DECEPTION DETECTION UNDER VARYING ELECTRONIC MEDIA AND WARNING CONDITIONS

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Abstract

With an increasing amount of business-related tasks and decisions being supported by communication technology, it is important to understand and explore the vulnerabilities that may result from its use. One of these weaknesses is the transmission of deceptive information. Very little research investigating mediated deception and its detection exists, however. This paper reports the results of one such investigation. An experiment was conducted involving an interactive interview of deceitful applicants for a fictitious scholarship, using one of three different computer-based media. Results showed that people were extremely successful at deceiving others no matter what medium was used, and the only recipients of lies that had a realistic chance at uncovering lies were those who were warned beforehand. There were no differences in the number of false alarms issued by warned and unwarned receivers. Warned receivers also rated their electronic medium poorly. Possible implications of this study are offered.

1. Introduction

Information technology is prevalent in all aspects of business organizations and is used in activities ranging from coordination to decision-making. IT is also used to support business communication between people working toward a common goal, but like other systems that can produce a "garbage in, garbage out" result, communicative technology can possibly conduct faulty or biased information between human nodes. In an ominous premonition, Zmud [34] foresaw the possibility that bad digital information can be purposely sent from one party to another in an effort to sway a decision made by someone else, and that due to its inherent characteristics, electronic communication provides a breeding ground for this type of deceitful activity. Business organizations should be aware of deceptive communication, both within and without their own boundaries.

One example of a business decision that affects people on a personal level, and forces some to consider engaging in deceitful behavior, is the hiring decision. Within the field of human resource research, the act of purposely altering personal and job-related information that is supplied to prospective employers is known as applicant faking [19]. Studies have shown that all sorts of personal and background information can and will be altered, should the job applicant hope to appear more attractive to employers [1]. The popular press is rife with stories of applicant faking, and some sources claim that over a third of all applicants will lie on applications [11]. Fortunately, hiring decisions are not typically made after a simple viewing of an application; the process usually involves one or more personal interviews with the candidate before a decision is made. Given that independent background checks may be cost prohibitive or even illegal in some cases [26], it is during the interview phase that questionable applicant information will be uncovered, if at all. A deceitful applicant must therefore craft and defend false information in order to get away with lying. The study described here investigates this type of decision and whether computer-mediated communication may hinder or help in screening for deceptive communication. More specifically, we attempt to determine if the medium being used makes detecting deception more difficult for applicant screeners. This study was informed by research in both deceptive communication and in computer-mediated communication. Very little prior research exists combining the two areas, but relevant literature and theory driving this study are reviewed in the following sections.

The paper is organized as follows. First, the relevant literature and theory base related to deceptive communication and computer-mediated communication will be reviewed. Following that, the research model derived from the prior research and testable hypotheses will be presented. Next, the research design and methodology for the experiment will be discussed, followed by the results that were obtained. Finally, the results will be discussed in depth, as well as potential implications of this research.

2. Theoretical Foundations and Literature Review

2.1 Deception Literature and Theory

For the purposes of this study, the term deception is defined by Buller and Burgoon as "a message knowingly transmitted by a sender to foster a false belief or conclusion by the receiver" [3] (p.205). It is important to note that the average person does not seem to detect lies at a proficient rate, as Miller and Stiff [27] pointed out that experiments with high rates of detection accuracy peak between 40 and 60 percent detection. While previous research in deceptive communication has focused on the detection abilities of individuals who are the recipients of lies (the "receiver"), most previous studies are limited in that detectors are not able to personally interact with a deceiver, and are instead basing their judgments on third-party accounts or recorded monologues. In order to gain a more realistic impression of the lie detecting abilities of people, studies that allow the receiver of deceptive communication to converse with its source are presumed to be closer to reality [6]. This perspective mirrors what is explained by the interpersonal deception theory, which views deceptive communication as an ongoing, interactive event between two persons and predicts that liars will make strategic changes to both content and behavior based on the reactions of the target of the lies [3]. Monitoring the feedback from others is important in normal communication, but even more so when lying. For a deceiver, judging the reactions of a conversational partner allows him or her to modify his or her delivery style and message. These adjustments are usually intended to reach what appears to be "appropriate conversation" and limited information release [7]. Interpersonal deception theory predicts that deceivers base these adjustments on perceived social cues, immediacy, engagement, conversational demand and spontaneity from the receiver. These perceptions and changes last over the entire duration of the conversation [3].

