Job seekers' attitudes toward cybervetting: Scale development, validation, and platform comparison

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Abstract

The present research describes the development and validation of a measure of job seekers'

attitudes toward cybervetting (ATC). Study 1 involved a sample of participants completing an

initial pool of items focusing on one platform (i.e., Facebook) and conducting an exploratory

factor analysis (EFA). Study 2 included a confirmatory factor analysis (CFA) and an exploratory

structural equation model (ESEM) to establish convergent and discriminant validity. Results of

both studies confirmed that the hypothesized three-factor structure (perceived justice, privacy

invasion, and face validity) provided a good fit to the data, explained over 67% of total variance,

with all three factors demonstrating high internal consistencies. Study 3 examined the

measurement equivalence of the ATC measure, and demonstrated its factor structure and

reliability, across four social media platforms (Facebook, LinkedIn, Twitter, and Instagram).

Comparing applicants' attitudes across platforms showed significantly more favorable

perceptions toward LinkedIn-based cybervetting than for the other three platforms.

Keywords: cybervetting, hiring, selection, social media, scale development, Facebook,

LinkedIn

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As of January 2020, 49% of the global population is active on social media at least once a month (Clement, 2020). This percentage is much higher for industrialized cultures and countries such as the United States, where approximately 80% of the population uses social media regularly. As these percentages continue to increase, it is no surprise that screening the social media profiles of job applicants (a process known as "cybervetting") has become common practice in hiring and selection processes (SHRM, 2013; Woods, Ahmed, Nikolaou, Costa, & Anderson, 2019). According to Landers and Schmidt (2016), it is now widely acknowledged that many employers in industrialized countries consult social media when making selection decisions, and in most cases without the awareness of applicants. For example, surveys of American and European human resource professionals have reported that up to 85% of managers or organizations have used LinkedIn and 78% have used Facebook for selection purposes (Berkelaar, 2017; Kluemper, Mitra, & Wang, 2016).

Social media is so common in industrialized cultures that not having an online profile sometimes results in employers making assumptions about social-, technology-, and computer-related competencies (Stoughton, Thompson, & Meade, 2015). Additionally, recent studies with professional hiring managers (Berkelaar, 2017; Hartwell & Campion, 2019; Tews, Stafford, & Kudler, 2020) and university students with no actual hiring experience (Melton, Miller, Jensen, & Shah, 2018) highlight that both groups provide similar reasons for wanting to engage in cybervetting and similar ways in which they are influenced by an applicant's social media presence. For example, both hiring managers and students believe that screening applicants' social media profiles allows for an assessment of their personality that is less influenced by

impression management as compared to conducting an in-person interview. Additionally, both managers and students mainly want to use personal social media platforms (e.g., Facebook) to search for negative information or "red flags". Preliminary evidence also suggests that the reliability, validity, practicality, legality, and ethicality of cybervetting are mixed at best (Roulin & Levashina, 2019; Van Iddekinge, Lanivich, Roth, & Junco, 2016; Zhang et al., 2020). It is also unlikely that the selection systems put in place by organizations can evolve as quickly as social media does, which may make it difficult to establish standardized procedures for cybervetting that remain adequate and valid over time (Landers & Schmidt, 2016; Woods et al., 2019).

Applicant attitudes and reactions represent a central element to determining the practical value of selection methods (e.g., Anderson, 2003). Preliminary evidence suggests that applicant reactions to learning that the hiring organization engaged in cybervetting are largely negative (Stoughton, 2016; Stoughton et al., 2015). Unfortunately, existing research to date has largely comprised ad-hoc measurements or items borrowed from attitudes toward traditional selection methods. Thus, researchers have been calling for the development of psychometrically-sound measures of attitudes toward cybervetting (Nikolaou, 2014; Woods et al., 2019).

The present research includes a series of three studies that contribute to the growing literature on social media use in selection in the following key ways: First, we develop a 3-factor measure of job seekers' attitudes towards cybervetting (ATC), building on the theoretical and empirical work conducted over the last decade. Second, we examine the ATC factor structure, construct validity, and reliability. Third, we demonstrate its applicability across four of the most popular social media platforms. Finally, we highlight which social media platforms are perceived as more vs. less problematic by job seekers when it comes to having their profile cybervetted.

Applicant Attitudes Toward Cybervetting

Job seekers have more nuanced opinions toward cybervetting than simple approval or disapproval. For example, applicants may believe that having their profile screened would be effective for assessing their personality but they feel that their privacy would be invaded by doing so. In the extant literature discussing applicants' nuanced attitudes toward cybervetting (e.g., Davison, Bing, Kluemper, & Roth, 2016; Stoughton et al., 2015), three main elements consistently emerge: privacy invasiveness, validity, and justice (or fairness). These three factors also align with the three situation-based factors of overall applicant reactions identified by McCarthy et al. (2017), but with specific relation to cybervetting.

Privacy Invasiveness

Social media platforms allow individuals to connect and share thoughts, feelings, pictures, and more. When posting these types of personal information, most people are not expecting employers to use them to evaluate job-related competencies (Mgrditchian, 2015). However, behaviors, values, or competencies shown through group affiliations, friendships, photographs, and commentary are exactly what employers look for to determine the organizational fit of an applicant (Davison et al., 2016; Hartwell & Campion, 2019; Roulin & Bangerter, 2013; Tews et al., 2020; Zhang et al., 2020). Seminal privacy research from both Altman (1975) and Westin (1967) shows that there is a preference for boundaries between an individual and the environment in which they operate. More recently, Margulis (2003) states that maintaining such boundaries are critical to not only the privacy of the individual, but also to the preservation of one's self-identity and individuality.

Most social media platforms offer a set of privacy guidelines and settings to their users. However, these can fail to protect job applicants' profiles from prospective organizations screening them. Although there are now trends in legislation inhibiting organizations from requesting applicants' social media passwords to conduct screening, there is nothing preventing them from vetting whatever is available for the public to see (Davison et al., 2016; Kluemper, Davison, Cao, & Wu, 2015). In fact, a recent study of hiring managers revealed that they generally believe any personal information on the internet can be used to inform decisions, because the applicant has chosen not to keep that information private (Backman & Hedenus, 2019). However, this is a double-edged sword for applicants because not posting "enough" information can be viewed as the applicant having something to hide or signaling a lack of technology-related competency (e.g., Carr, 2016). Ultimately, organizations have been known to screen social media profiles without the knowledge of the job applicant (Davison et al., 2016), and applicants largely see such practices as invading their privacy (Stoughton et al., 2015). In the current study, we propose to define perceived privacy invasiveness as applicants' discomfort with having their personal information (e.g. profiles, pictures, etc.) accessed and used by organizations without their permission or knowledge.

Validity

When using any selection method, it is important to determine its effectiveness (Binning & Barrett, 1989; Gatewood, Feild, & Barrick, 2008). For instance, how reliable the method is to assess specific traits or skills and how valid it is to predict job performance or person-organization fit. To meet such standards, organizations are usually encouraged to establish a standardized scoring mechanism that should be used across the applicant pool (Gatewood et al., 2008). Although similar recommendations have been made for cybervetting, the practice is

largely unstandardized (e.g., Davison et al., 2016; Roth, Bobko, Van Iddekinge, & Thatcher, 2016) similar to unstructured interviews and resumé evaluation (Gatewood et al., 2008; Highhouse, 2002). One hiring manager who is screening an applicant's profile without any established criteria can have completely different perceptions compared to another manager assessing the same applicant but using their own criteria (Backman & Hedenus, 2019). This lack of standardization prevents consistent, reliable, and valid screening of an applicant's social media profile. Moreover, research suggests that even when raters follow a standardized approach, the obtained reliability and validity are only weak-to-moderate at best (Roulin & Levashina, 2019; Zhang et al., 2020).

