Revista Eletrônica de Sistemas de Informação
ISSN 1677-3071

Table of Contents

AN EQUITY THEORY VIEW OF PERSONAL INFORMATION DISCLOSURE IN AN ONLINE TRANSACTIONAL EXCHANGE

(paper submitted in February 2018)

Thomas P. Barto
Adj. Professor of Business Administration at the School of Professional Studies
Centenary University (NJ)
Tom.Barto01@centenaryuniversity.edu

Indira R. Guzman
Assoc. Professor of Business Administration and Information Systems and Director of the Computer Science and Information Technology Management Programs
Trident University International
indira.guzman@trident.edu

ABSTRACT

This study draws upon equity theory to present a conceptual model for the study of personal information disclosure in an online buyer-seller transactional exchange. Prior research studies have utilized social contract and principal-agent theories to explain how information privacy concerns influence consumers' intentions to provide their personal information to online sellers. Herein, equity theory is viewed as another "fairness and justice" lens through which online information privacy concerns can be explored while accommodating a broader set of situational factors, e.g., vendor loyalty, that also influence a buyer's willingness to provide their personal information to an online seller. The model operationalizes the "distress" construct that, according to equity theory, acts as an equity restoration mechanism and explores its mediation effects. Results of this empirical study show that event-driven distress can positively motivate an individual to provide personal information; and, that it can mediate the impact of certain situational factors on an individual's willingness to provide personal information. Finally, vendor loyalty is conceptualized as a broadening of the "personalization" concept from the personalization-privacy paradox literature. It was also determined that "marital status" was significant in affecting one's intention to disclose personal information while the significance of "age" was deemed inconclusive.

Key-words: information privacy, equity theory, distributive justice, e-commerce, online shopping.

1   INTRODUCTION

The global electronic market has had a profound impact on business-to-consumer (B2C) e-commerce, where U.S. online retail sales reached $445 billion in 2017, are envisioned to top $600 billion in 2020, and surpass $1 trillion in 2027 (FTI Consulting, Inc., 2017).[1]

Based on optimistic sales projections in online shopping, brick-and-mortar retailers have exploited the use of technology for electronic marketing purposes diverting capital away from traditional storefronts to websites to make online shopping easier, faster, and cheaper (JONES, 2010). However, differences between a physical storefront and its electronic counterpart (a website) can be huge (Lohse and Spiller, 1998). That is, retail sales has been evolving from a traditional multi-channel strategy for consumer purchases (comprised of the physical store, telephone, catalog, and, more recently, the Internet) to a more holistic one that utilizes a wide array of Internet-connected devices (such as website browsers, smart phones, tablet computers, and social media platforms) that has increased consumer purchases through the Internet (TITLOW, 2011) while rendering traditional in-store, telephone, and catalog sales almost obsolete (WALKER, 2011). Along with this "online store-front" transition, the buyer-seller social exchange relationship also changes. Instead of the familiar salesperson, there now appears an electronic portal in the form of a web information system (WIS); and, "the familiar layout of the physical store becomes a maze of pull-down menus, product indices, and search features" (LOHSE and SPILLER, 1998). This creates a new unknown in their shopping experience that leads to concerns regarding the friendliness, convenience, service, and trustworthiness of the retailer. Consequently, consumers might feel uneasy (i.e., tense or distressed) giving out their personal information without those familiar retailer traits. In a June 2000 study, PEW Research Center found that only 22% of Americans were online shoppers. But, by December 2015, this had grown to roughly eight-in-ten (80%) (PRC, 2016). Despite this sizeable growth in online shoppers, 64% of Americans indicate that, all things being equal, they prefer buying from physical stores to buying online (PRC, 2016). Among the latter group, 78% say it's important to be able to try a product out in person, 84% want to be able to ask questions about what they're buying, 77% want advice from people they know, and 84% want to buy from sellers that they are familiar with (PRC, 2016).

As noted by Zimmer *et al.* (2010), researchers (e.g., DINEV and HART, 2006) have addressed the personal information "disclosure" issue and its constructs. Malhotra *et al.* (2004) dimensionally characterized Internet users' concerns over information privacy and assessed its impact on consumer intention to disclose personal information to websites. Pavlou *et al.* (2007) addressed this issue associating consumer privacy and security concerns with perceived uncertainty and risk and their impact on consumer

---

[1] https://www.fticonsulting.com/insights/reports/2017-us-online-retail-forecast

intention to conduct an online purchase. While consumers' concerns over privacy and security are indeed important in influencing their decision to make an online purchase, there are other situational factors (e.g., consumer trust, consumer loyalty, vendor loyalty, service quality, perceived value, vendor fraud, identity theft) that also would influence consumers to provide their personal information to an online website in spite of their privacy and security reservations. Most consumers are willing to give up some of their information privacy to participate in a consumer society (PHELPS *et al.*, 2000). There may be benefits to easing one's information privacy concerns, that is, the collection and storage of information can permit personalized service, convenience, and efficiency (BUCHANAN *et al.*, 2007). Most IS researchers (e.g., MALHOTRA *et al.*, 2004; PAVLOU *et al.*, 2007) have centered their studies mainly around information privacy and security concerns and have not addressed the situational factors which are important to consumers' overall willingness to provide personal information (WPPI) to websites. This research study draws from equity theory and proposes a framework based on the input/outcome principles of equity theory that can accommodate an array of situational factors in assessing a consumer's WPPI in an online buyer-seller transactional exchange.

