Privacy and Attitudes Towards Internet-Based Selection Systems:

A Cross-Cultural Comparison

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Abstract
This paper examines perceptions of privacy and how they relate to reluctance to submit employment-related information over the Internet. In addition, possible cross-cultural differences between the U.S. and Belgium regarding these constructs and the role of Internet knowledge are investigated. Based on theories of privacy and cross-cultural differences, a survey methodology was applied to test several hypotheses. Results suggest that privacy considerations may affect reluctance to use an Internet-based selection system. Moreover, as expected, some differences were observed between U.S. and Belgian respondents. Respondents possessing a higher self-rated knowledge of the Internet were less concerned that employment-related data submitted over the Internet would fall into the wrong hands.
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Although selecting for employment and educational purposes has been performed for many years, Internet-based selection is a relatively new area that has only recently become quite popular. Much of the current research in this area has focused on the test-user’s perspective. That is, the major focus has been on the psychometric differences between traditional (i.e., paper-and-pencil) testing and Internet-based testing. So far, results have generally supported the equivalence of these two administration modalities (see Lievens & Harris, in press, for a review).

This paper takes a different focus as we concentrate on test-takers’ reactions to Internet-based selection systems. Over the last decade, test-takers’ perceptions of selection procedures in general have received increased research attention in personnel selection (see Anderson, Born, & Cunningham-Snell, 2001; Ryan & Ployhart, 2000, for reviews). Generally, research has shown that applicant perceptions matter because selection procedures that elicit negative perceptions might affect test performance and validity, might encourage applicants to undertake legal actions, and might diminish an organization’s attractiveness (Borman, Hanson, & Hedge, 1997).

This study focuses on one specific type of perceptions about Internet-based selection systems, namely privacy perceptions. Although we focus on privacy, we acknowledge that privacy and fairness may be interrelated concepts (Bies, 1993; Eddy, Stone, & Stone-Romero, 1999). Aside from a model described by Stone and Stone (1990), the literature on privacy is not well developed in I/O psychology. Moreover, empirical research on privacy perceptions of Internet-based selection is scant. To our knowledge, only Sinar and Reynolds (2001) examined applicant reactions (including privacy) to an Internet-based test. Privacy/security concerns did
not emerge as a major issue, but the selection system of this study was carefully designed. Thus, this setting may have represented the “best of worlds” for Internet-based selection.

We believe that privacy is a relevant construct in the context of Internet-based selection for several reasons. First, Internet-based selection applications are typically non-anonymous. Second, applicants are often asked to submit personal and sensitive information through the Internet. Third, applicants know that the information is captured in electronic format, facilitating multiple transmissions over the Internet and storage in various databases. Fourth, privacy concerns might be heightened when applicants receive security messages on their computer (e.g., probes for accepting cookies). Finally, several surveys about privacy perceptions and technology in general attest that public concern over invasion of privacy is on the rise (Cho & LaRose, 1999; Fox et al., 2000; Hoffman, Novak, & Peralta, 1999; O’Neil, 2001).

The general aim of this paper is to advance research on privacy perceptions of Internet-based selection systems. Specifically, we examine perceptions of privacy regarding Internet-based selection systems and how they affect reluctance to submit employment-related information over the Internet. In studying these relationships, we also take possible cross-cultural differences and the effect of Internet knowledge into account.

Background

Conceptualizations of Privacy

Theories on privacy have distinguished various dimensions of privacy (Lee & LaRose, 1994; Stone & Stone, 1990). In the context of Internet-based selection, informational privacy is probably the most relevant dimension due to the potential for others to easily obtain large amounts of data and to efficiently combine these data with other data. Informational privacy can be defined as the “perceived control over the conditions of release, use, retention, and disposal of
personal data” (Cho & LaRose, 1999). Smith, Milberg, and Burke (1996) further conceptualized informational privacy concerns as consisting of four major dimensions: (1) collection of data, denoting concerns that there is too much data available in databases, (2) unauthorized, secondary use, relating to concerns that information collected by the organization for one purpose will be used by the same organization for a different, unauthorized purpose (internal use) or given to another party for another purpose (external use), (3) improper access, which refers to concerns that data are readily available to parties not authorized to use it, and (4) errors, namely concerns that protections against both deliberate and accidental errors in the data are not adequate. Smith et al. found that the dimensions of unauthorized secondary use and improper access were generally of greatest concern.