In addition to not having standardized scoring, organizations often do not consider the same social media platforms for all applicants (Davison et al., 2016). For instance, instead of looking at LinkedIn profiles for all applicants, organizations may look at LinkedIn for one and Twitter for another. This discrepancy is another cause for concern, given that hiring professionals often look for negative information on personal social media sites (i.e., Facebook), but look for more positive information on professional sites such as LinkedIn (Hartwell & Campion, 2019; Tews et al., 2020). Further, applicants are not all posting the same type or quantity of information on their profiles. While some users may only post status updates monthly, other applicants may post pictures, comments, and videos daily. Thus, the amount of information available to employers is incomparable in most cases. In the current study, we propose to examine validity as applicants' perceptions of how effective cybervetting is in determining the best applicant. In other words, this element represents the face validity of cybervetting as a selection tool (see Thomas, Hathaway, & Arheart, 1992).

Justice

While there are different forms of justice in the selection context (Gilliland, 1993),

research on cybervetting has typically focused on procedural justice, which is the perceived

fairness of the process resulting in the hiring decision (Stoughton et al., 2015). An applicant will

view procedural justice as the organization's ability to adhere to procedures that are consistent

with their personal moral and ethical values (Leventhal, 1980). Applicants tend to trust a

procedure more if the content being evaluated is job-related (Ployhart & Ryan, 1997; Rynes,

1993), but most applicants do not believe that their social media profiles demonstrate job-related

content (Duffy, 2006; Levinson, 2009; Schiffman, 2007).

Both McCarthy et al. (2017) and Stoughton (2016) suggest that justice may be the most

central issue for applicants being cybervetted. Previous research indicates that justice perceptions

are a direct antecedent of important outcomes such as organizational attractiveness (Bauer et al.,

2006). Stoughton et al. (2015) show that procedural justice perceptions are also a direct

antecedent of organizational attractiveness, specifically within the context of cybervetting. With

the abundance of research examining the procedural justice and overall fairness of cybervetting

in selection, it is clear that perceived justice is an important factor for applicants. In the current

study, we propose to define perceived justice as applicants' perceptions of the fairness of

organizations using social media profiles as a tool for selection.

The Importance of Applicant Attitudes Towards Cybervetting

Organizational attractiveness has been found as both a general and multidimensional

concept consisting of general attractiveness, intentions to pursue employment with an

organization, and perceptions of an organization's prestige (Highhouse, Lievens, & Sinar, 2003).

These facets represent the feelings of applicants as they undergo the selection process. Since the

selection process is likely the first encounter the applicant has with the organization, they are

also forming judgements about the organization (Gilliland, 1993). Similarly, Stoughton et al. (2015, p. 76) state that "*poor treatment by the organization during the selection process may be interpreted as an indication of how the organization treats employees and how the individual may be treated in the future*." As a result, applicants who have unfavorable views about an employer's selection procedure will also have unfavorable views of working for that employer and be less likely to accept a potential job offer. This is a critical point because existing research shows that applicants' attitudes toward cybervetting are mostly unfavorable (Stoughton, 2016).

In an experimental study, Madera (2012) demonstrates that both applicants and incumbents had worse perceptions of, and lower interest in pursuing employment in, organizations using cybervetting. Additionally, Sanchez, Roberts, Freeman, and Clayton (2012) indicate that including measures of social media presence in the selection process was viewed unfavourably among students. Applicants made aware of cybervetting practices tend to be more careful about what they post online (Roulin, 2014), which counteracts what is arguably the main reason why hiring professionals tend to engage in cybervetting; to better understand who the applicant truly is (Berkelaar, 2017). If applicants perceive the selection process of an organization to be unfair, they may also be more likely to post negative opinions of the organization online (Woods et al., 2019). Finally, when applicants who are cybervetted experience increased privacy invasion or lower perceptions of fairness, they ultimately report higher intentions toward pursuing litigation (Stoughton et al., 2015; Stoughton & Van Overberghe, 2015).

Overall, organizations should strongly consider applicants' attitudes toward the privacy invasion, face validity, and perceived fairness involved in cybervetting. Applicants might react differently based on the specific cybervetting approach used by an organization, however, the

"reaction generalizability hypothesis" (Anderson, Salgado, & Hülsheger, 2010) suggests that

applicants have consistent reactions to a particular selection method across jobs or organizations.

For instance, while applicants can have specific views about the unique questions a hiring

manager might ask in a job interview, they form general attitudes and reactions towards

structured vs. unstructured interviews (e.g., Moscoso, 2000). Similarly, job seekers are likely to

form general attitudes towards cybervetting, which seem to be largely negative as the literature

shows. Unfortunately, validated and psychometrically-sound measures of attitudes toward

cybervetting specifically are lacking (Nikolaou, 2014; Woods et al., 2019).

The Present Research

Overall, the burgeoning literature presented above on how organizations use social media

in the selection process suggests that job seekers' attitudes towards cybervetting (ATC) should

involve three key elements: privacy invasiveness, face validity, and perceived justice. As such,

we expect to establish and validate a 3-factor ATC measure:

Hypothesis 1: Factor analyses will demonstrate three overarching ATC factors

representing privacy invasiveness, face validity, and perceived justice.

Job seekers who spend more time on a specific social media platform like Facebook, and

are more addicted to it, should be more accepting of its usage in employment screening. That is,

they should perceive it is more valid and just, and experience less privacy invasion when

employers use it. In addition, people vary in their general views about the internet being a safe

vs. a dangerous place in terms of privacy. Job seekers with more general internet privacy

concerns should also be particularly concerned about employer cybervetting as invading their

privacy. However, there should be no (or smaller) associations with their views on the validity or

justice of such practices. Importantly, a measure of ATC like the one developed in the current research should still be distinct from either of these two constructs. Thus, we propose the following hypotheses using the most popular social media platform, Facebook:

Hypothesis 2: Addiction to Facebook will be (a) negatively associated with privacy invasiveness, and positively associated with both (b) face validity and (c) perceived justice.

Hypothesis 3: General internet privacy concerns will be (a) positively associated with privacy invasiveness, but not with (b) face validity or (c) perceived justice.

Research on cybervetting tends to distinguish between personal social media platforms (e.g., Facebook) and professional platforms (e.g., LinkedIn; Roulin & Bangerter, 2013; Hartwell & Campion, 2019). Interestingly, the accumulated evidence suggests that the psychometric properties of LinkedIn-based assessments (e.g., reliability, validity, protection against adverse impact; Roulin & Levashina, 2019) largely outperform those for Facebook-based assessments (Van Iddekinge et al., 2016, Zhang et al., 2020). Similarly, although the majority of research focused on personal platforms such as Facebook has mostly found negative reactions toward cybervetting, LinkedIn appears to generate less negative reactions (Roulin & Levashina, 2019; Stoughton, 2016). As an example, Hartwell (2014) compares attitudes toward Facebook and LinkedIn, and found that Facebook was perceived as more invasive, less procedurally just, and less job-relevant than LinkedIn. However, the research presented by Hartwell included only a small sample of undergraduate students and did not compare other social media platforms included in the current study. Yet, we expect that professional social media (i.e., LinkedIn) will generally be associated with more positive attitudes than personal social media (i.e., Facebook, Twitter, or Instagram):

Hypothesis 4: Job seekers will report (a) lower privacy invasiveness, but (b) higher face validity and (c) higher perceived justice for LinkedIn than for the three other platforms.