The online buyer-seller transactional exchange is a form of social exchange based on a reciprocal give-and-take norm of distributive justice. Buyer-perceived injustices result in distress (WALSTER *et al.*, 1973) which motivates an individual to restore equity (ADAMS, 1963). Equity theory researchers have referred to this distress only as a "background mediator" but have not attempted to operationalize it. Glass and Wood (1996) studied the determinants of software piracy using an equity theory perspective; but they did not incorporate distress as a variable in their model. Also, Ashworth and Free (2006) did not explicitly address distress as a variable in their online buyer-seller exchange context. So, this research study purports to fill a gap in the B2C e-commerce literature by (a) operationalizing the "distress" construct in the online buyer-seller exchange context; and, by (b) exploring the mediation effect of distress between specific situational factors and the consumers' WPPI. We know of no prior research study that has addressed event-driven distress as such in the utilization of equity theory in B2C e-commerce. Finally, this research study aims to answer two research questions. First, to what degree does distress directly affect consumers' WPPI to online sellers? Second, to what degree does distress mediate the effects of specific situational factors on consumers' WPPI to online sellers?

2 THEORETICAL FOUNDATIONS AND CONCEPTUAL MODEL

2.1 EQUITY THEORY: BACKGROUND

J. Stacy Adams (1963) offered a general theory toward the understanding of inequity. Specifically, Adams' (1963, 1965) seminal work

gave special consideration to wage inequities in an employee-employer exchange, although the theoretical notions that he advanced are relevant to any social situation in which an exchange takes place (such as online shopping) with the possibility that one or both parties in the exchange will feel that the exchange was inequitable (Adams, 1963). In equity theory terms, Adams' definition of equity is given by $\frac{O_{Person}}{I_{Person}} = \frac{O_{Other}}{I_{Other}}$ (Adams, 1965) equating the ratio of outcomes (O) to inputs (I) for *Person* to the ratio of outcomes (O) to inputs (I) for *Other*[2]. Adams' theory has received relative firm empirical support from Austin and Walster (1974), Carrell and Dittrich (1978), and Goodman and Friedman (1971).

Among the problems cited with Adams' (1963) original income/outcome model, critics argue that individuals might perceive inequity (or equity) based not only on specific inputs/outcomes in a relationship but also in terms of the "overarching system" that generates those inputs and outcomes (CARRELL and DITTRICH, 1978). For instance, *Person* might feel that his compensation is equitable to that of a comparison *Other*. Yet, s/he feels that the overall compensation system is not fair. An alternative measure to a 'comparison *Other*' is proposed by the *Fairness Model* which suggests that individuals judge the overall fairness of a relationship by comparing their inputs/outcomes with an internally derived standard, called an *intra-personal* standard by Pritchard (1969), allowing for the perceived inequity (equity) of the overarching system to be included in an individual's assessment of his/her relationships (CARRELL and DITTRICH, 1978). The approach taken in this research study is compatible with the notion of the *Fairness Model* in that equity is addressed based upon a person's "internally derived standard".

2.2 EQUITY THEORY IN AN ONLINE BUYER-SELLER TRANSACTIONAL EXCHANGE

Equity theory has been applied in consumer satisfaction research where researchers view a purchase transaction as an exchange between a consumer and a seller and consumer satisfaction is determined by fairness in the exchange (JOSHI, 1990). For instance, Huppertz *et al.* (1978) investigated consumer satisfaction behavior by testing some predictions derived from equity theory against a set of traditional (i.e., off-line) retail buyer-seller exchange situations. In an IS context, Joshi (1989, 1990) utilized equity theory in his study of fairness and equity perception measurements and user information satisfaction associated with management information systems (MIS). Au *et al.* (2008) created an input/needs fulfillment ratio model based on the input/outcome ratio model of equity theory to extend the understanding of end user information systems

---

[2] *Person* and *Other* are reference terms. *Person* is any individual for whom equity or inequity exists. *Other* is any individual or group used by *Person* as a referent when he makes social comparisons of his inputs and outcomes. Inputs are what *Person* perceives are his contributions to the exchange with *Other* for which he expects a just return. Outcomes are perceived rewards received by *Person* for his services (i.e., inputs) in his exchange with *Other* (Adams, 1963).

satisfaction. Ashworth and Free (2006) draw on theories of justice — distributive and procedural — to understand consumer conceptualizations of online privacy concerns whereby they reflect on the fairness aspect of justice and incorporate the input and outcome components of equity theory in their discussion of a consumer-marketer exchange relationship. So, one can logically speculate that the input-outcome framework of equity theory may provide a theoretical basis for explaining how diverse situational factors would influence an individual's decision to disclose personal information in an online buyer-seller transaction. Aside from Ashworth and Free's (2006) research article, there are no other known (to us) studies that have applied equity theory to online buyer-seller exchange situations.