In the two-way dynamic communication between deceiver and receiver, the liar is not the only person to make critical assessments of a partner's behavior. According to the concept of leakage developed by Ekman [17], deceivers often betray their duplicity by "leaking" behavioral indicators during the course of conversation, and should the receiver acknowledge these clues to deception, he or she stands a much better chance at uncovering lies. With the act of lying considered to be a more difficult task than telling the truth [4], deceivers often maintain their message at the expense of ignoring their behavior. Cues, like increased voice pitch, gaze aversion, or self-grooming behavior, are "leaked" out, and they may or may not be noticed by the receiver (see meta-analyses by Zuckerman and Driver and by DePaulo and colleagues [16, 35] for reviews of reliable cues). It has been asserted that these cues are not always present in deceptive communication; if the deceiver does not fear the consequences of being detected, he or she will not be motivated enough to lose control of his or her nonverbal behavior [15, 22].

Whether or not leakage occurs, the deceptive message itself is always open to interpretation, should the receiver be suspicious of the sender's intent. Prior research indicates that the most reliable means of detecting deception is by questioning the veracity of the message [21]. However, increased scrutiny by a receiver depends on first becoming suspicious, and naturally occurring human biases can prevent that from happening. Chief among these is the truth bias, which refers to a person's natural disposition to believe communication is truthful, until given reason to believe otherwise [25]. Truth bias has been found in conversation ranging from those between complete strangers and to those between romantically-involved couples [24], and it has been found to be strongly correlated with perceptions of truthfulness [27]. Yet this bias can be overcome. In experiments studying truth bias and deception detection, there is a significant reduction in the bias' effects if detectors are artificially warned about the presence of lies [2, 32]. Even so, there is reason to believe that the truth bias is reinforced as people become more familiar with each other through interactive communication [8].

When receivers do become suspicious, however, it does not follow that they become more accurate at detecting deception than receivers who are not suspicious [24]. In many cases, suspicious receivers become overly sensitive to the possible presence of deception, and they label as deceptive many statements that are in fact truthful [17]. Although false alarms may be tolerated in an environment where suspicion also leads to more accurate detection of deception, false alarms are not cost free. In many

cases, false alarms will have to be evaluated to disconfirm their accuracy, and this requires resources, time and effort to do. What would be most desirable from a business perspective would be a method that would increase deception detection accuracy without incurring the additional costs of increasing the false alarm rate. Biros and colleagues [2] found that simple warning of the possibility of deception alone improved deception detection accuracy without a commensurate effect on the false alarm rate. They also found, however, that training to detect deception, coupled with warnings, resulted in both more accurate detection and more false alarms.

2.2 Computer-Mediated Communication Theory and Literature

Common types of communication media, whether computer-mediated or not, have been studied and compared for many years. Two theories that have been used to explain cross-media differences are media richness theory and social presence theory. The first, media richness theory, was developed by Daft and Lengel [12] to explain media choice by managers seeking to reduce equivocality and uncertainty when communicating with subordinates. Media are compared on four qualities: speed of feedback, language variety, amount of personal focus, and the number of social cues transmitted with the message. Face-to-face, verbal communication is generally considered the richest medium in terms of the potential number of cues transmitted, while formal numeric text is considered the least rich, and the other types of media fall between the two. Although it was originally concluded that finding the appropriate fit between medium selection and the need to reduce equivocality of a situation leads to successful communication [13], other studies show that people factor in the communication style of the recipient [23] as well as their own experiences [10] when choosing a medium.

Social presence theory also depends on the number of cues that a medium is capable of transmitting, but instead of focusing on how equivocality and uncertainty are affected, social presence deals with perceptions of the social distance between the two parties and how "real" the communication feels to recipients [30]. Socially rich media, like face-to-face discussions, involve indicators of social subtleties, such as environmental cues and indicators of status [31], while socially leaner media produce feelings of isolation [20]. It would seem that ranking media in terms of social presence would naturally match the same rankings with respect to media richness, but they do not necessarily correspond. Rice [29] found that although electronic mail is frequently used, it is perceived as being socially leaner than even business memoranda, and telephony is socially richer than videoconferencing.