Overview of Studies

We present below a series of empirical studies to develop and validate a 3-factor measure of attitudes toward cybervetting (ATC), and to demonstrate its value across popular social media platforms. We relied on established guidelines for scale development (Clark & Watson, 1995; Hinkin, 1998; Worthington & Whittaker, 2006), as well as recent successful examples of scale development in personnel selection (e.g., Levashina & Campion, 2007). A preliminary phase involved a literature review, item generation, and initial item content validation process using subject matter experts (SMEs). Study 1 involved a sample of participants completing the 18 items retained for the scale focusing on one platform (i.e., Facebook) and conducting an exploratory factor analysis (EFA). According to Hinkin (1998), EFA is a necessary step of scale development to reduce the number of items and provide evidence of construct validity.

Following an EFA, confirming that the same factor structure fits in a different sample of participants and demonstrating discriminant validity to establish a nomological network is essential for scale development (Hinkin, 1998). Thus, Study 2 encompassed a confirmatory factor analysis (CFA) which tested the overall goodness-of-fit of the structure resulting from the EFA, and an exploratory structural equation model (ESEM) to establish convergent and discriminant validity. To establish our nomological network, we relied on two measures: the Bergen Facebook Addiction Scale (BFAS; Andreassen, Torsheim, Brunborg, & Pallesen, 2012) and the Internet Users' Information Privacy Concerns scale (IUIPC; Malhotra, Kim, & Agarawal, 2004).

Finally, it is necessary to demonstrate measurement equivalence across multiple platforms in order to compare and contrast how applicant attitudes differ between those platforms. Accordingly, Study 3 included an analysis of measurement equivalence using the ATC scale for four social media platforms (Facebook, LinkedIn, Twitter, and Instagram), and compared applicant attitudes toward cybervetting across those platforms. Participants completed a revised version of the ATC scale for each of the four platforms that they reported using.

Preliminary Phase: Item Generation and Content Validation

In order to form our construct definitions and guide our item creation process, we used a deductive approach as described by Hinkin (1998). This involved a review of cybervetting literature conducted by three of the authors. An initial set of 37 items were generated based on the construct definitions for privacy invasiveness, face validity, and perceived justice mentioned above. Five subject matter experts (i.e., individuals with long-term employment experience, and various educational backgrounds) were then asked to sort the items into the three constructs using the given definitions. According to Hinkin (1998), using a sorting process with multiple judges helps establish content validity. Adhering to Hinkin's suggestion of a minimum 75% threshold for agreement, any item with more than one sorting error was removed, indicating at least 80% agreement. Overall, 20 items of 37 passed that threshold. However, 4 additional items were retained for the next stage of the item development process after being reworded based on helpful suggestions from the subject matter experts. Thus, 13 items were completely removed in this stage due to confusion between the items and construct definitions.

At this point, another group of five subject-matter-experts (industrial-organizational psychology graduate students) evaluated how essential each item was to the construct it was

intended to measure (on a 1-3 Likert scale; not essential, somewhat essential, or essential). The subject-matter experts also provided comments on the quality and clarity of item wording. Adhering to the threshold of 80% agreement, only items with at least four out of five ratings in the "somewhat essential" or "essential" categories were retained. Six items were removed based on this rating process. As a result, 18 items remained, with six items for each of the three hypothesized factors.

Study 1: ATC Initial Factor Structure Examination

Methods

Sample. A total of 506 participants from the Mechanical Turk (MTurk) online survey platform were recruited for the combined purposes of Studies 1 and 2. This data collection was part of a larger survey, which took approximately 30 minutes and participants were compensated with USD $3.00. Twenty-three individuals who were not residents of U.S. or Canada, who were younger than 18, or reported not having a Facebook account, were all removed. An additional 52 respondents were removed because they failed at least one of the three attention checks embedded in the survey (i.e., did not respond "strongly disagree" to "I have never used a computer," "I eat cement occasionally," and "I can teleport across time and space"). The remaining 431 participants were then randomly split into a sample of 216 to be used for Study 1, and a sample of 215 to be used for Study 2. This "split-halves" method is a reasonable alternative to collecting two separate samples of data when the goal is to conduct an EFA and CFA (Hinkin, 1998), and still provide an adequate sample-to-variable ratio (at least 12:1) for both analyses.

Overall, the sample of 216 participants used for Study 1 was gender-balanced (49.5% female, 49.5% male). The average age was 35.37 ($SD = 10.09$), with 81% of participants

identifying as Caucasian, 8.3% as Black/African American, 4.2% as Hispanic/Latino, 3.7% as

Asian, and 2.8% as Indigenous, Mixed-race, or "other". Over half (53.8%) of participants were

college/university-educated, while 40.7% had a high school diploma. Over 91% of the

participants were currently employed, with 73.8% working full-time. Only one participant

(0.5%) lived in Canada while the other 99.5% lived in the United States.

   Measures.

   Attitudes Toward Cybervetting (ATC). The ATC scale was developed in the current study

to measure applicant attitudes toward employers using social media as a selection tool. The

initial scale consisted of 18 items, with six items for each of the three factors; privacy

invasiveness, face validity, and perceived justice. All items are designed to be usable across

social media platforms in general (e.g., "I believe I should be held professionally accountable for

anything on my [social media] profile"), or any specific platform that the researchers are

interested in by replacing "social media". For the current study, Facebook was used (e.g., "I

believe I should be held professionally accountable for anything on my Facebook profile"),

because it is the most popular platform worldwide. Responses were indicated on a five-point

Likert-scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*). An example item for privacy

invasiveness is "I would be concerned if I knew a potential employer might access my Facebook

profile." An example item used to measure validity is "A potential employer could accurately

assess how reliable I am based on my Facebook profile." Finally, an example of a justice item is

"It is fair for a potential employer to eliminate me from the application process based on

information they acquired from my Facebook profile." Since "privacy invasiveness" is a

negative construct, higher scores on this factor represent negative attitudes, while higher scores

on the validity and justice factors both represent positive attitudes. Item order was randomized.

Results

Scores obtained on the ATC scale were initially analyzed using principal axis factor analysis with oblique factor rotation (Promax). The oblique rotation method was used as the three factors were expected to correlate since they are components of overall attitudes toward cybervetting. In line with recommendations for validating a new scale, multiple criteria were considered: theoretical considerations, the Kaiser criterion, scree plot, eigenvalues, and the percentage of variance explained. The preliminary EFA with all 18 items resulted in a three-factor model. Upon inspection of the factor loadings and descriptive statistics, two items were identified as problematic due to high cross-loadings and extremely skewed responses. These two items were removed from the scale. A subsequent factor analysis was conducted with the remaining 16 items, and again resulted in the hypothesized three-factor structure. However, two more items were identified as problematic due to weak factor loadings, and both items were removed. With the remaining 14 items, a third and final EFA was then conducted and resulted in the three-factor structure presented in Table 1. This structure explained 67.4% of total variance, with factor loadings ranging from .53 to .99 (and no cross loading stronger than [.26]). The final number of items resulted in good variable-to-factor ratios and high internal consistency reliabilities, with six items for perceived justice (α = .90), five for privacy invasiveness (α = .83), and three for face validity (α = .82). It is noted that that two items which clearly loaded on the perceived justice factor were initially hypothesized to belong to the privacy invasiveness (item PJ5) and face validity (item PJ3) factors, respectively. A critical review of the item wording confirmed that these items were worded in such a way that supported their loadings on the perceived justice factor. The wording of item PJ5 ("I think it is fine for a potential employer to document information from my Facebook profile in any way") indeed makes it about the

fairness of an employer's actions, which is highly similar to other justice items. Similarly, the second half of item PJ3 ("I believe that screening my Facebook profile is an effective tool for an employer to use in the hiring process") steers it toward the fairness of an employer using cybervetting as a tool, whether it is effective or not.