According to Adams (1965), input is regarded as what an individual perceives to be his/her contribution to an exchange for which a just return (outcome) is expected. Generally, inputs are categorized as "assets and liabilities" while outcomes are viewed as "rewards" entitled from the assets and "costs" derived from the liabilities (WALSTER *et al.*, 1973). In an online buyer-seller exchange context inputs might include assets such as consumer trust and consumer loyalty, and liabilities such as information privacy and security concerns, while outcomes might include rewards such as perceived value (i.e., convenience, expediency, and wide product availability), service quality, and vendor loyalty, and costs such as vendor fraud and identity theft.

2.3 AN EQUITY THEORY PERSPECTIVE OF DISTRESS

The notion of equity (or inequity) has a psychological basis (ADAMS, 1963) suggesting that "equity is in the eye of the beholder" (WALSTER *et al.*, 1973, p. 152) who is the online buyer (e-buyer) in this situation. When e-buyers perceive that they are in an inequitable situation with e-sellers, they experience uncomfortable tension (ADAMS, 1963) also described as distress (WALSTER *et al.*, 1973) where this distress acts as an equity restoration mechanism in that it motivates the individual to appropriately distort perceptions of his/her own inputs and/or outcomes to restore psychological equity. So, inputs and outcomes (according to equity theory) affect an individual's sense of "distress" (due to a perceived injustice) that will influence a buyer's intention to purchase online and, most likely, his/her willingness to provide personal information.

2.4 THE NATURE OF DISTRESS IN AN ONLINE BUYER-SELLER TRANSACTIONAL EXCHANGE

Lees (2009) contends that stress increases when a person is not in control of a situation or if a person has limited options to alter the circumstances of the situation. Lees (2009) presents a three-component model as shown in Figure 1 illustrating that a specific event does not directly lead to an emotional response but that it is our thoughts about the event that shape our emotional response. More explicitly, "stress [an emotional response] is a feeling and what causes that feeling is what we

are thinking. Generally, we do not have a stressful feeling without having first a stressful thought" (LEES, 2009, p. 48).
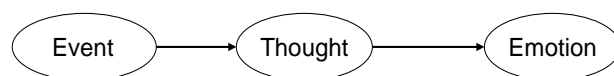

Figure 1: Lees' model of emotion response

Source: Lees (2009)

It is easy to visualize how Lees' model can apply in e-commerce particularly to an online buyer-seller exchange, e.g., online shopping. Instead of the familiar salesperson, there now appears an electronic portal in the form of a web information system (WIS). For many consumers this situation [event] creates a new unknown [thought] in their online shopping experience that leads to legitimate concerns [emotion] regarding the friendliness, convenience, service, and trustworthiness of the retailer. Consequently, consumers might feel uneasy (i.e., tense or distressed) without those familiar retailer traits. Lees (2009) points out that it is our negative interpretation [thought] about any situation [event] that results in a feeling of stress [emotion]. Farmer and Ferraro (1997) refer to a negative perception of stress, that is, "a negative meaning attached to a stressor" (p. 299), as distress.

Watson and Pennebaker (1989) draw from the emotionality literature and conclude that our emotional experiences are driven by two independent dimensions — *positive affectivity* and *negative affectivity*. Positive affectivity reflects a person's level of energy, excitement, and enthusiasm while negative affectivity reflects a diverse range of mood states including anger, disgust, scorn, guilt, fearfulness, and depression (Watson and Pennebaker, 1989). Austin and Walster (1974) in describing equity theory state that distress manifests itself as a form of resentment or anger consistent with Watson's and Pennebaker's view of negative affectivity.

2.5 DETERMINANTS OF DISTRESS IN AN ONLINE BUYER-SELLER TRANSACTIONAL EXCHANGE

A determinant of e-buyer distress in the context of an online buyer-seller transactional exchange is any situational factor that can affect the level of distress. Equity theory considers "assets and their associated rewards" as favorable entities (i.e., positive situational factors) in a social exchange which can reduce distress. Examples of assets are consumer trust and consumer loyalty. Examples of rewards are perceived value and vendor loyalty. Also, equity theory considers "liabilities and their associated costs" as unfavorable entities (i.e., negative situational factors) in a social exchange which can increase distress. Examples of liabilities are information privacy and security concerns. Examples of costs are vendor fraud and identity theft.

2.6 CONCEPTUAL RESEARCH MODEL

Our proposed conceptual model (Figure 2) contributes to the equity theory literature by explicitly incorporating a "distress" variable to conform to Adams' notion of equity restoration. Researchers in information systems and marketing have professed that information privacy and consumer concern thereof is one of the most important issues in today's technology-based environments (CHELLAPPA and SIN, 2005). So, *Privacy Concerns* (PC) is included in the proposed conceptual model as a major reason for why consumers might not provide personal information to online sellers. *Vendor Loyalty* (VL) is included in the proposed conceptual model as an expanded version of a "personalization" construct that has been shown to be closely related to Privacy Concerns and Willingness to Provide Personal Information in previous studies (e.g., CHELLAPPA and SIN, 2005; SHENG *et al.*, 2008). Mostly, personalization has been used in the context of vendor recommendations for "customized" products and services based on personal information for the direct purpose of stimulating prospective sales. Vendor loyalty includes but goes beyond customized recommendations by emphasizing the non-materialistic gestures by a vendor such as sending a thank you note for each purchase or giving an individual the capability to publicly voice their opinions and to have access to the opinions of others without directly soliciting a sale.

