used.

Manipulations for communication mode and warnings were done on a by-session basis. All of the subjects in a single session either listened to the interview or read it; they were either warned about deception or they were not. Subjects in the audio treatments were provided with computers and headphones to listen to the recording using Windows Media Player. Subjects in the transcript treatments were provided with printed transcripts. Those who were warned were told to keep in mind

that up to 40 percent of all job applicants have been known to lie on their résumés and applications (McShulkis 1997).

Data were collected using two instruments. First, a brief questionnaire was given to subjects upon completion of their tasks. The subjects were asked if they believed the applicant had been truthful or if they believed the applicant was deliberately dishonest. They were then asked to identify any specific statements from the interview which they believed were false. Second, subjects were provided with a copy of the application that was submitted for the interview. Subjects were then asked to circle any information on the application that they believed was false.

## 4 RESULTS

Descriptive statistics for the results of the experiment are contained in Table 1. The results show that deception in the scholarship applications and in the interviews was difficult to detect for the reviewers, whether judging from the questionnaires they completed just after the interviews or from their subsequent analysis of the application itself. In the original study, the interviewer in Interview 1 found 36% of the deceptions, while the interviewers in the other sessions found none (George et al. 2008). It would seem that the lies in interview 1 had some characteristic that made them relatively easy to detect, while the lies in the other sessions were so hard to detect that the interviewers in them did not find any lies at all. The results from this study tend to support that view, as the largest proportions of lies were found by subjects in their perusal of the sixth interview session. In general, though, detection success rates ranged from a low of 9% to a high of 25%. Descriptive statistics for the dependent variables, by cell across all of the interviews, are presented in Table 2.

<b>Interview</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>Overall</b>
Number of lies	14	11	5	-----
Mean number of lies listed on questionnaire	2.7	1.0	0.6	1.3
Mean number of lies found on application	3.5	1.3	0.7	2.5
Mean number of false alarms listed on questionnaire	0.4	0.6	0.9	0.6
Mean number of false alarms found on application	1.0	1.2	1.9	1.1
Lie detection success rate from questionnaire	19.1%	9.0%	12.1%	15.1%
Lie detection success rate from application	25.3%	12.1%	14.9%	20.4%

*Table 1 Descriptive statistics for deception detection and false alarms by session.*

	<b>Not warned</b> (N = 53)	<b>Warned</b> (N = 57)	<b>Transcript</b> (N = 59)	<b>Audio</b> (N = 51)
Lies detected on questionnaire	0.83 (1.48)	1.70 (2.11)	1.19 (1.76)	1.39 (2.10)

Lies detected on application	1.68 (2.08)	3.25 (3.08)	2.29 (2.46)	2.73 (3.05)
False alarms on questionnaire	0.53 (0.69)	0.58 (0.80)	0.49 (0.73)	0.63 (0.77)
False alarms on application	0.89 (1.12)	1.37 (1.67)	1.32 (1.48)	0.92 (1.40)

*Table 2 Means and standard deviations (in parentheses) by cell for dependent variables.*

The hypotheses were tested with MANOVA, with communication mode and warning as the fixed factors, and the number of correctly detected lies and the number of false alarms as dependent variables. Two measures were used of each dependent variable: the number of lies and false alarms reported on the post-session questionnaire and circled on the scholarship applications. The level of significance for alpha was set at .05. The model was statistically significant for warnings (Wilkes' lambda = .897,  $F(4,103) = 2.947$ ,  $p < .024$ ) but not for communication mode or for the interaction of warning and mode. Further investigating warnings, there were statistically significant differences between warned and unwarned subjects for both the detected lies reported on the questionnaire ( $F(1,109) = 6.50$ ,  $p < .012$ ) and for the lies detected on the application ( $F(1,109) = 9.26$ ,  $p < .003$ ). Hypothesis 1 was supported. Hypotheses 2, which posited no difference in detection success due to communication mode, was not rejected. Hypothesis 3, which predicted a difference in the number of false alarms due to warnings, was not supported. Hypothesis 4, which predicted no differences in the number of false alarms due to communication mode, was not rejected.

## 5 DISCUSSION

The overall success rate for the reviewers in this study was a little better than 20%. The reviewers outperformed the rate reported in the original study, which was around 12% (George et al. 2008), as well as the participant communicators in other recent studies, implying that, reviewers did not suffer from the same "honesty effect" or distractions from the communication process as the participants from previous studies.

When testing our hypotheses, we first found that warned reviewers were more successful at detecting deception in a recorded interview than were unwarned reviewers. For both measures of detection accuracy, warned reviewers found about twice as many deceptions as those who were not warned. We were not able to reject our null hypothesis about whether the media the interview was recorded in would affect detection success. Similarly, we were unable to reject our null hypothesis about media and false alarms. In both cases, for accuracy and false alarms, media made no difference. Finally, our expectation that warned reviewers would produce more false alarms than their unwarned counterparts was not supported – there were no differences in the number of false alarms generated by warned and unwarned reviewers.

These findings are good news for recruiters who conduct computer-based interviews or who make use of such recruiting websites as Fitability and SelectPro. If a recruiter wants to focus on finding deceptive information in these interviews, a simple warning about its possible presence to those who review the interviews should produce results. Finding deceptive information can also be done without worry of the added cost of generating a large number of false alarms. Methods that accurately detect deception and generate few false alarms are preferred to methods that are not as discerning. The lack of media differences is also good news. That reviewers can find just as much deception from reading a transcript as they can from listening to an audio recording implies existing text-based interviewing methods are adequate for discovering deception if it is present. Recruiters don't need to listen to a recorded interview with an applicant in order to detect untruths, since perusing a transcript of an interview works as well. Adding an additional audio interview before selection, or substituting an



audio interview for one that is text-based, may generate other benefits that may be worth the extra cost, but in terms of detecting deception alone, using a text-based interview is adequate.

It is important to recognize that the overall level of performance of the reviewers was likely linked to the fact that the reviewers were, relatively naïve students who were tasked with finding deception as part of a laboratory experiment. Still, students do know and understand what a student résumé should look like, having created their own and having viewed the résumés of their friends. And even they were able to better detect deception after being warned by a two-to-one margin compared to their unwarned counterparts. Professional recruiters should outperform our student subjects, due their experience and training. However, even they suffer from the truth bias (even if it is to a lesser degree), and warnings about deception will also likely improve their performance.

It may also be possible to improve deception detection on the part of both student and professional reviewers with training. At some point, though, the improved detection rates resulting from improved detection methods may well be accompanied by more false alarms, as some of the research reviewed earlier has found. Managers need to decide how much deception detection is desired and what the value is for each additional lie uncovered. Finding one or two lies may be enough, especially if they are judged to be serious lies. Finding all of the lies on a résumé may be far too much.

## 6 CONCLUSION

Deceptive information in résumés and job applications is far too common. Being able to detect false applicant information early, avoiding the downstream problems that could result from hiring a dishonest applicant, is a worthwhile goal for many recruiters. Past studies have shown that participant communicators in computer-mediated settings have very poor deception detection rates, and as we have seen in this study, reviewers of computer-based interview transcripts can be better than participant communicators. Our research also showed that a simple warning about deception's presence can improve detection accuracy, compared to lack of warnings, and that it does not have any effect on the number of false alarms generated by reviewers of recorded interviews. Using a reviewer that is warned about the possible presence of deception for a text or audio-based (computer-mediated) interview may be all that is needed to uncover enough deception, at a relatively low cost, to prevent the hiring of a dishonest and high-risk job applicant in many new interview settings.

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