Study 1 Discussion

In summary, the final 14-item scale (6 perceived justice, 5 privacy invasiveness, 3 face validity) provides support that there are three important, yet distinct, attitudes that applicants have toward social media profiles being used in the hiring process. The resulting three factors explained 67% of the total variance, which is indicative of a complete factor structure according to Hinkin (1998). In addition, multiple indicators of fit and factor structure were used and best practices were followed according to Conway and Huffcutt (2003). Although the three factors were somewhat highly correlated, this was expected given that they are all related to more general attitudes toward cybervetting. However, before claiming that this 3-factor structure is consistently meaningful, it must be supported by a CFA in a separate sample, which is the main goal of Study 2.

Study 2: ATC Factor Structure Confirmation and Construct Validity Examination

Methods

Sample.

The sample consisted of 215 North American participants, with 50.7% female and 48.8% male.[1] Average age was 35.27 (SD = 10.06), with 76.3% of participants identifying as

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[1] As mentioned above, the data for Studies 1-2 were collected together and randomly split into two equal samples. Study 2 sample consists of 215 participants who were not included in the analysis of Study 1.

Caucasian, 9.3% as Black/African American, 7.9% as Asian, 4.2% as Hispanic/Latino, and 2.3%

as Indigenous, Mixed-race, or "other". Fifty-five percent of participants were college/university

educated, and 41.4% had a high school diploma. Most participants (90.7%) were currently

employed. Once again, only one participant (0.5%) lived in Canada while the other 99.5% lived

in the United States.

     Measures.

     Attitudes Toward Cybervetting (ATC). Following Study 1, the resulting 14-item version

of the ATC was analyzed in this study. This version contains six items for perceived justice, five

items for privacy invasiveness, and three items for face validity. Similar to Study 1, all items

were directed toward Facebook-specific cybervetting. All other aspects of the measure (e.g.,

scale points, item randomization) were the same as in Study 1.

     Facebook Addiction. The six-item ($\alpha = .85$) Bergen Facebook Addiction Scale (BFAS;

Andreassen et al., 2012) was used to measure participants' behaviors associated with Facebook

addiction, including tolerance and withdrawal. Participants were asked "How often during the

last year have you…" and responded to items such as "Tried to cut down on the use of Facebook

without success?" using a five-point Likert-scale ranging from 1 (*Very rarely)* to 5 (*Very Often*).

Item order was randomized.

     Internet Privacy Concerns. A 14-item ($\alpha = .92$) version of the Internet Users'

Information Privacy Concerns scale (IUIPC; Malhotra et al., 2004) was used to measure internet

privacy concerns. Only the four most relevant factors (user control, awareness of privacy

practices, information collection, and unauthorized secondary use) were used and a composite

mean was computed. Participants indicated how much they agreed with each statement using a

seven-point Likert-scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). An example

item is "Companies seeking information online should disclose the way the data are collected,

processed, and used." A higher score indicates greater concerns about internet privacy. Item

order was randomized.

Results.

      Confirmatory Factor Analysis. Results from the CFA yielded results similar to the EFA

in Study 1, with pattern coefficients that were all reasonably robust, ranging from .52 to .86 (see

Table 2). All fit indices indicated a very good fit with the data, superior to commonly-used cut-

off criteria (e.g., Hu & Bentler, 1999), with $\chi^2 = 162.03$, $\chi^2/df = 2.19$, CFI = .95, TLI = .94,

SRMR = .05, and RMSEA = .07 [90% CI (.06, .09)]. Taken together, these results and the final

EFA of Study 1 support a consistent 3-factor structure, and thus support Hypothesis 1.

      Convergent/Discriminant Validity. The means, standard deviations, and correlations for

all study variables are presented in Table 3. Correlations among the three ATC factors were

moderate in size (-.43 to .61). In line with Hypothesis 2a, Facebook addiction was positively

correlated with the perceived justice factor ($r = .16$, $p = .02$). However, contrary to Hypotheses

3b-c, it was not significantly correlated with the privacy invasiveness factor ($r = .04$, $p = .59$) or

face validity factor ($r = .12$, $p = .09$). Consistent with Hypothesis 3a, internet privacy concerns

were positively correlated with the privacy invasiveness factor ($r = .31$, $p < .001$). However,

contrary to Hypotheses 3b-c, IUIPC scores were also significantly negatively correlated with

both the perceived justice factor ($r = -.35$, $p < .001$) and face validity factor ($r = -.35$, $p < .001$).

To further confirm the discriminant validity and nomological network of the ATC scale,

Exploratory Structural Equation Model (ESEM) analyses were conducted (see Table 4). The first

model tested included all items mapping onto their latent variable (i.e., the three ATC factors,

Facebook addiction, and internet privacy concerns) and all covariances between the five latent

variables. This model did not provide evidence of acceptable fit to the data. Thus, in a second

model, three non-significant covariances between latent variables were removed (i.e., fixed to

zero), though this did not result in improved model fit. The third and final model tested involved

freeing nine covariances between error terms all within the internet privacy concerns variable

(based on modification indices). This model demonstrated good fit with the data (e.g., $\chi^2/df =$

1.72, CFI = .91, TLI = .90, RMSEA = .06), with scale items only loading on their respective

construct, and no covariances between error terms of the ATC.

Study 2 Discussion

The CFA results and fit indices suggest that the ATC scale items are explained and

modelled well by the three latent constructs of perceived justice, privacy invasiveness, and face

validity. Given that this structure has now appeared strong in two different samples, there is

support that this 3-factor structure of the ATC is consistent and reliable for Facebook

cybervetting. The results of the ESEM analyses provide evidence that the constructs and factor

structure of the ATC scale are distinct from the other conceptually-related constructs.

Participants with higher Facebook addiction reported slightly higher perceived justice

perceptions. Indeed, their addiction requires them to post on Facebook more regularly, which

could make cybervetting appear more justified and fairer. However, Facebook addiction was

unrelated to privacy invasiveness or face validity. Perhaps attitudes surrounding one's privacy

being invaded and effectiveness of cybervetting are so unwavering that how much time one

spends on Facebook does not impact these attitudes. It should also be noted that the mean

Facebook addiction score was 1.71 on a 1-5 scale which may limit relationships due to range

restriction, although similar means have been reported in the previous literature (e.g., Blachnio,

Przepiorka, Senol-Durak, Durak, & Sherstyuk, 2017).

General internet privacy concerns were positively correlated to privacy invasiveness

perceptions, as hypothesized, providing some evidence of convergence between the two.

However, the somewhat low correlation also confirms that the two constructs are not identical.

Unexpectedly, internet privacy concerns were significantly negatively correlated to both the face

validity and perceived justice factors. The IUIPC scale captures concerns surrounding *why* and

how organizations may invade privacy of individuals, meaning that items include reasons *and*

practices. Thus, individuals who are more concerned with their privacy may also consider

methods they deem invasive (e.g., cybervetting) both invalid and unfair. For example, the item

"Online companies should never sell the personal information in their computer databases to

other companies" is assessing both privacy invasiveness and perceived justice. In hindsight, the

negative correlations that were found are not surprising.