The model focuses directly on online buyers with the dependent variable being the online buyers' "willingness to provide personal information" to online sellers. The sellers' obligations and actions will be explored through the formative and reflective indicators of the "distress" and vendor loyalty constructs, respectively. This approach is common among most online research studies of this nature with the sellers' perspective hardly ever being the focal point. It is the online buyers' perceptions of the online sellers' explicit actions that are captured based on the basic seller implicit obligations which constitute the psychological contract between buyers and individual sellers and operationalized by the causal indicators that form the buyers' "distress" construct. In addition, the vendor loyalty construct reflects individual seller actions that influence buyers' perceptions of how well the sellers provide individualized attention and cultivate relationships with the buyers. In this way, the sellers' role in influencing the buyers' willingness to provide personal information is accounted for in the research model (Figure 2).
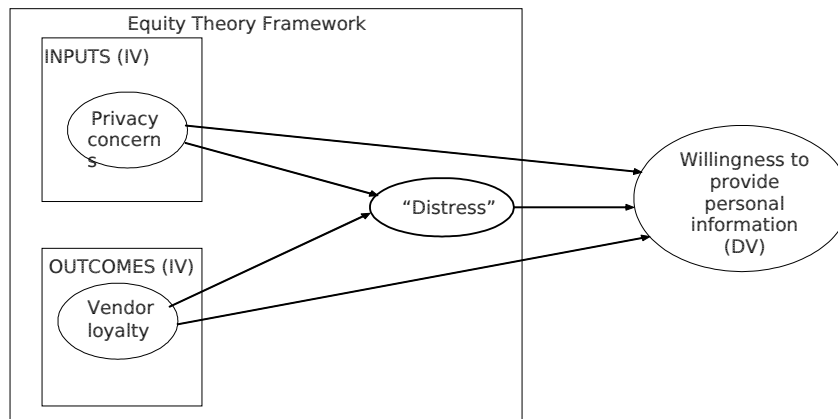
Figure 2: Proposed conceptual model with constructs

Source: elaborated by the authors

2.7 LATENT VARIABLES AND HYPOTHESES

2.7.1 Willingness to provide personal information

"The success and growth of e-commerce is linked inextricably to consumer willingness to provide personal information (WPPI) to websites" (MIENERT *et al.*, 2006, p. 13). Vidmar and Flaherty (1985) have related a person's willingness to provide personal (sensitive) information to the degree to which they trust the data-gathering entity. Goodwin (1991) suggested that some people might be willing to disclose information if they receive some type of benefit (i.e., value) from the disclosure. Phelps *et al.* (2000) asserted that consumers assess trade-offs in exchanging their personal information for shopping benefits. Considering the foregoing statements, an individual's WPPI will be viewed in this study as a consumer's intention to provide personal information to an online seller.

2.7.1.1 Trust propensity

An individual's propensity to trust is "viewed as a personality trait that leads to generalized expectations about the trustworthiness of others" (CHEUNG and LEE, 2001, p. 25). People in general are trustworthy and better results will occur by giving people credit and trusting them regardless of whether that trust is justified (GEFEN, 2000). One can view this attitude towards the general trustworthiness of people in terms of the "novelty effect" with its basic premise that people have a moderately positive perception of the world (an anchor if you will) and that personal judgments are made in relation to this anchor (CHO, 2007).

Most e-commerce research involving the relationship of trust to behavior intentions (e.g., MALHOTRA *et al.*, 2004, and PAVLOU *et al.*, 2007) has emphasized a specific vendor's reputation, size, integrity, ability, and past performance as indicators of trust, indicating a variance across vendor situations. Trust propensity has never been directly associated

with an individual's WPPI in an online buyer-seller exchange context. However, being an inherent (CHO, 2007), stable personality trait (CHEUNG and LEE, 2001), and being invariant across situations (PAVLOU and GEFEN, 2005), it is logical to posit that trust propensity will be reflective of one's WPPI. Hence, individual propensity to trust (TP) is identified as the first dimension of WPPI in this research study.

2.7.1.2 Information sensitivity

Potential e-buyers who visit an e-shopping website are frequently requested to provide information relating to their shopping preferences. Most e-buyers might not consider this type of information as personally sensitive. However, the same e-buyers, if asked to provide income or other financial-related data (such as credit card information), might consider these data more personal and sensitive. In this latter case, it is logical that some potential e-buyers might choose to lie about such information or exit the website without providing their personal information. Hoffman *et al.* (1999) reported that approximately 40% of surveyed consumers admitted to providing false information in certain instances, especially if they suspected that their personal information will be sold to third parties. Several researchers (e.g., HUI *et al.*, 2007) have identified information sensitivity as a key component of personal information disclosure. Hence, information sensitivity (IS) is identified as the second dimension of WPPI in this research study. This research study will dimensionally characterize the construct WPPI as a second-order construct reflecting two first-order factors — namely, *trust propensity* and *information sensitivity* — each with their own respective reflective indicators.