Stone and Stone’s (1990) comprehensive model of organizational privacy also contains a number of information variables which can affect privacy perceptions of Internet-based selection systems. These include the purpose of the information collection, the type of information, the authorization of information release, the recipient of the information, and the collection procedure. Taken together, our hypothesis was the following.

**Hypothesis 1:** Privacy perceptions of Internet-based selection systems will be related to reluctance to submit employment-related information over the Internet.

Cross-cultural Differences in Privacy Perceptions

In light of the worldwide reach of the Internet, it is important to consider cross-cultural differences in privacy perceptions. In particular, Europe and the U.S. differ substantially on a number of privacy-related factors with respect to legislation, society, and culture (Smith, 2001). First, European countries have all-encompassing privacy laws that establish a general right to privacy and install a centralized privacy agency (Milberg, Smith, & Burke, 2000). In the U.S.,
however, there are practically no federal laws regulating privacy issues in all economic sectors (Kirtley, 1999; Smith, 2001). Furthermore, the amount of governmental interference is relatively high in Europe but in the U.S. corporate self-regulation is more common (Hessler & Freerks, 1995). Finally, European law gives individuals the right to correct information that is collected about them and to object to its secondary use. No such legal requirements exist in the U.S., where (some of) these rights are only granted in limited contexts in certain industries (Smith, 2001). Taken together, these legal differences can provide a real challenge for Internet-based selection systems, as was illustrated by the conflict between Europe and the U.S. regarding the European Data Protection Directive (Kirtley, 1999; Smith, 2001).

Next, there exist societal and cultural differences in the approach of privacy. In Europe, privacy is considered to be a fundamental human right (Hessler & Freerks, 1995; Kirtley, 1999). In the U.S. however, it is up to an individual to protect his or her own privacy and privacy is usually regarded as a matter for contractual negotiation (Hessler & Freerks, 1995; Smith, 2001). Finally, cultural factors such as values, the contextual level of a culture, communication patterns, and interaction norms have been found to be related to differences in privacy perceptions (Milberg et al., 2000; Rustemli & Kokdemir, 1993; Taylor, Franke, & Maynard, 2001).

Given the fundamental differences between the U.S. and Europe, we conducted our study both in the U.S. and in Belgium, a typical European country that houses many European Union institutions. Based on the above discussion, we would expect to observe certain differences between the U.S. and Belgian samples. However, due to the complexity of the country-specific privacy-related factors, it is somewhat difficult to specify a direction for these expectations. For instance, privacy is legally better protected in Belgium, but at the same time privacy seems to be a bigger issue there. Therefore, we formulated the following general hypothesis.
Hypothesis 2: There will be differences between U.S. and Belgian respondents in (the relationship between) privacy perceptions of Internet-based selection systems and reluctance to submit employment-related information over the Internet.

Privacy Perceptions and Internet Knowledge

An ignored issue in privacy and attitudes towards Internet-based selection systems is the role of knowledge expertise. It seems reasonable that applicants possessing more Internet knowledge and experience will have more accurate privacy perceptions. With respect to reluctance to submit employment-related information over the Internet, different interpretations are possible. If knowledgeable applicants are more aware of privacy threats associated with submitting employment-related information over the Internet, they might be more reluctant to do so. Yet, their knowledge might also render them more confident about using the Internet and about protecting their privacy than less experienced applicants so that they are less reluctant to submit employment-related information over the Internet. This leads to the following hypothesis.

Hypothesis 3a: Internet knowledge will be related to privacy perceptions of Internet-based selection systems and to reluctance to submit employment-related information over the Internet.