Table 3 indicates that age, gender, education, and employment status, were not related to

any of the three ATC factors. Perhaps future research could explore whether personality might

be significantly related to the perceived justice, privacy invasiveness, and face validity factors. A

limitation of Studies 1 and 2 is that both samples were collected together at the same time and

through the same source. Thus, if there are similarities between MTurk users who are online

during the specific days of the week or time of year that data was collected, the ability to

replicate the same model in Study 1 and Study 2 may have been inflated. Further, Studies 1 and 2

only focused on Facebook cybervetting specifically. As such, Study 3 was conducted to (a)

include a more diverse set of participants and (b) demonstrate that the ATC scale can effectively

measure attitudes toward other social media platforms.

Study 3: Examining the ATC Scale Across Social Media Platforms

Methods

Sample. A total of 417 participants were recruited through Mechanical Turk (251), the online survey platform Prolific (124), and social media (42). Participants were only asked to complete the study if they indicated that they were actively seeking a job, lived in either Canada or the United States, and were regular users of at least one of the following platforms: Facebook, Twitter, Linked, or Instragram. Twelve participants (all from the social media recruitment) were removed from the sample due to not living in either of the two eligible countries. Due to failing attention-check items (using the same process as Study 1), 100 more participants were removed (77 from MTurk, 11 from social media, and 12 from Prolific). Thus, the final sample consisted of 305 participants (174 MTurk, 19 social media, and 112 Prolific). This sample was 56.4% male, 43% female, and the average age was 31.38 ($SD = 9.35$). Regarding ethnicity, 66.6% of participants identified as Caucasian, 11.8% as Asian, 8.2% as Black/African American, 7.9% as Hispanic/Latino, and 5.6% as either Native American, Middle Eastern, or "other". Over two thirds (67.9%) of participants were college/university-educated, while 29.2% had a high school diploma. The majority (69.2%) of participants were currently employed with 30.8% indicating that they were unemployed. The U.S. was home to 79.0% of participants and the other 21.0% lived in Canada.

Measures. Participants were first asked which social media platforms they currently use, from the options of Facebook, Twitter, LinkedIn, and Instagram. The 14-item ATC scale was then administered for any social media platform that participants reported using. Therefore, a participant who reported using all four social media platforms would complete the ATC scale

once for each platform, while a participant who reported only using Facebook would only complete the ATC scale once for Facebook. All other aspects of the measure (e.g., scale points, item randomization) were the same as Studies 1 and 2.

For each platform that they reported using, participants were also presented with a short description of a situation in which an employer asks for their social media password during the selection process adapted from Schneider, Goffin, and Daljeet (2015). Participants were asked to respond whether they would or would not give their password in the hypothetical situation.

Results

Overall, 259 participants reported using Facebook (84.9%), 198 Twitter (64.9%), 174 LinkedIn (57.0%), and 190 Instagram (62.3%). Internal consistency estimates ranged from .75 to .92 for the three ATC factors across all four platforms. All descriptive statistics, correlations, and scale reliabilities are presented in Table 5.

Measurement Invariance Testing

Before comparing scores on the ATC factors for the four social media platforms, a series of exploratory structural equation models (ESEMs) were conducted to examine the measurement equivalence of the ATC scale across social media platforms. All key results and fit indices are presented in Table 6. First, four separate ESEMs (one per platform) were performed to independently examine whether the ATC 3-factor structure held and if the factor loadings were similar across platforms. Fit indices were good for Facebook, Twitter, and LinkedIn (RMSEA $\leq$ .08; CFI = .94, TLI = .94; see Hu & Bentler, 1999), although slightly weaker but generally acceptable for Instagram (RMSEA = .10; CFI = .92, TLI = .90). Factor loadings/estimates were also similar and systematically significant for each of the four platforms (see Appendix A).

Following the recommendations from the measurement literature (i.e., Marsch et al., 2009; van de Schoot, Lugtig, & Hox, 2012) increasingly restricted models were then analyzed (i.e., *configural, metric, scalar, and full uniqueness* measurement equivalence). More precisely, key multiple group invariance (MGI) models were tested using the typology described by Marsch et al. (2009): MGI1 tested *configural* invariance and involved imposing no constraints except that the same items must significantly load on the same latent variables across the four social media platforms. MGI2 tested *metric* (or *weak*) invariance and involved imposing constraints so that the factor loadings/coefficients were equivalent across platforms. MGI5 tested *scalar* (or *strong*) invariance and involved imposing constraints on the factor loadings and intercepts. Finally, MGI7 tested *full uniqueness* (or *strict*) invariance and involved imposing constraints on the factor loadings/coefficients, intercepts, and items error variances.

Fit indices described in the bottom portion of Table 6 showed strong fit to support both *configural* and *metric* invariance (both RMSEA = .08; CFI = .94, TFI = .93), acceptable fit to support *scalar* invariance (RMSEA = .09; CFI = .91, TFI = .91), but evidence was more limited for *full uniqueness* invariance with fit indices just below the recommended thresholds (RMSEA = .09; CFI = .89, TFI = .90). Such results suggest that scalar invariance, but not strict invariance, can be established for the ATC measure (van de Schoot et al., 2012). This implies that one can make valid comparisons regarding mean ATC scores across social media platforms (or compare correlations involving ATC scores), but that ATC scores are not measured with equal precision across platforms (Hox, De Leeuw, & Zijlmans, 2015).

Platform Comparisons

ATC comparison between platforms was done using two different methods. The first involved only comparing means for participants that used all four platforms, who thus completed

the ATC for all four platforms ($N = 77$). As such, within-subject comparisons are made for

participants active on all four platforms, but only using a small portion of the data. The second

method included comparing means for every participant ATC rating for each platform, but

ignoring the nesting nature of the data. Results of both analyses are presented in Table 7, and

were largely equivalent.

First, analyzing ATC responses for only the 77 participants using all four platforms was

done with a repeated-measures MANOVA, with each of the three ATC factors as dependent

variables and social media platform as the grouping variable. Results indicated that significant

differences did exist between social media platforms on perceived justice [$F(3, 63.35) = 69.97$, p

$< .001$], privacy invasiveness [$F(3, 49.07) = 51.67$, $p < .001$], and face validity [$F(3, 35.17) =$

38.06, $p < .001$]. Bonferroni-corrected post-hoc comparisons for perceived justice revealed that

participants perceived LinkedIn as significantly more just, less invasive to applicants' privacy,

and more valid than the other three platforms, and there were no significant differences between

Facebook, Twitter, and Instagram on any of the three ATC factors[2]. Of these 77 participants who

use all four platforms, 22.1% would be willing to give their LinkedIn password to an employer

during a selection process, with only 9.1% for Facebook, 7.8% for Twitter, and 6.5% for

Instagram.

Second, another repeated-measures MANOVA was conducted with the same variables

but using the whole sample. There were significant differences between social media platforms

for perceived justice [$F(3, 132.92) = 136.60$, $p < .001$], privacy invasiveness [$F(3, 113.08) =$

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[2] Additional correlations revealed Facebook face validity was significantly correlated with the number of times logged on per day ($r = .17$, $p = .005$), hours spent on Facebook per week ($r = .18$, $p = .004$), and number of years using Facebook ($r = -.17$, $p = .005$). No significant correlations were observed between any other ATC factor and these three metrics of social media usage for any platform.