Media richness theory and social presence theory are both applicable to deception detection, in that the number of social cues that can be transmitted across a medium may impede the detection abilities of receivers for two reasons. First, nonverbal indicators associated with deception may be effectively filtered by the medium, even if they leak from the deceiver. Rao and Lim [28] developed a table listing reliable deceptive indicators by their detectability across video-based, audio-based, and text-based media. The number of indicators leaked in a video mode is larger than in audio modes, which are in turn larger than in text-based modes. The position taken by Rao and Lim supports the notion that receivers will be more accurate detecting deception if more social cues are available for judgment. Second, the lack of social presence perceived by receivers may prevent them from engaging in realistic dialogue in which the veracity of a message can be ascertained. Unable to conduct a normal-feeling conversation, receivers using colder media ultimately pay less attention to communicative partners [30].

It should be noted that given time and experience, communicators can potentially improve the perceived richness of a medium. Channel expansion theory [10] states that with increasing experience with the medium, with the topic of conversation, with the context surrounding the communication, and with the communicative partner, communicators are able to achieve a richer dialogue than inexperienced users can. Empirical evidence shows that even with relatively lean electronic media, repeated interaction between communicative partners can reduce the amounts of ambiguity and equivocality surrounding the topic of conversation [9, 14].

2.3 Hypotheses

In this study, we were interested in determining whether there were any differences in detection deception accuracy depending on the medium used for communication and whether or not receivers were warned about the possible existence of deception in their conversations. We were also interesting in determining if there was a relationship between warning interviewers about the possibility of deception and the rate of false alarms. We have three hypotheses, two about deception accuracy, and one about false alarms. The three hypotheses are discussed in more detail below.

The first hypothesis focuses on the use of computer-mediated communication and differences across media for deception detection. Our focus is only on computer-mediated communication, so to hypothesize about differences in deception detection for various computer media, it is important to compare media to each other to see if we should expect any resulting differences in deception detection due to media differences. Table 1 below compares three computer media using media richness theory. The evaluations of each computer media on the four defining characteristics of media richness theory are our own, but they are consistent with other rankings [18, 23]. Based on our evaluations, these computer media do not differ on the personal focus characteristic, but there are differences on the other three characteristics. While chat and e-mail differ only on speed of feedback, chat with audio differs from e-mail and chat on all three criteria. Chat is faster than e-mail for feedback, but chat with audio allows more variety of cues, more variety of language, and faster feedback than either e-mail or chat. These differences are due primarily to the availability of the extra audio channel. We would argue, then, that chat with audio is richer than either e-mail or chat, and that chat is slightly richer than e-mail.

Table 1: Computer media differences based on media richness theory.

	E-mail	Chat	Chat with Audio
Variety of cues	Low	Low	Moderate
Variety of language	Low	Low	Moderate
Speed of feedback	Low	Moderate	Immediate
Personal focus	Moderate	Moderate	Moderate

Typically, social presence evaluations of media have been in general agreement with evaluations based on media richness. Given the availability of the audio channel in chat with audio, it is consistent with social presence theory to rate the social presence of chat with audio as being higher than that of either e-mail or chat alone. And given the results of past studies of the social presence of e-mail [29], it also seems reasonable to rate chat as higher than e-mail in terms of its social presence. Chat, after all, resembles an on-going conversation more than e-mail, the closest physical analog of which is the business letter or memo. We would argue, then, that the three computer media of interest to us here would be ordered the same way for social presence considerations as for media richness, from e-mail to chat to chat with audio. For computer media, richer and more socially present media should facilitate deception detection; leaner and less socially present media should hinder deception detection. Therefore, we hypothesize:

H1: Receivers using chat with audio will be better at successfully detecting deception than receivers using chat, who will in turn be better than receivers using e-mail.

Secondly, we predict that arousing suspicion in receivers using computer-mediated communication will improve deception detection accuracy. Previous research has shown that truth bias can be an obstacle to accurately detecting deception, but it can be reduced by artificially arousing suspicion in receivers, specifically with warnings from a third party source [32]. Similar findings regarding the effects of warnings on deception detection accuracy were reported by Biros, et al. [2]. Obviously, a danger exists that by priming suspicion in others, the result may be a tendency to judge all communication as being dishonest, but research has shown that primed receivers were not any less accurate than non-primed receivers [33]. Therefore, we hypothesize:

H2: Receivers who are forewarned of the possibility of deceptive communication will be more accurate at detecting deception than those who are not forewarned.

Finally, again based on the findings from Biros, et al. [2], warnings alone should not lead to an increase in the number of false alarms among receivers, so we would expect that:

H3: There should be no differences in false alarm rates between warned and unwarned interviewers.