Furthermore, given the cross-cultural differences discussed above, we would expect to find a different effect of Internet knowledge in the U.S. versus Belgian samples. For instance, we would predict that the more knowledgeable about the Internet our Belgian respondents were, the more they would understand that some protections are available for information that people submitted over the Internet. Conversely, we would expect that for the U.S. sample, the more knowledgeable they were, the more they would realize that there are only limited protections from companies disseminating such information. This leads to the following hypothesis.
Hypothesis 3b: The relationship between Internet knowledge on the one hand, and privacy perceptions of Internet-based selection systems and reluctance to submit employment-related information over the Internet on the other hand, will be different in the U.S. versus Belgian samples.

Method

Participants and Procedure

The participants were undergraduate students in the U.S. (N=64) and Belgium (N=56). The average age of the Belgian students was 21 (SD=.99); 18 were men and 38 were women. The average age of the U.S. students was slightly higher (M=24.5; SD=6.5) and there were percentage-wise more men and fewer women than in the Belgian sample (34 men and 26 women in the U.S. sample). Thus, the U.S. sample was somewhat different than the Belgian sample in terms of age and gender composition. Surveys were administered in class.

Survey Instrument

The survey items are provided in Table 1 (first column). On the basis of the privacy literature, the senior author developed seven items concerning perceptions of privacy in the context of Internet-based selection systems (items 1-7). One item of the questionnaire measured reluctance to submit employment-related information over the Internet (item 8). For the U.S. sample only, four items were developed to assess other potential problems with providing employment-related information over the Internet (items 9-12): technical problems, lying, cheating, and stealing the test questions; issues that have been raised as potential concerns about Internet-based selection systems (Lievens & Harris, in press). All items were answered using a seven-point rating scale (1=completely disagree, 4=neutral, 7=completely agree). In addition, respondents were asked to indicate how familiar they were with the Internet, using a four-point
rating scale (1= Use it sometimes; not familiar with technical issues (e.g., I do not know what “cookies” are); 4= Expert at the Internet (e.g., I can create “cookies”). The survey was translated by the third author from English to Dutch for use in the Flemish part of Belgium.

Results

Because there has been practically no prior instrument development in the area of privacy perceptions regarding Internet-based selection systems, rather combining the seven items to create a single scale score, we examined each of the items separately. Indeed, as shown next, the pattern of results differed from item to item, suggesting that collapsing the items into a single scale would not be appropriate.

We found only partial support for Hypothesis 1. As shown in Table 1, the correlations between reluctance to send employment-related data over the Internet (item 8) and the other privacy-related items in our measure were fairly modest. In the U.S. sample, reluctance to send employment-related data over the Internet was significantly correlated with four items. Among these correlations, the most striking finding was that item 9, which concerned technical problems associated with the Internet, correlated .50 with reluctance to provide employment-related information over the Internet. In Belgium, only one significant correlation was found, namely with item 1 that dealt with the concern that employment-related information submitted over the Internet may fall into the wrong hands.

Besides the fact that we found other and more significant correlations between privacy perceptions and reluctance to submit employment-related information over the Internet in the U.S. versus the Belgian sample, there were also significant mean differences between the U.S. and the Belgian sample on two of the seven privacy perception items. Compared to the U.S. sample, Belgian respondents were significantly less likely to believe that companies sell
employment-related information that they collect over the Internet and were more likely to agree that companies need approval before releasing employment-related information gathered over the Internet to other parties. U.S. and Belgian respondents did not significantly differ in reluctance to submit employment-related information over the Internet. With respect to Hypothesis 2, we can conclude that although significant cross-cultural differences emerged, there were also similarities between U.S. and Belgian respondents.

As shown in Table 1 (last two columns), there were differences between U.S. and Belgian respondents with regard to the relationship between Internet knowledge and privacy perceptions. The more knowledgeable the Belgian sample, the more likely they were to believe that companies must get approval before releasing information they obtain over the Internet. Conversely, in the U.S. sample, respondents with greater Internet knowledge were less likely to believe that an organization had to get approval. Furthermore, for U.S. respondents only, greater Internet knowledge was associated with less concern about using the Internet for submitting employment-related information. Thus, there was some support regarding Hypotheses 3a and 3b.