121.63, $p < .001$], and face validity [$F(3, 67.54) = 73.58$, $p < .001$]. Overall, Bonferroni-corrected post-hoc comparisons revealed similar significant differences to the first MANOVA. The only additional difference was Instagram being significantly lower than Facebook on perceived justice. Moreover, the whole sample reported being more willing to give LinkedIn passwords to an employer (22.4% of respondents) than Instagram (10.5%), Facebook (10.0%), or Twitter (9.5%) passwords. These findings provide support for hypothesis 4, although cybervetting on Instagram was perceived as slightly less fair than on Facebook.

Study 3 Discussion

Study 3 findings support that the 14-item ATC scale is reliable and has the same 3-factor structure across four of the most popular social media platforms. The measurement invariance analyses demonstrated strong invariance for the ATC measure, confirming that it can be used to examine and compare attitudes across Facebook, Twitter, LinkedIn, and Instagram. In line with previous research, LinkedIn had significantly more favorable perceptions on all three factors, likely because it is a professional/career-related platform while the other three are more personal (Nikolaou, 2014; Roulin & Bangerter, 2013; Stoughton, 2016). Instagram may have slightly less favorable perceptions than Facebook on some factors, possibly because it is more centered around images as opposed to text, and thus seen as less relevant for cybervetting. Instagram was also the only platform which exhibited somewhat lower fit to the otherwise consistent ATC model.

<div align="center">

General Discussion

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Theoretical and Practical Implications

Research has shown that many employers screen social media profiles during the application process (Berkelaar, 2017; Davison et al., 2016; Hartwell & Campion, 2019; Stoughton et al., 2015). However, there is little understanding of how job applicants themselves feel about this behavior, and no validated measures to capture such attitudes (Nikolaou, 2014). As such, we developed the first measure specifically devoted to attitudes toward cybervetting. Overall, results from the development and validation process demonstrate that the ATC scale is a reliable and valid indicator of three core elements of applicants' attitudes toward cybervetting across four of the most popular social media platforms. Because research on cybervetting is on the rise, this work provides researchers with a measure that is psychometrically-sound, yet short and easily adaptable to any social media platform. Even though social media can evolve very rapidly, the ATC scale should remain relevant to assess attitudes toward any new platform that pops up. For example, consider TikTok which did not exist when this research first began, but now has over 1 billion users and is one of the most popular platforms for adolescents worldwide (Doyle, 2020). The ATC scale helps achieve a better understanding of whether job applicants are comfortable with employers screening their social media profile (privacy invasiveness), whether they believe it is useful and effective (face validity), and whether they believe it is fair (perceived justice).

Our findings suggest that if employers want to engage in cybervetting, they should consider the opinions of their prospective employees toward the practice. Each of the three ATC attitudes also have unique implications for using social media as a selection tool in practice. For example, if job applicants feel that their privacy has been invaded by an employer before they begin to work for them, their willingness to commit to that employer can decrease (Stoughton et al., 2015). This is just one reason why it is important to better quantify whether job applicants

do, in fact, feel that their privacy is being invaded before employers view their social media

profiles. If job applicants do not believe that cybervetting is an effective method for employers to

use, they may be more willing to engage in impression management so that only specific

information appears on their profile (Roulin & Levashina, 2016). When this occurs, it is unlikely

that employers are actually getting the information they believe they are when screening an

applicant's profile. Lastly, determining and quantifying whether job applicants perceive that

cybervetting is fair can be critical for guiding future workplace and legal employment policies

(including, for instance, the legality of asking applicants for their social media password). More

precisely, our findings suggest that organizations interested in cybervetting would probably

benefit from only using LinkedIn. If an employer chose to screen Facebook, Twitter, or

Instagram as part of the selection process, this may result in applicants having less favorable

perceptions toward their organization and their desire to be employed there. Interestingly, this

finding is consistent with the stronger psychometric properties of LinkedIn-based vs. Facebook-

based assessments (Roulin & Levashina, 2019; Van Iddekinge et al., 2016). It also aligns with

hiring managers' practice of looking for more positive information on professional social media

platforms, but for more negative information on personal platforms (Hartwell & Campion,

2019).

Limitations and Future Research Directions

        This research has a number of limitations that need to be highlighted. First, although we

focused on three types of attitudes toward cybervetting that clearly emerged from the literature,

there could be additional elements important to consider. For instance, research on applicant

attitudes also includes applicants' expectations to demonstrate their potential and the difficulty to

fake (Schreurs, Derous, Van Hooft, Proost, & De Witte, 2009). A second potential concern is

that all three remaining validity items are worded very similarly. This may have caused these

three items to load highly together in the EFA analyses and artificially reduce the loadings of

other useful items. Future researchers may want to explore the possibility of adding more items

to the face validity factor to increase coverage of the construct. Third, our three studies are based

on online samples recruited via Mechanical Turk, social media, and Prolific. While the value of

such samples has been established (e.g., Landers & Behrend, 2015) and we only recruited

individuals currently looking for a job, future research should seek to replicate the findings of the

current study with samples of actual job applicants who go through the cybervetting process

within a real organization. Fourth, all our samples contain North American, English-speaking

respondents. Thus, future research should determine whether the scale is generalizable to other

cultures and languages. Fifth, because our focus was on scale development and initial validation,

we only examined two other variables (Facebook addiction and internet privacy concerns) that

may be related to ATC scores. Future research should explore other individual differences, for

instance whether personality may be related to the three ATC factors. Sixth, all the variables

included in Study 3 were self-reported. Thus, we did not provide evidence for criterion-related

validity using objective outcome data. One of the most important next steps for future research is

to determine whether scores on the ATC scale are predictive of meaningful outcome variables

such as job offer acceptance. Finally, not much is known about whether attitudes toward

cybervetting differ based on what specific aspect of one's profile is being screened or what type

of job is being applied for. It is possible that applicants have strong opinions toward specific

actions (e.g., screening friends/followers list) that could provide more useful information for

practitioners than attitudes toward cybervetting as a whole. Jeske and Shultz (2019) recently

showed that participants had less of an issue with privacy invasion when cybervetting was used

for jobs involving childcare or government security. As such, future research could explore

whether attitudes towards cybervetting vary depending on specific practices or the job being

applied for.

Conclusion

Since cybervetting has become an increasingly common trend, we need to better

understand how job applicants feel about having their social media profiles screened by

employers. The final version of the ATC scale contains 14 items and is divided into the proposed

three factors of perceived justice, privacy invasion, and face validity. A consistent structure fit

the data very well and had high levels of internal consistency for each factor across different

samples and different social media platforms. Although further validation is needed, the ATC

scale provides researchers and practitioners with a tool to measure job applicants' attitudes

toward cybervetting. Although only four platforms were compared in Study 3, the results are

encouraging and suggest that the measure could be used for other platforms not included in the

current research. The contributions from the ATC scale have the potential for either large-scale

use (e.g., policy changes for selection systems) or small-scale use (e.g., adjustments in

organizational practices to improve applicant attitudes).

