



# Buying Stuff on the Web: Can Users Correctly Identify Deception in Purchasing Contracts?

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## ABSTRACT

A key e-collaborative activity through which many organizations acquire products today is that of Web-based purchasing. When buying products through the Web, as with traditional face-to-face buying, individuals may be faced with contract clauses that they should not accept. Some of those clauses may be even deceitful yet legally binding. This paper looks into whether Web buyers can identify deceit in software purchasing contracts. An experimental study was conducted in which subjects were asked to either accept or reject each of several clauses of a software-purchasing contract, some of which were deceitful. Two experimental conditions were used. In one of the conditions the clauses were displayed as Web-based video clips; in the other they were displayed as Web-based text windows. The main finding was that the subjects performed worse than chance in identifying deceitful clauses. The study raises a red flag regarding Web-based contracts.

## INTRODUCTION

Web-based purchasing of goods and services has been increasing since the mid-1990s. As with traditional face-to-face purchasing, buyers may be faced with contractual situations where individual contract clauses are not acceptable. Some of those clauses may even be deceitful, yet legally binding. According to Retsky (2002), the courts of law often recognize Web-based contracts as binding, as long as the text being agreed upon is in plain view (as opposed to hidden, or difficult to access). When faced with these types of buying situations, the buyer has the option to accept or reject either specific parts (contract clause[s]) or the Web-based contract as a whole. Thus, it is reasonable to ask, would the individual buyer be able to recognize deceitful clauses? Based on the e-collaboration literature (see, e.g., Kock and Nosek, 2005), it would also be reasonable to also ask whether the use of different types of media, such as video/audio clips, would increase the buyer's ability to identify contract clauses that are questionable or objectionable?

## RESEARCH QUESTIONS

Due to the fact that two or more parties are involved when signing or accepting contracts, and that the issuing party might want to benefit from it, it is important for the buyer to be able to identify and reject disagreeable clauses (Landeryou, 2003). A cognitive process must be in place in order for the buyer to make such decisions. Signing or accepting contracts electronically could be seen as a complex and equivocal (from a cognitive perspective) e-collaborative process (Kock and Nosek, 2005) where a variety of communication media manipulations could take place.

It has been suggested that a "rich" medium is a type of medium that can allow verbal as well as non-verbal cues, use of natural language, and conveyance of emotion (Allen and Griffeth, 1997; Daft and Lengel, 1986; Daft et al., 1987). Face-to-face communication, for example, would rank high in terms of richness, while a letter or e-mail would rank low. These premises are part of a theoretical model called media richness theory (Daft and Lengel, 1986). An analogous argument (but different,

at a fundamental level) is that put forth by the media naturalness perspective (Kock, 2005), which states that the human brain has been designed, by Darwinian evolution, for face-to-face communication. As such, the more face-to-face-like a communication medium is, the greater is its naturalness.

The way in which information is delivered to a computer user can cause the user to react in different ways. It has been hypothesized, through the media naturalness perspective, that a natural medium can help the user better understand what is presented on a computer screen (Kock, 2005). For example, presenting a video clip of a person stating the clauses of a contract instead of just presenting the text of the contract on the computer screen would be a more natural (a better approximation of face-to-face communication) way of conveying the contract.

From the discussion above, two research questions can be drawn:

**RQ1:** *Will software buyers do better than chance in identifying deception in Web-based purchasing contracts?*

**RQ2:** *Will more natural media (e.g., video, as opposed to text) improve software buyers' ability to identify deception in Web-based purchasing contracts?*

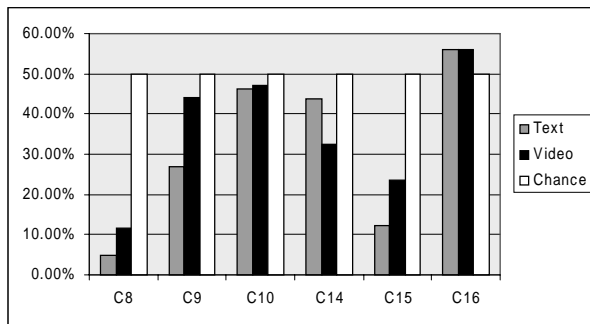
## RESEARCH METHOD

The research study aimed at answering the above questions was conducted through a Web-based experiment involving seventy-five (75) students from a mid-size university in the southern part of the USA. The experiment involved two media conditions: Web-based text and video. The subjects were asked to accept or reject typical contract clauses presented in one or the other medium. The experimental task was then followed by a questionnaire.

For the Web-based text condition, a total of twenty (20) clauses from a typical software contract were presented in text format on individual Web pages. For the Web-based video condition, we created separate Web pages for each clause where the same twenty (20) clauses were presented as embedded video clips without any text. The Web pages were designed to have the subjects choose either the "accept" option or the "reject" option for each clause, before they were redirected to the next clause on a separate Web page. None of the options was selected by default; each subject had to actively select one of the two options before moving on to the next clause. Six (6) clauses contained deceitful statements that would make it unadvisable to accept them.

The student subjects who participated in the experiment by accepting or rejecting clauses and answering the questionnaire varied in their gender, age, and work experience. We had a relatively balanced gender distribution of 54% male and 46% female subjects. The subjects' ages ranged from 18 to 53, with a mean age of approximately 26. The length of subjects work experience ranged from 0 to 35 years, with a mean of approximately 6.7 years.