2.7.2 Distress

In this study distress is thought to occur as a "cognitively mediated emotional response" (COHEN *et al.*, 1983, p. 386) because of some preceding stressor event (LEES, 2009) for which a negative interpretation has been made (FARMER and FERRARO, 1997). That is, distress (in this stated context) is not an inherent, stable personality trait (which would make it reflective in nature) but is influenced by daily hassles, major events, and changes in coping resources (COHEN *et al.*, 1983), thus making it formative in nature. So, in this study, a formative approach is suited to describing distress due to many possible unrelated events and situational factors (i.e., the inputs and outcomes shown in Figure 2) that potentially lead to negative emotions associated with an online buyer-seller exchange. And, according to Jarvis (2003), "*negative emotion*" was listed among the constructs identified with formative indicators.

Contracts have traditionally underscored buyer-seller relationships and have been shown to facilitate online buyer-seller exchanges as well (PAVLOU and GEFEN, 2005). Aside from the "legal" (explicit) component of a contract, there is a "psychological" (implicit) component that Pavlou and Gefen (2005) have studied in relation to online marketplaces involving individual sellers as well as communities of sellers (e.g., e-Bay). Rousseau

(1989) defines the term 'psychological contract' as "referring to an individual's [unilateral] beliefs [i.e., subjective perceptions] regarding the terms and conditions of a reciprocal exchange agreement between that focal person and another party" (p. 123). Pavlou and Gefen (2005) proposed that "psychological contract violation (PCV) should be central to our understanding of buyer-seller relationships in online marketplaces" (p. 373). Morrison and Robinson (1997) define PCV as "inherently perceptual" (p. 227) and does not necessarily correspond to "objective reality" (p. 227). Hence, a psychological contract is much broader than a legal contract in that it generally includes several "perceptual aspects" that are not formally included in a legal contract (PAVLOU and GEFEN, 2005).

Given this perspective, a perceived violation of a contract by an e-seller can be construed by the e-buyer as a perceived injustice, a behavior by the e-seller that likely would lead to negative emotions and distress (recalling Lees' model, Figure 2) on the part of the e-buyer. According to Morrison and Robinson (1997), "at its most basic level, violation involves distress" (p. 231). Further, PCV has been linked to negative outcomes such as creating the perception of injustice and generating feelings of betrayal, moral outrage, resentment, and anger (PAVLOU and GEFEN, 2005) consistent with the consequences of distress within the framework of equity theory, as described by Adams (1963) and Walster *et al.* (1973). In fact, Rousseau (1989) posits that psychological contracts might be viewed as a special case of equity theory with its notions of exchange and fairness. Logically then, one can deduce that psychological contract violation and the equity theory view of distress due to an event-driven perceived injustice are the same. So, in this study the PCV construct will be used to operationalize and measure the "distress" construct in Figure 2.

Pavlou and Gefen (2005) describe six "common sources of contract violation with individual sellers in online marketplaces" (p. 375). Consequently, they propose PCV with an individual seller as a first-order formative construct formed by e-buyer perceptions of *fraud, product misrepresentation, contract default, product delivery delay, failure to acknowledge product guarantees, and refusal to follow payment policies by the seller*, all of which serve as measures of PCV.

According to Adams (1963), the presence of inequity (i.e., tension) will motivate a person to manipulate and weigh cognitively his own inputs and perceived outcomes in such a way as to reduce tension, and the strength of a person's motivation will vary directly with the amount of tension. Hence, it can be argued that, when tension (distress) arises but is low/moderate, there may be insufficient motivational strength to restore equity[3]. In such cases a person might exit from the transaction, an option described by Walster *et al.* (1973), without providing their personal information. It can also be argued that when tension (distress) is high

---

[3] People will tolerate inequity until some threshold level is exceeded (Cosier and Dalton, 1983).

there may be increased motivational strength[4] to restore equity with the intention to provide their personal information.

Given this perspective, in an online buyer-seller exchange, an event-driven perceived injustice would result in a level of distress that would motivate the buyer to act in a manner that would directly affect a buyer's WPPI. The following hypothesis can now be stated:

H1: e-Buyers' willingness to provide personal information (WPPI) is positively impacted by e-buyer distress (PCV) in an online buyer-seller situation.

2.7.3 Privacy concerns

"Cyberspace is invading private space" (CLARKE, 1999, p. 60) and the privacy of personal data. Regarding e-commerce, this invasion of privacy is commonly interpreted as the unauthorized collection, disclosure, or other use of personal information as a direct result of e-commerce transactions (WANG *et al.*, 1998). U.S. Federal Trade Commissioner Pamela Jones Harbour said that "capturing data reflecting individual interests and habits is an enormous and growing business, evidence that consumer privacy is under siege" (JAEGER, 2010, p. 48).

