Online and Software Licensing Agreements: User Beliefs and Expectations of Risks

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The present study examines individuals' reported awareness of risk associated with online licensing agreements including whether it is safe to agree to them. Attributions and associated user behaviors are assessed. Results indicate that most users report that they do not read any of the online agreements presented to them and others report reading only portions of them. Despite this, users click "OK" to terms that they do not know, yet can do little about, if they want to use online applications and software. Other beliefs associated with accepting licensing agreements are described. Implications for people's interactions with online licensing agreements and the perceived risks associated with them are provided.

INTRODUCTION

Most research in human factors/ergonomics (HF/E) on risk has concerned hazards associated with physical dangers to persons, such as illness, injury or property damage. A large body of research has been published on the factors that influence the effectiveness of safety warnings (for reviews see e.g., Rogers, Lamson & Rousseau, 2000; Wogalter, DeJoy, & Laughery, 1999).

However, beyond physical and health hazards, people are also exposed to nonphysical risks such as financial, social or legal. For example, even something as simple as selecting a movie to watch involves a communication intended to convey nonphysical risks, as some people do not wish to view particular types of content (e.g., graphic violence, obscene language, nudity, and drug abuse). As a result, the Motion Picture Association of America, Inc. (MPAA) provides movies ratings to give some indication on the appropriateness for particular age groups. Similarly, the Entertainment Software Rating Board (ESRB) provides information about the content of video games (Resnick, 2006).

Another example of nonphysical risk involves the affirmative acceptance of legal agreements that consumers are exposed to during the course of contemporary life (Cohen & Baird, 1988). Two major categories of legal documents that lay consumers are commonly expected to consider without legal consultation are consent forms and some kinds of financial contracts (Resnick, 2006). These include documents associated with vehicle rentals, airline ticket purchases, non-disclosure agreements, and long-term mortgages, bank loans, employment contracts, credit card disclosures, and software licenses. Other kinds of contracts and release forms are involved in medical treatments and for various activities involving risk. These documents are often verbose, lengthy, in small print, and complicated by legal jargon ("legalese"), and frequently their implications are not understood by lay-persons not trained in law (Wogalter, Howe, Sifuentes, & Luginbuhl, 1999). Thus people may be commonly agreeing to terms that they have not read or do not understand.

Despite their pervasiveness, there is little empirical data on people's beliefs about common legal-type documents. Wogalter et al. (1999) found that individuals frequently give their consent by signing legal documents without reading or comprehending the language in consent forms and other kinds of legal contracts. Principles found effective in the warning literature might be applicable to these kinds of agreements and other communications about nonphysical risks (Carpenter, Zhu, & Kolimi, 2014).

In the computer and Internet age, consumers are being asked to consent to licensing agreements before they can use a product or service. Given that people report not reading common contracts before signing them (Wogalter et al., 1999), people may not take the time to read some or all of the information in a software or online license agreement before giving an affirmation to its terms. Although online agreements are a recent phenomenon, it is a direct descendent of a long history of contracts of various kinds over several centuries (e.g., Hartzog, 2010). The relative dearth of information on the topic of people's reported behaviors and beliefs regarding software and Internet-based licensing agreements prompted this investigation. Knowledge about people's beliefs about software and online licenses could be important in making better agreements in which both companies and users are protected.

User perceptions, expectations, and assumptions related to online software licensing forms are examined. The main focus was to collect data related to computer-based licensing agreements. College students and non-student adult volunteers were asked whether they typically read the information contained within online agreements, and if so, to what extent, and if not, why not. Also explored were other topics related to local computer and online licensing agreements in an attempt to determine beliefs concerning their acceptance to these agreements.

METHOD

Participants

Participants were recruited from two populations. One was comprised of undergraduate students enrolled in an introductory psychology course. The other group was

comprised of adult volunteers from the central North Carolina area (total $N = 97$). There were 63 undergraduate students (ages $M = 20.8$ years, $SD = 4.5$) and 34 were non-student adult volunteers (ages $M = 45.5$ years, $SD = 16.2$). Of the total sample, there were 51 males and 39 females; seven participants did not record their gender.