3 Research Design and Methodology

3.1 Design

The research design for the study was a 3 x 2 factorial, with three types of computer media (e-mail, chat, and chat with audio) and two categories of induced suspicion, present or absent. For e-mail, participants used specially created accounts using Hotmail, a web-based e-mail provider. For both of the conditions involving chat, subjects communicated using Microsoft NetMeeting. In the chat with audio condition, subjects were allowed to use either the chat function or the voice-transmitting function of the software, or both functions if they so desired.

Participants used headsets with built-in microphones for the audio portion. All audio conversation was recorded with a tape recorder, and all e-mail and chat transcripts were saved and archived. Participants were randomly assigned to one of the three communication media conditions. There were 20 dyads, or 40 participants, in each condition. Within each condition, half of the receivers were warned about the possibility of deception and the other half were not.

3.2 Measures

One of dependent variables, detection accuracy, was calculated as the number of lies detected by the receiver divided by the number of total lies made by the deceiver. Both of these numbers were measured from direct responses by both parties. The total number of lies submitted by the deceiver was gathered from the deceivers themselves (i.e., information provided that was knowingly false, and not honest mistakes). Deceivers were asked to identify all of the deceptive information they had provided on the scholarship application forms. On a post-session questionnaire, receivers were first asked if they believed that the applicant was being dishonest, and if so, what the applicant was specifically lying about. Each match between the list of items falsified by deceivers and the list of items suspected by the receivers resulted in a tally of lies; anything incorrectly judged as a being a lie, or a false alarm, was ignored for this study. Deception detection accuracy for a receiver was then calculated as the proportion of items correctly identified as deceptive by the receiver divided by the number of deceptive items identified by the deceiver. The range, then, is between 0, for no deceptive items correctly identified, to 1, for all deceptive items correctly identified.

False alarms, the other dependent variable, are truthful application items wrongly identified by the interviewer as false. These were measured by counting the number of truthful application items identified by the interviewer on the post-session questionnaire. As with the subjective measure of detection accuracy, the items identified by the interviewers as deceptive were compared with what the deceiver indicated were truthful and deceptive items on the application. There were very few false alarms. They ranged from 0 to 2, with an average of 0.07 (s.d. 0.314).

Deceivers and receivers alike were asked to complete short post-session questionnaires at the end of the experimental sessions. These questionnaires were based on those originally designed by Burgoon et al. [5], and included several items dealing with the communication experience (15 for receivers, 16 for deceivers) and nine items dealing with the communication medium used. Items dealing with the communication experience were measured on a 5-point scale from 1 = strongly disagree to 5 = strongly agree, while the items on medium were measured with 7-point semantic differential scales.

3.3 Procedures

Participants for this study were drawn from students enrolled in junior and senior-level MIS courses at a large southeastern university. Students were told little more than that the experiment involved resumes and were promised extra credit for participation and a $10 gift card for completing the experiment. Two sign-up sheets were distributed in each class, and depending on which sheet each student signed, one student was assigned the task of the deceiver, and the student signed up for the corresponding time slot was assigned the role of receiver. None of the subjects knew of the different roles at this point though. One hundred and twenty students signed up to participate.

The subject assigned the deceiver role was scheduled to arrive fifteen minutes before the other student at an interview suite maintained by the College of Business. After completing a consent form and being informed that they could terminate their participation at any time, subjects were told that they were needed to help the MIS department develop a list of minimum requirements for a scholarship under development, to be awarded annually to the top student in the department. To do so, they were instructed to fill out a sample application for the scholarship, but in doing so, to make themselves appear to be as competitive as possible. A pilot experiment showed that over ninety percent of subjects falsely altered information on the application without any prompting to do so, and this remained consistent in the current study. Subjects most often lied about individual class grades, their grade point averages, job positions held in the past, and activity in student organizations. Upon completing the task, subjects were then told that a scholarship was not actually being established, and that we (the researchers) were more interested in their resume enhancement. Furthermore, the subject was also informed that they would now be interviewed by another student located elsewhere in the building, and that they would have to convince the interviewer that the application was completely legitimate.

In the meantime, the subject paired with the deceiver arrived at an adjoining interview suite and was met by a second researcher. After signing the standard consent form, the subject was then instructed as to the interviewer role they would be assuming. The application was sent electronically

from the deceiver's suite to the interviewer's suite. It was also at this point the forewarning treatment was applied; half the interviewers were told to keep in mind that up to 40 percent of all applicants have been known to lie on their resumes and applications [11], while the other half were given no additional instructions. Interviews were conducted over the assigned medium (email, chat, or chat with audio) and lasted up to twenty minutes. The interviews were unscripted, as the interviewers were simply told to ask about anything on the application that caught their attention. Following the interview, both subjects signed off, and then each was given a questionnaire to complete. Afterwards, subjects were given their gift cards, thanked, and dismissed.