Several empirical studies (KORGAONKAR and WOLIN, 1999; EASTLICK *et al.* 2006; VAN SLYKE *et al.* 2006; PAVLOU 2011) have revealed consumers' increasing privacy concerns in e-commerce, many of which reflected negatively on Internet purchases. Pavlou (2011) indicated that privacy concerns lead to privacy protective responses such as refusal to divulge information. Turow *et al.* (2015) and Young and Quan-Hasse (2013) report a negative correlation between internet privacy concerns and information revelation. Fortes and Rita (2016) showed that privacy concerns on the internet have a positive effect on perceived risk and, by inference, a negative effect on disclosure of personal information. Mobile-commerce has had a significant impact on online shopping behavior, has huge potential for growth, and has opened the debate on privacy (SHIRAZI and IQBAL, 2017) and information disclosure (TAHEREH, 2018). Mobile consumers are concerned about the inappropriate collection, storage, profiling, and use of their personal information for unintended purposes without their consent (KEITH *et al.*, 2013). Wang *et al.* (2016) used Privacy Calculus Theory (PCT) to investigate the intention to disclose personal information via mobile applications (*apps*). Their empirical study showed that perceived privacy risks negatively affect the intention of consumers to disclose personal information[5]. Substantial privacy risk is associated with mobile apps and their use since users often adopt them "on the fly" without validation and having only limited information that the platform

---

[4] Increased motivational strength would be indicative of a "high stakes" transaction wherein the buyer places a high degree of importance on the expected outcome.

[5] Security and privacy concerns inclusion within m-shopping research remains in its infancy, revealing a lack of mobile related literature and limiting the theoretical and practical understanding of the issue (Marriott *et al.*, 2017).

provider provides when making personal information disclosures (KEITH *et al.*, 2016).

Concern for information privacy between online and offline transactions differs by the important fact that virtually all forms of electronic access leave a trail which allows vendors to associate even ostensibly harmless information together to construct reasonably accurate consumer profiles (CHELLAPPA and SIN, 2005). As people discover that their data might be used in ways they didn't expect or become aware that data unknown to them are being silently collected from their online surfing activities[6], they become worried and concerned (CRANOR, 1999)[7]. The FTC has encouraged self-regulation of the online advertising industry. However, in 2010 the FTC called for a "do not track" option that would give consumers the ability to stop advertisers from tracking their every online click (DR, 2010; FTC, 2010). In a 2012 Privacy Report the FTC set forth recommended best practices that a company should follow for collecting and using consumer data (FTC, 2015). In 2015 the FTC agreed that development of self-regulatory programs designed for particular industries would be helpful to encourage the adoption of privacy- and security-sensitive practices (FTC, 2015). In its 2018 Update (FTC, 2018) the FTC took on an advocacy role, repeatedly expressing its support for federal privacy legislation.

Malhotra *et al.* (2004) drew on social contract theory and empirically investigated the lack of consumer confidence in information privacy. Specifically, these researchers sought to better understand the nature of online consumers' concerns for information privacy and created a construct and scale to describe and measure the Internet Users' Information Privacy Concerns (IUIPC). Malhotra *et al.* (2004) identified three dimensions that reflect the notion of IUIPC—*collection*, *control*, and *awareness* — that address the issues of what data are collected and how the data are being used (collection), how consumers can access their own

---

[6] The U.S. Federal Trade Commission (FTC) reported that 99% of online companies collect personal information from individuals visiting their websites (Zimmer *et al.*, 2010). Newsweek (May 2016) reported that "data brokers" (companies which collect personal information on people through both public and private sources and provide it to a wide range of buyers) are secretive but estimates they number from 2500 to 4000. The Forrester Research consultancy estimated in 2014 that the database marketing firm Acxiom had about 1500 data points for each of over 500 million active internet users, most of them in the United States (FR, 2014). Senator Edward Markey (D-Mass) introduced a bill called the Data Broker Accountability and Transparency Act of 2015 that would require data brokers to let consumers review their personal data for free, and to provide a means to seek correction. https://www.newsweek.com/secretive-world-selling-data-about-you-464789

[7] Hoffman *et al.* (1999) found that over 80% of online consumers have no desire for websites to resell their personal information to other businesses. A 2015 Bain & Company survey of more than 900 consumers found that 67% felt that it should be illegal for companies to collect or use such data without getting prior consent (Turow *et al.*, 2015). In a more recent 2018 survey by ExpressVPN found that 76% think that broadband providers should not have the right to sell consumers' internet activity information to other companies. https://www.marketingdive.com/news/71-of-consumers-worry-about-brands-handling-of-personal-data-study-finds/523417/

data, correct the data, or even opt-out of having certain data collected (control), and having access to the website's information privacy policies (awareness).

For purposes of this research study *privacy concerns* is defined as the degree to which an Internet user is concerned about online marketer's collection of personal information, the user's control over the collected information, and the user's awareness of how the collected information is used. It is represented by IUIPC as a second-order construct reflecting three first-order factors — namely, *collection, control,* and *awareness* — each with their own respective reflective indicators.

Malhotra *et al.* (2004) provide empirical evidence that privacy concerns (IUIPC) directly impact an individual's risk beliefs by testing a causal model centering on IUIPC and rooted in the trust-risk framework (McKNIGHT *et al.,* 1998). If higher levels of risk would be associated with higher levels of distress for an online consumer, it is posited that privacy concerns directly impact distress. Hence, the following hypothesis can be made.