Materials and Procedure

Participants completed a large survey on a variety of subjects. One section focused on licensing agreements with questions concerning their readability and perceived safety/security, and the respondents' reasoning for accepting the agreements. As part of the instructions, an example online licensing agreement was shown to participants to help orient them to the type of material being addressed by the questions. Participants were then asked a set of questions including how often they read online licensing agreements, and whether selecting to agree with them was "safe." Participants then responded to three sets of questions.

The first set of questions is shown in the left margin of Table 1. Participants responded to these items using the provided percentage scale with the following associated anchors: 0% = "Never," 50% = "Half of the Time," and 100% = "Always." The questions addressed the frequency of encountering licensing agreements, the extent of reading, and assumptions of safety in consenting to licensing agreements.

Participants responded to a second set of items shown in the left margin of Table 2. Topics addressed included security of personal information on the Internet, refraining from using certain websites, hesitancy to accept agreement terms, and perceived negative emotions resulting from licensing acceptance. To these items, participants responded "Yes" or "No."

To a third set of items shown in the left side of Table 3, participants reported their expectations of reading licensing agreements in the future and the extent of their preference for simpler or shorter content in licensing agreements. For these items, participants gave ratings about their agreement to statements concerning the topics of autonomy of purchased software, fairness, deception, and government responsibility over Internet safety/security. Participants used a 9-point rating scale with the even numbers anchored as: 0 "Completely Disagree," 2 "Somewhat Agree," 4 "Agree," 6 "Very Much Agree," and 8 "Completely Agree."

RESULTS

The responses to the questions were analyzed as a function of undergraduate students vs. nonstudent adults. Table 1 provides the mean responses (and standard deviations) for the first four questions for the entire group of participants and separately for students vs. nonstudents. As can be seen, most participants report they see licensing agreements when using new software, but few read all of the text in them. Less than 10% say that they read all of the text. Approximately one-third reported that they read some of the agreements. Most of the participants reported that they believe it is safe to agree to the agreements without reading them.

Table 1. *Mean percentages of Responses to Questions for Students (n = 63) vs. Nonstudents (n = 34) and Overall. Standard deviations are shown in parentheses.*

	Students	***Nonstudents***	***Overall***
		M (SD)	
Questions			
How often do you see licensing agreements when using new software applications?	88.5 (18.6)	78.8(29)	85.6 (22.2)
How often do you read **all of the text** in licensing agreements before clicking on the OK button in order to use certain software applications?	9.2 (1.7)	4.7 (9.5)	8.1 (15.1)
How often you read **some of the text** of licensing agreements before clicking on the OK button in order to use certain software applications? *	33.6 (30.8)	23.2 (20.5)	30.0 (28.0)
How often do you assume it safe to click on the OK button **without reading any** of the licensing agreement?	69.9 (32.1)	72.3 (29.2)	71.5 (30.3)

Note: * $p < .05$, indicating a significant difference between participant groups.

Between students and nonstudents, the only significant difference in Table 1 was that students reported that they read *some of the text* ($M = 33.6\%$, $SD = 30.8\%$) significantly more often than nonstudents ($M = 23.2\%$, $SD = 20.5\%$), $t(97) = 1.98$, $p < .05$.

Table 2 shows the descriptive statistics for the students and nonstudents' responses to the second set of questions. "Yes" and "No" responses were quantified as "1" and "0" respectively, and are reported here as proportions reporting "yes."

Most participants reported that Internet websites distribute personal information without permission. Also, most participants report that they have decided not to use particular websites because they believed that personal information was at risk. They also report being hesitant to accept a licensing agreement, yet still accepted the agreement, nonetheless. Less than half stated that they have experienced some negative effect when agreeing to a licensing agreement. About one-third reported expecting to read licensing agreements more thoroughly in the future. Almost all participants believe that licensing agreements should be made simpler and shorter, and about two-thirds believe that they would prefer not being forced to accept a licensing agreement before using software.