Figure 1. Percentages of correctly identified deceitful clauses



## RESULTS

Figure 1 shows the percentages of correctly identified clauses for the Web-based text and video conditions, as well as the chance (or random pick) percentage, which was fixed at 50%. The latter (i.e., the chance percentage) is the percentage of correctly identified clauses if all the subjects picked either choice (i.e., “accept” or “reject”) randomly.

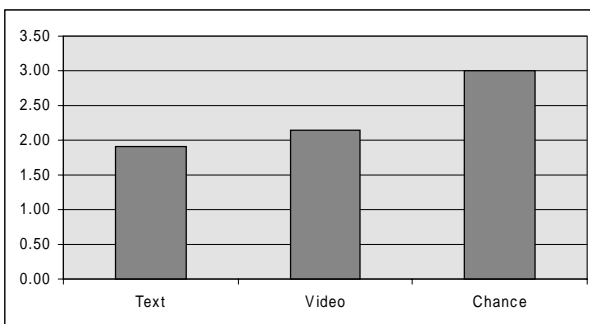
As it can be seen from Figure 1, for all deceitful clauses but one (Clause 16), the subjects generally did worse than chance in terms of correctly identifying deceit. Instead of rejecting deceitful clauses, they generally accepted those clauses. Subjects did particularly poorly in connection with clauses 8 and 15, where they were able to identify deceit on average only less than 25% of the time.

Figure 1 also suggests that the subjects were generally better at identifying deceit for the third clause in each sequence of three deceitful clauses. As previously noted, two sets of three deceitful clauses were shown in sequence - clauses 8 to 10, and clauses 14 to 16. Those sets of deceitful clauses were inserted in between sets of non-deceitful clauses.

Subjects did generally better in the Web-based video condition than in the text condition. The exceptions were clauses 14 and 16. For Clause 14, subjects did generally better in the Web-based text condition. For Clause 16, subjects had about the same performance in both conditions.

The average numbers of correctly identified clauses for both the Web-based text and video conditions are shown in Figure 2, as well as the average number of correctly identified clauses to be expected by chance (or random) picking. The latter was fixed at half the number of total deceitful clauses, or 3, and was calculated by dividing the total number of deceitful clauses (i.e., six) by the number of choices available (i.e., two

Figure 2. Average numbers of correctly identified deceitful clauses



Notes: The difference between text and video was insignificant ( $P=.497$ ; Mann-Whitney U Test). The differences between both (text and video) and chance were significant ( $P<.05$ ; Mann-Whitney U tests).

- “accept” and “reject”). Below Figure 2, under “notes”, are the results of nonparametric comparison of means tests (i.e., Mann-Whitney U tests) aimed at assessing the significance of the differences shown in Figure 2.

Figure 2 suggests that subjects did slightly better at identifying deceitful clauses in the Web-based video than in the text condition. However, the corresponding Mann-Whitney U test indicates that the difference was too small to be considered significant. Moreover, it seems that those differences were also relatively small when compared with chance.

The results summarized in and under Figure 2 also lead to the conclusion that in both Web-based text and video conditions the subjects did worse than chance at identifying deceitful clauses. Mann-Whitney U tests suggest that the differences between the average numbers of correctly identified deceitful clauses in each condition and what would be expected by chance were both statistically significant at the 5% level.

## DISCUSSION AND CONCLUSIONS

The subjects of this study performed significantly worse than chance in both media conditions at identifying and rejecting deceitful clauses in a software purchasing contract. They did about 18% worse than chance in the Web-based text medium condition, and about 14% worse than chance in the Web-based video condition. Both differences were found to be statistically significant ( $p<0.05$ ). These results suggest a negative answer to RQ1 (Will software buyers do better than chance in identifying deception in Web-based purchasing contracts?).

Overall, subjects did approximately 13% better at identifying and rejecting deceitful contract clauses in the Web-based video than in the text condition. However, that difference was dwarfed by the differences between both media conditions and chance. Moreover, that difference was not statistically significant, which suggests a negative answer for RQ2 (Will more natural media - e.g., video, as opposed to text - improve software buyers' ability to identify deception in Web-based purchasing contracts?).

These findings seem at first glance to go against what would be generally expected based on both the media richness (Daft and Lengel, 1986) and naturalness (Kock, 2005) theories. Based on those theories, one would expect to see significantly better results in the Web-based video condition than in the text condition.

However, one of the fundamental assumptions of the media naturalness theory is that “natural” communication leads to intermediate effects that make it easier to identify deceit. One could argue that truly natural communication would entail live interaction between buyers and sellers, not only a one-sided reading aloud of a contract clause in the form of a Web-based video clip. Therefore, the results of this study actually suggest the need for more research in connection with Web-based contracting through different media, so that the merits of the media naturalness theory can be more carefully assessed.

One conclusion that can be safely derived from this study, though, is that organizations should be extremely careful about having employees sign contracts or agreements for the purchase of software over the Web. This is especially true for untrained employees; a group whose behavior is likely to be better reflected in the behavior of our student subjects than that of trained buyers. Interestingly, the results of this study essentially suggest that a monkey trained to mindlessly accept or reject clauses in a Web-based contract will do generally better than untrained employees at rejecting deceitful clauses.

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