> *H2: e-Buyers' distress (PCV) is positively impacted by e-buyer information privacy concerns (IUIPC) in an online buyer-seller situation.*

Employing the Theory of Reasoned Action (FISHBEIN and AJZEN, 1975), Malhotra *et al.* (2004) also show that privacy concerns indirectly impact an individual's intention to divulge personal information in an online buyer-seller exchange. Through their theory of reasoned action, Fishbein and Ajzen (1975) show that "behavioral intention" is a reliable predictor of actual behavior, leading Malhotra *et al.* (2004) to argue that "intention to release personal information serves as a good proxy for whether one actually reveals personal information at the request of an online marketer". Malhotra *et al.*'s (2004) causal model implies that trust/risk beliefs fully mediate the impact of IUIPC on behavioral intention. Coupling this with the assumption that higher levels of risk would be associated with higher levels of distress, one can argue that distress will also mediate the impact of IUIPC on behavioral intention. *Ergo*, the following hypothesis can be made.

> *H3: e-Buyers' willingness to provide personal information (WPPI) is negatively impacted by e-buyer information privacy concerns (IUIPC) in an online buyer-seller situation that is mediated by e-buyers' distress (PCV).*

2.7.4 Vendor loyalty

We know of no prior research studies that address the online seller's loyalty to the individual consumer. In terms of equity theory, loyalty is what the consumer should expect (as an outcome) from the seller as a reward for repeat visitations and purchases. "What brings online customers back, primarily, is a sense of loyalty that comes from an Internet company" (YANG and JUN, 2002, p. 19). So, *vendor loyalty* (VL) is characterized as a first order (one-dimensional) construct with indicators

reflective of the e-seller's behavior to give personalized attention to the consumer and cultivate their online exchange relationship. Based on his *general expectancy model*, Austin (1972) argued that "expectancy (always) ameliorates distress". In other words, according to Austin and Walster (1974, p. 208), "individuals are more distressed when they encounter an unexpected injustice than when they encounter a long-expected one". So, one can argue that when expectations of vendor loyalty are low, disappointment is lower and, hence, tension or distress is lower. Likewise, when expectations of vendor loyalty are high, disappointment is greater; and, hence, tension or distress is greater. Hence, the following hypothesis can be made.

> *H4: e-Buyer distress (PCV) is positively impacted by vendor loyalty (VL) in an online buyer-seller situation.*

Ou and Sia (2003) contend that the online consumers' sense of belonging via perceived vendor loyalty creates a commitment to the vendor such that consumers are less wary about providing personal information to the vendor. Hence, the following hypothesis can be made.

> *H5: e-Buyers' willingness to provide personal information (WPPI) is positively impacted by vendor loyalty (VL) in an online buyer-seller situation that is mediated by e-buyer distress (PCV).*

2.8 CONTROL VARIABLES

Several control variables are included in this study. Most are consistent with similar variables used in previous empirical studies that address privacy concerns and the willingness to provide personal information. Only Phelps *et al.* (2000), using multivariate regression, tested age, gender, and education controlling for their effects and found all three to be statistically insignificant ($p > .05$) as predictors with regards to privacy concerns and consumer WPPI. In this study age, gender, and education are controlled for and tested again as predictors of WPPI to reaffirm or refute the previous results. Also, marital status, job status, ethnicity, and number of children age seventeen and under are controlled for and tested as predictors of WPPI, since there has been little to no attention in controlling for their effects in prior studies. Figure 3 shows latent, indicator and control variables.
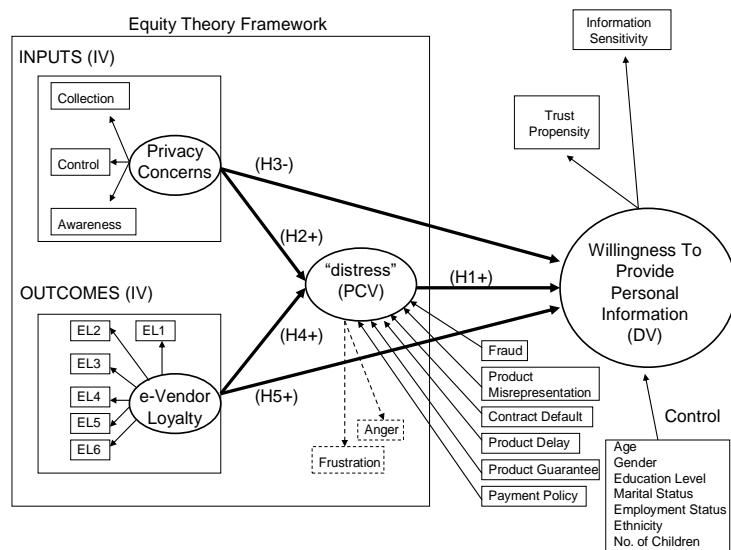
Figure 3: Model with latent, indicator and control variables

Source: elaborated by the authors

3   RESEARCH METHODOLOGY

The research design was a non-experimental, cross-sectional survey. The level of analysis is the "individual" since the intent is to capture an individual's perceptions of their WPPI in an online buyer-seller exchange. The target population in this study was made up of adult education students who have access to a computer with an Internet connection and occasionally browse online marketplaces (e.g., e-Bay) and individual e-seller websites. A convenience sample was taken of graduate and undergraduate adult education students at an accredited Mid-Atlantic States college. Adult students ranged in age from approximately 19 to 60 years with most (63%) in the 30 to 49 age range which is typical of Internet users. PEW Research Center data for 2016 on the percent of U.S. adults age 18 and over who use the internet shows that 99% of Americans between the ages of 18-29 use the Internet with 96% between the ages of 30-49, 87% between the ages of 50-64, and 64% 65 and over (PEW, 2017). So, the age range of 19 to 60 for the sample of students in this study is consistent with these figures and represents the major segment of Internet users. Based on demographic data analysis, the sample is considered generalizable to a large segment of Internet users represented by the characteristics of this convenience sample.