There was only one significant difference between participant groups for the questions in Table 2. Nonstudents

Table 2. *Mean Proportion "Yes" Responses (and Standard Deviations) for Students vs. Nonstudents Beliefs Concerning Licensing Agreements on the Internet.*

	Students	***Nonstudents***	***Overall***
Questions	*M (SD)*		
Do you think that Internet websites distribute your personal information without your permission? *	.78 (.41)	.93 (.25)	.85 (.36)
Have you ever **not** used a website because you felt your personal information could be at risk?	.80 (.40)	.91 (.28)	.86 (.35)
Have you *ever* been hesitant to accept a licensing agreement but still clicked OK?	.71 (.46)	.67 (.47)	.69 (.47)
Have you ever experienced any negative feelings after clicking the OK button without reading the licensing agreement?	.41 (.49)	.47 (.50)	.43 (.50)
Do you expect to read licensing agreements more thoroughly in the future?	.33 (.47)	.29 (.45)	.31 (.47)
Do you think licensing agreements should be made simpler and shorter?	.96 (.19)	.98 (.14)	.97 (.17)
Would you prefer to use software without having to be forced to agree with a licensing agreement?	.59 (.49)	.73 (.44)	.65 (.48)

Note: Values closer to "1" indicate strong agreement.
* $p < .05$, indicating a significant difference between participant groups.

believed that Internet websites distribute their personal information without their permission ($M = .93$, $SD = .25$) significantly more than the students ($M = .78$, $SD = .41$), $t(96) = 2.15$, $p < .05$.

Table 3 provides participants' responses to the third set of questions. Participants reported that they agreed with the statement that licensing agreements are written by lawyers to protect companies. They also gave relatively high agreement ratings to the statement that consumers have no real say on the matter if they want to use the software. There was a moderate level of agreement given to the statement that people should be able to use the software the way they want if they have paid for it. There was less agreement to the statement that companies have no intention of deceiving customers and to the statement that governments monitor and control the Internet marketplace to protect consumers.

For the third group of items, there were two significant differences between participant groups. Nonstudents gave significantly higher agreement ratings to the statement that licensing agreements are written by lawyers for the protection of companies ($M = 6.88$, $SD = 1.62$) than did the students ($M = 5.86$, $SD = 2.15$), $t(97) = 2.42$, $p < .01$. Also, nonstudents gave significantly higher ratings to the statement that users have no real say in licensing agreements if they want to use a software product ($M = 6.09$, $SD = 2.37$) than did the students ($M = 4.8$, $SD = 2.42$), $t(96) = 2.61$, $p < .01$.

Table 3. *Mean Ratings (and Standard Deviations) of Student vs. Nonstudent Beliefs of Software and Web-based Services*

	Students	***Nonstudents***	***Overall***
Questions	*M (SD)*		
Licensing agreements are written by lawyers to protect the company. *	5.86 (2.15)	6.88 (1.62)	6.22 (2.04)
When I pay for software, I should be able to do with it what I wish.	4.35 (2.55)	4.29 (2.79)	4.33 (2.62)
Users have no real say about licensing agreements if they want to use the software.*	5.13 (2.37)	6.00 (2.59)	5.49 (2.42)
Most companies have no intentions of deceiving their customers.	3.02 (2.13)	3.24 (2.20)	3.09 (2.15)
Governments are responsible for monitoring and controlling the Internet marketplace to protect consumers	3.62 (2.26)	2.74 (2.27)	3.31 (2.30)

Note: Scale endpoints: 0 = "Completely Disagree," 8 = "Completely Agree."
* $p < .01$, indicating a significant difference between participant groups.

DISCUSSION

The results indicate that despite reporting numerous encounters with licensing agreements, the vast majority of participants report that they do not read any of them. Some report reading portions, but very few report reading them completely. This could be a problem if people are accepting conditions described in the text that they would not agree to had they read them.