3.4 Results

Subjects were asked to rate their mode of communication on four different items, on semantic differential scales, based on social presence theory. These four items dealt with warmth (with 1 being cold and 7 being warm), sensitivity (with 1 being insensitive and 7 being sensitive), personal focus (with 1 being impersonal and 7 being personal), and sociality (with 1 being unsociable and 7 being sociable). The purpose was to determine if subjects could distinguish among computer media in terms of their social presence. Although subjects reported no differences in terms of personal focus, they did report differences on the other three items. These differences were statistically significant at the $\alpha < .05$ level ($p < .001$ for warmth; $p < .022$ for sensitivity; and $p < .045$ for sociality). Post hoc Scheffe and Tukey tests were run, at the $\alpha < .05$ level, to help distinguish among media. For warmth, chat with audio was warmer (mean of 4.28) than either e-mail (2.79) or chat (3.43), and for sensitivity, chat with audio was more sensitive (3.85) than e-mail (3.08). There were no statistically significant differences for the post hoc tests for sociality, although it was close – for the Tukey test at $p < .072$, chat with e-mail was more sociable (4.00) than e-mail (3.15) and chat (3.18). Subjects' evaluations of computer media are exactly in line with our predictions, with the three media ordered in terms of richness and social presence from chat with audio to chat to e-mail.

Resume enhancement proved to be the ideal task for this study. Students responded to our requests to improve their resumes with little objection (in addition to the 60 dyads reported on here, there were also 6 dyads who either did not participate completely or whose data we could not use, as the deceiver refused to augment his or her resume). Doctored resumes, in the form of scholarship applications, contained as many as 18 deceptions. The average number of deceptions per resume was 8.1. While subjects may have been proficient at resume enhancement, they were not very good at finding deceptive items in the resumes they examined or in the interviews they conducted. The overall deception detection accuracy rate was 7.4%, a far cry from the 40-60% accuracy rate reported in the literature. For receivers who had been warned about the possibility of deception, the detection accuracy rate was better, at 12.25%. For those who had not been warned, the accuracy was only 2.4%.

The hypotheses were tested using a oneway analysis of variance, with $\alpha < .05$ being set as the level of statistical significance, with an N of 59 (there is incomplete data for one of the dyads in the chat with audio treatment). There were no statistically significant differences for media, so Hypotheses 1 was not supported. There were statistically significant differences for warnings ($F(1,58) = 6.26$, $p < .015$), with warned receivers being more accurate at detection deception (mean = 0.1225, s.d. = 0.1984) than receivers who were not warned (mean = 0.0236, s.d. = 0.0786). H2 was supported. There were no statistically significant differences for H3, and since it was in null form, the hypothesis is not rejected. Unwarned interviewers had an average of 0.03 false alarms (s.d. = .186); warned interviewers had an average of 0.10 false alarms (s.d. = .403).

4 Discussion

Although the computer media used for communication during the interview had no effect on the ease or difficulty of detecting deception (H1), subjects were able to clearly distinguish among media in terms of their social presence. Chat with audio was rated as warmer than chat and e-mail and as more sensitive than e-mail. Analysis of responses to questionnaire items reveals additional ability to distinguish among media on the part of receivers. On an item about the communication experience which stated "The applicant took a long time to respond to questions," receivers using chat (3.35 on a 5 point scale) were more likely to agree than were receivers using chat with audio (2.37) ($F(2,56) = 3.794$, $p < .028$). There were also differences on two items about the communication medium used. Chat with audio was judged among receivers to be more helpful (2.84 on a 7 point scale) than chat (4.1) and e-mail (4.3) ($F(2,56) = 4.953$, $p < .01$). Chat with audio was also judged by receivers to be less effortful than chat alone (4.21 vs. 2.65, respectively, on a 7 point scale; $F(2,56) = 4.192$, $p < .02$). Yet none of these advantages of using chat with audio (faster responses, more helpful, less effortful) seems to have made any difference in the ability of receivers to accurately detect deception.