Discussion

In reviewing the results of this study, one important question is whether privacy is an important issue affecting participants’ willingness to submit employment-related information over the Internet. One way to address this question is to examine the mean reluctance of respondents to use the Internet to submit employment-related information. Indeed, for both the U.S. and Belgian samples, the average rating was less than 4.0, indicating their reactions were rather neutral (neither agreeing nor disagreeing). Thus, on average, respondents were certainly not opposed to supplying employment-related information over the Internet. Another way to address this question is to inspect whether privacy perceptions correlated with reluctance to
submit employment-related information over the Internet (Hypothesis 1). In this regard, the evidence is just somewhat supportive. Although there was somewhat stronger evidence for the U.S. sample showing such concerns as compared to the Belgian sample, the perception that technical problems such as computer crashes could arise was more highly correlated ($r=0.50$) with reluctance to submit employment-related information over the Internet than any of the privacy perceptions.

In addition to the different relationship between privacy perceptions and reluctance to send employment-related information over the Internet across the two countries, we also found that two of the seven privacy perceptions showed statistically significant mean differences between the Belgian and U.S. samples. These results suggest that there are some cross-cultural differences in this area (Hypothesis 2). However, there are commonalities as well, in that for several of the items, the differences were very small and not statistically significant. For instance, Belgian and U.S. respondents showed the same amount of reluctance to submit employment-related data over the Internet.

Finally, we found that respondents possessing a higher self-rated knowledge of the Internet seemed to be less concerned that employment-related data submitted over the Internet would fall into the wrong hands (Hypothesis 3a). In addition, several differences between the Belgian and U.S. samples were observed with respect to Internet knowledge (Hypothesis 3b). For the Belgian sample, we found that the more knowledge the respondent had, the more he or she believed that companies had to get approval before releasing information about a candidate. For the U.S. sample, the opposite effect was found (i.e., a negative correlation). These cross-cultural differences reflect the prevailing laws about privacy in their respective countries (Smith, 2001). In addition, in the U.S. sample, more knowledgeable respondents were less likely to agree
that such information might fall into the wrong hands and were less likely to try to avoid submitting employment-related information over the Internet. For the Belgian sample, these correlations were in the same direction (i.e., negative) but much smaller and not statistically significant.

All of this might indicate that the relationship between Internet knowledge, privacy perceptions, and reluctance to submit employment-related information over the Internet is complex, requiring further investigation. On the one hand, greater expertise could lead to a greater awareness of the dangers associated with submitting information over the Internet. On the other hand, greater expertise might lead to greater confidence and privacy protecting capabilities. Indeed, recent U.S. surveys are consistent with this interpretation. Horrigan and Rainie (2002) reported that as Internet users gained on-line experience, they were more likely to purchase on-line, to do on-line banking, to make travel reservations on-line, and to participate in on-line auctions. In other words, they seemed to be less reluctant to interact on-line and to submit personal information over the Internet. Similarly, Fox et al. (2000) concluded that although most respondents reported great concerns about their on-line privacy, the vast majority did not know the basics of how their on-line activities were being observed and subsequently did not use available tools to protect themselves (e.g., rejecting cookies).

Several shortcomings of this study should be mentioned. First, the respondents were not actual job candidates and therefore their reactions may have been different if they were using a specific Internet-based selection system. Second, our sample sizes were rather small, reducing the generalizability. Third, we were not able to use confirmatory factor analysis to examine the measurement equivalence of our measure prior to testing for mean differences across our samples. It is possible, then, that some of the cross-cultural differences that we observed here
were actually due to a lack of measurement equivalence. Alternatively, we have no way of knowing whether such things as differences in job seeking experience between the Belgian sample and the U.S. sample might account for the cross-cultural effects we detected. Fourth, we used a simple measure of privacy. It may be that there are other critical aspects to privacy that were not measured here, which nevertheless may be important in understanding reluctance to use Internet-based selection systems. Finally, common method variance may explain some of the results.