This study indicates that people may be putting themselves at risk (financial, legal, safety/security and in other potential ways, if they behave as they report in this study. Indeed, a large majority of participants report that they consider it safe to accept the agreements without reading them. This result suggests that people do not believe there are any (or many) actual risks, e.g., safety, financial or legal prosecution in their use of the associated product or service—which may or may not be true. About 70% of participants agreed to having been hesitant in accepting some licensing agreements and over 80% report that they have not used some websites because they did not want to accept the agreement. About 40% reported having negative emotions after having clicked okay without having read the agreements. Thus there appears to be some concern about accepting the agreements. Despite this apparent concern, people do not read the agreements before accepting them.

A number of human factors' explanations can be given for these results. Many of these licensing agreements are lengthy, in small print, and are often displayed through a dialog box that only shows a small amount of the fully through a small window that requires extensive scrolling. The results show that most people do not bother reading the material at

all. But even if one attempts to read it, most of those individuals would likely not complete the task given their sheer length and run-on sentences, and then not understanding the parts of the material they do read (Prichard & Hayden, 2008). Thus, it is not unreasonable that people will not even attempt to read them. The general public is usually the intended users, yet the associated licensing agreements are not usable by these same persons. People should not need to retain the services of an attorney to interpret the material! Thus, people will likely accept the licensing agreement (e.g., click on "Okay"). People know they need to do this if they want to use the software. For example, people cannot use online banking and its associated tools without agreeing to the bank's terms at the time of signup. Of course, there are alternatives, as people have the opportunity to use the bank in other ways than online. As people are required to use more and more Internet based software and applications in their work and leisure activities, they will be accepting terms that they may not want to accept but they cannot reject if they want or need to use the software. A potential implication is a loss of protection that people may want to loose. Furthermore, as the present results show, they may not know what risks they have accepted.

The negative consequence of not knowing what is in the agreements includes potential financial, safety/security, privacy, and other losses. Licensing agreements can include wording that allows companies to collect and share their personal data that could result in identity theft and consequential financial harm. If presented in easier to read formats and in clearer, comprehensible text then more people would read them and learn about the risks, and potentially make better, more informed decisions.

In the current study, there were a few differences between the student and the nonstudent volunteers. The college students reported reading some of the text in the licensing agreements more frequently than the older nonstudents, yet they expressed significantly higher levels of distrust as to whether Internet websites would distribute personal information without consent and expressed greater awareness that there was little that they could do other than to give their agreement if they want to use the website.

The findings indicate that participants are at least somewhat wary and skeptical of the situation. Participants were asked about a redesign solution. The vast majority of the participants (97%) believed that license agreements ought to be simplified and shortened. This finding is in accord with other research, e.g., in the warnings' literature, which shows that the length of text and lack of clarity impairs willingness to read the material. Indeed the literature on warning science would be a good starting point towards the goal of enhancing communication of the important parts of licensing agreements (and other legal documents) involving the highest risk and penalties so as to improve the informed consent process.

The present research suggests several follow-up studies, including more specific examinations of the ways to enhance understandability of online agreements. Some specific suggestions for improving information delivery, and more specifically, the readability of legal agreements are available in the HF/E literature (e.g., Wogalter, Conzola, & Smith-Jackson, 2002). Examples include the following:

- Removing or explaining technical language and jargon
- Shortening sentence length
- Increasing print size
- Improving formatting (e.g., using white space and highlighting)
- Prioritization (i.e., most important information at the beginning)

These are only examples of factors that could improve licensing agreements. There are other research-based guidelines on the design of effective warnings that could be considered for use in this context (Carpenter et al., 2014).

Future studies could employ comprehension and recall tests following exposure to a typical online agreement to determine whether agreements draw attention to critical points (e.g., the ones that present the most risk). In addition, research could be conducted to determine whether formative evaluation (i.e., iterative design changes) and evaluation-based checklists lead to better-formatted and understandable agreements. Additionally, symbols and other graphics might be developed to accompany certain critical text to enhance their noticeability and comprehensibility.

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