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Table 1

Final Exploratory Factor Analysis for Study 1

			Pattern Coefficients		
Item	*M*	*SD*	Perceived Justice	Privacy Invasion	Face Validity
PJ1. It is fair for a potential employer to make a hiring decision based on information they acquired from my [Facebook] profile.	2.56	1.34	**.99**	.02	-.15
PJ2. It is fair for a potential employer to eliminate me from the application process based on information they acquired from my [Facebook] profile.	2.56	1.35	**.86**	.14	.04
PJ3. I believe that screening my [Facebook] profile is an effective tool for an employer to use in the hiring process.	2.51	1.37	**.75**	-.01	.09
PJ4. It is fair for a potential employer to compare my knowledge, skills, and abilities to other candidates based on information they acquired from my [Facebook] profile.	2.37	1.29	**.68**	.03	.15
PJ5. I think it is fine for a potential employer to document information from my [Facebook] profile in any way.	2.61	1.34	**.62**	-.26	.01
PJ6. I believe I should be held professionally accountable for anything on my [Facebook] profile.	2.85	1.40	**.59**	-.09	.05
PI1. I would be concerned if I knew a potential employer might access my [Facebook] profile.	2.76	1.39	.06	**.86**	.07
PI2. I would feel uncomfortable if I learned that a potential employer had viewed my [Facebook] profile without my knowledge.	3.16	1.45	-.06	**.80**	.01
PI3. I would feel personally disrespected by a potential employer viewing my [Facebook] profile.	2.76	1.40	-.14	**.74**	.02
PI4. I would have a problem with a potential employer sharing information from my [Facebook] profile with other employees.	3.69	1.36	-.06	**.55**	-.04
PI5. I would still be able to post things freely if I knew a potential employer was going to screen my [Facebook] profile [R].	2.84	1.35	.17	**.53**	-.16
FV1. A potential employer could accurately assess how reliable I am based on my [Facebook] profile.	2.44	1.22	.01	-.08	**.79**
FV2. A potential employer could accurately assess my task performance based on my [Facebook] profile.	2.13	1.20	.14	.10	**.73**
FV3. A potential employer could accurately assess my personality based on my [Facebook] profile.	2.73	1.30	-.05	-.08	**.73**
% of variance (rotated solution)			46.60	12.03	8.73
Alpha coefficient			.90	.83	.82
Scale means (SD)			2.58 (1.11)	3.04 (1.07)	2.43 (1.06)

Note. N = 216. PJ = Perceived justice, PI = Privacy invasion, FV = Face validity, [R] = Reversed item. Inter-factor correlations are in the range from -.62 to .60. Boldface values indicate the item loads on that factor. Principal axis factor analysis with Promax rotation. [Facebook] can be changed to any social media platform.

Table 2

Confirmatory Factor Analysis for Study 2

Item	M	SD	Factor Loadings		
			Perceived Justice	Privacy Invasion	Face Validity
PJ1	2.31	1.25	.86		
PJ2	2.30	1.30	.77		
PJ3	2.45	1.29	.78		
PJ4	2.28	1.25	.82		
PJ5	2.39	1.31	.83		
PJ6	2.72	1.36	.72		
PI1	2.87	1.39		.73	
PI2	2.39	1.39		.83	
PI3	3.07	1.34		.79	
PI4	3.86	1.32		.60	
PI5	2.83	1.32		.52	
FV1	2.33	1.23			.79
FV2	2.07	1.21			.75
FV3	2.74	1.25			.69
Alpha coefficient			.91	.82	.78
Scale mean (SD)			2.41 (1.08)	3.21 (1.03)	2.38 (1.03)

Note. $N = 215$. PJ = Perceived justice, PI = Privacy invasion, FV = Face validity. Based on the MLMV method (i.e., maximum likelihood with missing values). All factor loadings are standardized and significant at $p < .001$. Inter-factor correlations range from -.64 to .66. Model fit indices: $X^2 = 162.03$, $p < .001$, $X^2/df = 2.19$, RMSEA = .07 (90% CI = .06-.09), CFI = .95, TLI = .93.

Table 3

Descriptive Statistics and Correlations Among Main Variables for Study 2

	M	*SD*	1	2	3	4	5	6	7	8
1. Perceived Justice	2.41	1.08	(.91)							
2. Privacy Invasion	3.21	1.03	-.64**	(.82)						
3. Face Validity	2.38	1.03	.66**	-.47**	(.78)					
4. Facebook Addiction	1.72	0.75	.16*	.04	.12	(.85)				
5. Internet Privacy Concerns	5.98	0.84	-.35**	.31**	-.35**	-.08	(.92)			
6. Age	35.27	10.06	-.02	.05	-.02	-.03	.21**	-		
7. Gender (0 = male; 1= female)	0.51	0.50	-.08	.03	.05	.18**	.18*	.14*	-	
8. University Education	0.55	0.50	.08	.01	.07	-.04	.00	-.06	-.15*	-
9. Employment	0.91	0.29	-.03	.00	.07	-.04	-.06	-.10	-.11	.05

Note: $N = 215$, * $p < .05$, ** $p < .01$. University Education: 1 = University; 0 = Less than university education. Employment: 1 = Employed; 0 = Not employed.

Table 4

ESEM Model Fit Indices for Study 2

Model	χ^2	*p*-value	df	χ^2/df	RMSEA	90% C.I. RMSEA	CFI	TLI
Model 1	1218.4	<.001	517	2.36	.08	.07 - .08	.83	.81
Model 2	1224.91	<.001	520	2.36	.08	.07 - .08	.83	.81
Model 3	875.03	<.001	510	1.72	.06	.05 - .06	.91	.90

Note. N = 215. Based on the MLMV method (i.e., maximum likelihood with missing values). Model 1 includes all covariances between the five latent variables (i.e., the three ATC factors, Facebook addiction, and internet privacy concerns); Model 2 involved removing (i.e., restricting to zero) three non-significant covariances between latent variables; Model 3 involved freeing nine covariances between error terms all within the internet privacy concerns factor based on modification indices (with expected parameter change >.30).

Table 5

Means, Standard Deviations, Reliabilities, and Correlations for Study 3 Variables

Variable	N	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. FB Justice	259	2.37	1.03	(.90)																
2. FB Priv. Inv.	259	3.39	0.97	-.64**	(.80)															
3. FB Validity	259	2.04	0.93	.54**	-.34**	(.82)														
4. TW Justice	198	2.30	1.07	.86**	-.54**	.58**	(.92)													
5. TW Priv. Inv.	198	3.37	1.08	-.50**	.70**	-.32**	-.61**	(.87)												
6. TW Validity	198	1.96	0.92	.58**	-.43**	.70**	.70**	-.46**	(.83)											
7. LI Justice	174	3.95	0.84	.33**	-.26**	.15	.39**	-.28**	.25**	(.90)										
8. LI Priv. Inv.	174	1.79	0.74	-.06	.25**	.03	-.10	.30**	.03	-.49**	(.75)									
9. LI Validity	174	3.16	1.13	.24**	-.23**	.40**	.37**	-.26**	.42**	.66**	-.29**	(.89)								
10. IG Justice	190	2.09	0.96	.80**	-.42**	.57**	.81**	-.41**	.64**	.27**	.03	.23*	(.91)							
11. IG Priv. Inv.	190	3.28	1.00	-.54**	.67**	-.26**	-.50**	.63**	-.31**	-.18*	.26**	-.07	-.55**	(.84)						
12. IG Validity	190	1.85	0.86	.50**	-.35**	.68**	.57**	-.35**	.67**	.18*	-.02	.33**	.62**	-.38**	(.82)					
13. Age	304	31.38	9.35	-.05	.01	.18**	.01	-.11	-.07	-.01	-.06	.06	.01	-.12	.04	-				
14. Weekly Hours	196	34.97	11.19	-.13	.08	.03	-.02	-.07	-.02	-.08	-.03	-.08	-.17	.09	-.04	.17*	-			
15. Gender	303	0.43	0.50	.02	-.10	.08	.01	-.01	.01	-.11	-.16*	-.12	-.10	-.08	-.01	.09	-.09	-		
16. Ethnicity	305	0.33	0.47	-.05	-.01	-.11	-.14	.12	-.01	-.09	.10	-.02	-.06	.13	-.05	-.28**	-.15*	.14*	-	
17. Education	297	0.55	0.50	-.02	.04	-.11	.02	-.05	-.14	-.02	-.10	-.13	-.13	.08	-.14	.10	.04	.11	-.02	-
18. Employment	305	0.51	0.50	.03	-.06	.05	-.01	-.10	-.05	.04	-.04	.03	-.04	.11	-.05	.16**	.05	.05	-.01	.24**