In the field of I/O psychology, there is a paucity of research on privacy perceptions. Future research is needed to develop good definitions, conceptualizations, and measures of privacy, particularly with regard to Internet-based selection systems. Future research should also shed light upon the antecedents (e.g., control over information release) and consequences (e.g., socially desirable responding) of applicants’ privacy concerns (Lievens & Harris, in press). Furthermore, we should investigate under which conditions (e.g., use of disclaimers) privacy concerns might be reduced. Finally, our findings regarding cross-cultural differences indicate that future research should not only use North-American respondents but also respondents from other parts of the world. Of particular value here would be to use theory or objective differences (Hofstede, 1980) to derive specific predictions for such differences (e.g., Milberg et al., 2000).
References


Privacy and Internet-Based Selection


Privacy and Internet-Based Selection

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Table 1: Survey Items, Means, T-test Results, and Correlations for Belgian Versus U.S. Ratings

<table>
<thead>
<tr>
<th>Description of item</th>
<th>Means</th>
<th>Correlations with</th>
<th>Correlations with</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Belgium</td>
<td>U.S.</td>
<td>item 8</td>
</tr>
<tr>
<td></td>
<td>(N=56)</td>
<td>(N=64)</td>
<td></td>
</tr>
<tr>
<td>1. Employment-related information (e.g., answers to a test) that</td>
<td>4.89 (1.15)</td>
<td>4.89 (1.83)</td>
<td>.01</td>
</tr>
<tr>
<td>I submit over the Internet may fall into the hands of people I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>would rather not have see it.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. It is easy for a “hacker” to break into databases containing</td>
<td>5.36 (1.09)</td>
<td>5.27 (1.59)</td>
<td>.36</td>
</tr>
<tr>
<td>employment-related information (e.g., answers to a test) obtained over the Internet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Companies sell employment-related information (e.g.,</td>
<td>3.68 (1.35)</td>
<td>4.88 (1.82)</td>
<td>-4.0**</td>
</tr>
<tr>
<td>answers to a test) that they collect from unsuspecting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>applicants over the Internet.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Even the most secure Internet connection can be broken into</td>
<td>5.68 (1.22)</td>
<td>6.06 (1.30)</td>
<td>-1.6</td>
</tr>
<tr>
<td>if someone wants to.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Before they release employment-related information (e.g.,</td>
<td>6.39 (1.06)</td>
<td>5.19 (1.76)</td>
<td>4.5**</td>
</tr>
<tr>
<td>answers to a test) gathered over the Internet to other parties,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>most companies must have approval from the applicant who provided this information.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. There are strict laws protecting the confidentiality of</td>
<td>4.68 (1.47)</td>
<td>4.73 (1.63)</td>
<td>-.2</td>
</tr>
<tr>
<td>employment-related information submitted over the Internet.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. It is important to submit employment-related information (e.g., answers to a test) only to a website that has guaranteed privacy.  
5.91 (1.13) 5.83 (1.40) .35 .20 -.18 .13 .05
8. I would avoid submitting employment-related information over the Internet.  
3.68 (1.67) 3.94 (2.01) -.76 -- -- -.08 -.25*
9. Taking an internet-based employment test can put one in a major disadvantage because of technical problems (e.g., crashes, software problems, slow speed).  
-- 3.90 (2.02) -- -- .50* -- -.27*
10. It is probably easier to lie when giving employment-related information over the Internet than on a paper-and-pencil form.  
-- 4.49 (1.78) -- -- .05 -- -.14
11. It is probably easier to cheat on a psychological test given over the Internet than one given on a paper-and-pencil form.  
-- 4.36 (1.96) -- -- -.10 -- .03
12. People more often steal employment-related tests that are administered over the Internet than paper-and-pencil forms.  
-- 4.56 (1.94) -- -- .08 -- -.12

Note: Dashes indicate that these values could not be computed because items 9, 10, 11, and 12 appeared only in the U.S. survey. Standard deviations are in parentheses.

† p < .10 * p < .05 ** p < .01.