The lack of media differences in successfully detecting deception is surprising and somewhat disappointing, but it may be explained in part by the fact that the three media investigated are really not that different from each other, the evidence in Table 1 notwithstanding. While it is true that e-mail has slower feedback than chat, in the experimental situation created for this study, e-mail exchanges came faster than they might in the normal world of communication. Sometimes e-mail may go for days with responses, while in the experiment, e-mail responses came relatively rapidly. On the other hand, for an on-line interview using e-mail, the participants would want responses to be rapid, so for the task used, rapid e-mail may not be too farfetched. The main issue here is that rapid e-mail responses increase the similarity between e-mail and chat. In fact, the largest differences among media, as judged by deceivers and receivers alike in terms of social presence, and in terms of receivers rating the communication experience and medium, was between chat and e-mail on one end and chat with audio on the other. Adding the audio channel seems to help distinguish chat with audio from the other media, but it does not seem to make enough of a difference to deception detection. A fourth treatment, of audio only, needs to be added to this study, and in fact, we have already begun collecting data for such a treatment.

We did find support for H2, which predicted a main effect for warning of the possible presence of deception. Warned receivers were 5 times more likely to correctly identify deceptive statements than receivers who were not warned. The manipulation was very simple: The receivers who were warned were simply told to be aware, that many people lie on their resumes. Biros and colleagues [2] also found dramatic differences in deception detection success based on the introduction of simple warnings that deception may be present. Yet the deception detection accuracy rates were still abysmal, with warned receivers (the interviewers) finding only one out of every eight deceptive statements. Receivers who were not warned found only one out of 40 deceptions. These success rates are far below the established success rates in the literature of 40 to 60% [27]. An interesting question is why the success rates differ so much. We believe that the answer lies in part in the differences in experimental design in past research compared to this study. Instead of having third party detectors who viewed videotapes of people they had never communicated with before, or having one member of a dyad watch a video of the other member, without the other member present, our study used two members of a dyad actively communicating in real time (or in very near real time with rapid e-mail exchanges). Also, instead of having the liar falsely react to unpleasant photos for the videocamera, or instead of having a member of a dyad intentionally answer a question with a lie, as instructed by the experimenter and for the videocamera, our deceivers lied about something they knew well – their own academic and work experience – in a format they knew well – a resume – and they had to defend these deceptions in active communication with a real person in real time (or close to real time). The differences in experimental design almost make our results not comparable to those from earlier experiments, making it difficult to interpret our findings in light of past findings.

It is also interesting to note that warnings had an effect on how receivers perceived the media they used for their interviews. Regardless of computer media used, warned receivers reported that the medium was more difficult to use than did receivers who were not warned (2.83 vs. 1.97, respectively, on a 7 point scale; $F(1,57) = 4.827$, $p < .032$). Warned receivers also reported their media more pleasant to use than did unwarned receivers (3.53 vs. 2.76, respectively; $F(1,57) = 5.006$, $p < .029$).

The third hypothesis predicted no differences between warned and non-warned interviewers in the number of false alarms they generated. There were very few false alarms overall, and warned interviewers generated more than unwarned interviewers, but the differences were not statistically significant, so the hypothesis was not rejected.

5 Conclusions

One thing that our study showed is that business school students have few qualms about enhancing their resumes. That should really surprise few people. Resumes are often the key to opening the first door in an interview process, and in bad economic times like the present, there is a lot of pressure to get that first door open. Our study also showed that, even though deception on resumes is widespread and maybe even expected, other students do not do especially well at finding those deceptions. Only when they are explicitly warned that deception may be present do students succeed at finding dishonest material on resumes. Students may not perform that well at finding deception, but when they are warned that it may be present, they do a much better job at finding it. And it seems that simple warnings do not appear to be related to the number of false alarms that student interviewers generated. Following the findings of Biros and colleagues [2], we found that warnings alone seem to promote deception accuracy without a corresponding increase in the number of false alarms.

We were unable, however, to find any differences in deception detection based on the computer media used for the interview. This was disappointing but perhaps understandable in that the media, while distinguishable one from the other by participants in the study, were perhaps too similar to each other. Additional research is called for that takes more, and more varied, media into account.

Our final concluding point is to reinforce the low levels of deception detection success we found. Given student familiarity with resumes and resume enhancement – and given the fact that all subjects came from the same undergraduate major and hence had good understandings of what would be valid or invalid on a resume in their field – we cannot attribute the low success rates to subject ignorance of the topic. Students knew the topic, the context, and the media, yet they were not able to identify many deceptive statements in an on-going, interactive communicative event, unless they were warned about the presence of deception, and even then their performance was marginal. If such findings are not anomalies, if they can be consistently reproduced, then they have far reaching implications for both research and practice. It is our plan to continue to work in this area, and we call for others to join us.

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