Note. Sample N = 305. Variables 1-14 were scored on a 5-point Likert scale. Gender: 0 = Male, 1 = Female. Ethnicity: 0 = Caucasian, 1 = Visible minority. Education: 1 = University, 0 = All other. Employment: 1 = Employed, 0 = Not employed. FB = Facebook, TW = Twitter, LI = LinkedIn, and IG = Instagram. Higher scores on Justice and Validity indicate more positive attitudes, while higher scores on Priv. Inv. (i.e., privacy invasiveness) indicate more negative attitudes. Values in the diagonal represent Cronbach's alpha internal consistencies. * p < .05, ** p < .01

Table 6

ESEM Model Fit Indices to Examine Measurement Invariance for Study 3

Model	N	χ^2	df	χ^2/df	RMSEA	90% C.I. RMSEA	CFI	TLI	AIC	BIC
Models per platform										
Facebook	259	169.60	74	2.29	.07	.06 - .09	.95	.94	10015.20	10175.26
Twitter	198	166.59	74	2.25	.08	.06 - .10	.95	.94	7285.36	7433.33
LinkedIn	174	138.19	74	1.87	.07	.05 - .09	.95	.94	6071.38	6213.54
Instagram	190	203.01	74	2.74	.10	.08 - .11	.92	.90	6864.22	7010.34
Configural invariance										
MGI1	821	677.39	296	2.29	.08	.07 - .09	.94	.93	30236.15	31084.05
Metric Invariance (weak invariance)										
MGI2	821	775.51	338	2.29	.08	.07 - .09	.94	.93	30250.27	30900.32
Scalar (or strong) Invariance										
MGI5	821	940.46	362	2.60	.09	.08 - .10	.91	.91	30367.23	30904.23
Strict (or full uniqueness) Invariance										
MGI7	821	1120.87	404	2.77	.09	.09 - .10	.89	.90	30463.45	30802.81

Note. Based on the MLMV method (i.e., maximum likelihood with missing values). See Appendix A for details about models per platform. Models are based on Marsch et al.'s (2009) typology of multiple group invariance (MGI) testing: MGI1 involves imposing no constraints and ensuring that the same items significantly load on the same latent variables across platforms. MGI2 involves imposing constraints on the factor loadings/coefficients only. MGI5 involves imposing constraints on the factor loadings/coefficients and intercepts. MGI7 involves imposing constraints on the factor loadings/coefficients, intercepts, and items error variances. The *chi-squares* for all models are significant at $p < .001$.

Table 7

Means, SDs, and Significant Differences for the 3 ATC Factors and Willingness to Give Password to Employers, among the Four Platforms in Study 3

Platform	N	Perceived Justice	Privacy Invasion	Face Validity	Give Password?
1. Facebook	77	2.25^B (0.95)	3.42^A (0.94)	1.94^B (0.81)	9.1%
2. Twitter	77	2.22^B (1.05)	3.20^A (1.14)	1.90^B (0.92)	7.8%
3. LinkedIn	77	3.94^A (0.87)	1.71^B (0.70)	3.23^A (1.19)	22.1%
4. Instagram	77	1.95^B (0.93)	3.25^A (1.06)	1.80^B (0.88)	6.5%
1. Facebook	259	2.37^B (1.03)	3.39^A (0.97)	2.04^B (0.93)	10.0%
2. Twitter	198	2.30$^{B/C}$ (1.07)	3.37^A (1.08)	1.96^B (0.92)	9.6%
3. LinkedIn	174	3.95^A (0.84)	1.79^B (0.74)	3.16^A (1.13)	22.4%
4. Instagram	190	2.09^C (0.96)	3.28^A (1.00)	1.85^B (1.08)	10.5%

Note. Values are means with SDs in parentheses. Letters in superscript indicate significant differences at $p < .05$, platforms with the same letter were not significantly different on that factor. Data in the upper half of the table are at the participant level and include only those who reported using all four social media platforms ($N = 77$). Data in the bottom half of the table are at the platform level and include all participants in the sample (Total $N = 305$).

Appendix A: ESEM Estimates per Social Media Platform for Study 3

	Facebook		Twitter		LinkedIn		Instagram	
	Estimate	95% C.I.	Estimate	95% C.I.	Estimate	95% C.I.	Estimate	95% C.I.
Item-Latent								
PJ1 – PJ	.87	.83 ; .90	.90	.87 ; .94	.83	.77 ; .89	.87	.83 ; .91
PJ2 – PJ	.82	.78 ; .87	.82	.77 ; .87	.80	.74 ; .86	.85	.81 ; .90
PJ3 – PJ	.74	.68 ; .80	.79	.74 ; .85	.78	71 ; 85	.83	.78 ; .88
PJ4 – PJ	.80	.75 ; .85	.83	.78 ; .88	.84	79 ; 89	.82	.76 ; .87
PJ5 – PJ	.77	.71 ; .82	.84	.80 ; .89	.73	65 ; 80	.81	.75 ; .86
PJ6 – PJ	.70	.63 ; .77	.72	.65 ; .80	.63	53 ; 73	.63	.54 ; .72
PI1 – PI	.71	.64 ; .78	.78	.72 ; .84	.73	64 ; 82	.80	.73 ; .86
PI2 –PI	.79	.74 ; .85	.86	.81 ; .90	.67	57 ; 77	.82	.76 ; .88
PI3 – PI	.84	.79 ; .90	.87	.83 ; .92	.80	72 ; 88	.80	.74 ; .87
PI4 – PI	.59	.50 ; .68	.72	.65 ; .80	.64	54 ; 75	.68	.59 ; .77
PI5 – PI	.40	.27 ; .49	.55	.45 ; .66	.36	22 ; 51	.49	.37 ; .61
FV1 – FV	.85	.79 ; .91	.85	.79 ; .90	.87	81 ; 92	.86	.80 ; .92
FV2 – FV	.82	.76 ; .88	.88	.83 ; .93	.84	79 ; 90	.85	.78 ; .91
FV3 – FV	.68	.60 ; .76	.67	.59 ; .76	.84	78 ; 90	.64	.54 ; .73
Covariances								
PJ – PI	-.75	-.82 ; -.67	-.66	-.76 ; -.58	-.50	-.64 ; -.36	-.57	-.68 ; -.45
PJ – FV	.64	.55 ; .73	.79	.72 ; .86	.74	.65 ; .82	.74	.65 ; .82
PI – FV	-.38	-.51 ; -.26	-.50	-.62 ; -.38	-.28	-.44 ; -.11	-.35	-.50 ; -.21

Note. N = 259 for Facebook, 198 for Twitter, 174 for LinkedIn, and 190 for Instagram. PJ = Perceived justice, PI = Privacy invasion, FV = Face validity. Based on the MLMV method (i.e., maximum likelihood with missing values) in STATA. All estimates are standardized and significant at $p < .001$.