This study utilized a sample size estimation methodology presented by MacCallum *et al.* (1996) for covariance-based modeling (CBM) that determines minimum sample size based on degrees of freedom, statistical power, and level of significance (α). For a *not-close fit*[8] with a desired power of

---

[8] MacCallum *et al.*'s (1996) calculation of power and minimum sample size is based on using the root mean square error approximation (RMSEA) fit index as a test statistic. A

.80 and a level of significance of .05, the required sample size for 142 degrees of freedom was calculated to be 145 (PREACHER and COFFMAN, 2006).

Measurement scale constructs, variables, items, and related literature are summarized in Appendix A[9]. Likert seven-point response coding was used with these scales each anchored with *strongly disagree* to *strongly agree*. A pre-test of the survey instrument was made before distributing it to the sample. Specifically, using several open-ended questions, a pilot study involving two groups of three subjects each was conducted to acquire insight into the survey instrument to help improve its usability. Subject responses from the first group were used to modify the survey instrument before being administered to the second group. Open-ended questions included but were not limited to: (1) Is the survey instrument too long? (2) Are the survey questions easy to understand? (3) Are the survey directions easy to follow? All open-ended pilot questions were removed from the final survey instrument.

4 DATA ANALYSIS AND RESULTS

4.1 DATA SCREENING

Student participation was nearly ninety-five percent leading to a total of 486 completed questionnaires well above the required sample size (N = 145) based on power analysis. The data were screened to ensure that the data were "clean" before conducting further statistical analyses. Areas for consideration included missing data, outliers, and assumptions for application of parametric statistical methods (namely, normality, linearity, homoscedasticity, and multicollinearity). Twenty-seven cases were deleted based on the elimination of (mainly extreme) outliers, resulting in 459 useable cases. These 27 outliers had a significant impact on the univariate normal distributions of the indicator variables. Of the 486 cases collected no indicator variable had more than one missing data point except for one (D8) which had two. No cases or variables were deleted based on this very small number of missing data points. Structural equation modeling (SEM) techniques assume linearity between the variables in the structural model. The results of this test indicated that all structural path relationships are linear. The presence of heteroscedasticity will not bias structural parameter estimates but will bias the standard errors of the estimates. Each of the structural path relationships between the constructs was tested for heteroscedasticity and it was determined that in all cases the presence of heteroscedasticity was little to none. Multicollinearity was tested with

not-close fit hypothesizes a null RMSEA of .05 while specifying an alternative RMSEA of .01. The reason for testing the (null) hypothesis of a not-close fit rather than a close fit (where the alternative RMSEA is .08) is that a non-rejection of a close fit simply indicates insufficient evidence in the sample data to reject it and not a strong statement of a close fit of the model to the data. However, rejection of a not-close fit indicates a stronger statement concerning a close fit of the model to the data.

[9] Appendix A does not show the complete survey instrument.

respect to the distress (PCV) scale items. Since these items are formative in nature, they are not expected (theoretically) to be correlated. However, some correlation can be expected but should not be such that multi-collinearity arises. The VIF estimates for each item including the two reflective items (D2r and D6r) showed there to be no multicollinearity issues among the independent indicators of the distress (PCV) variable.

4.2 DEMOGRAPHIC DATA ANALYSIS

Eighty-one percent of the respondents indicated that they browsed the web at least once a week looking for product information or making a product purchase. They almost always-to-always favored using a credit card (64%) over a debit card (29%). Most were between the ages of 40 and 49 (32%) while an almost equal number of respondents were between the ages of 30 and 39 (31%). Most were female (58%), married (54%), and employed (95%). Most already had an associate degree (35%) or bachelor's degree (29%) as their highest attained degree. Most were either Caucasian (62%) or African American (21%). Forty-eight percent of the respondents indicated that they had at least one child of 17 years of age or younger in their household. Concerning a subject's propensity to falsify their personal information 53% of respondents indicated (slightly agree to strongly agree) that they would consider falsifying their personal information[10] while 35% indicated that they would not falsify their information and 12% were unsure.

4.3 CONTROL VARIABLES

Multivariate linear regression (R^2 = 0.037, F = 8.21, P < .001) was used to determine the statistical significance of each of the control variables in explaining variance in the dependent variable WPPI with only two of the variables being statistically significant: *age* (ΔR^2 = .026, t = -2.325, p < .05) and *marital status* (ΔR^2 = .011, t = -2.330, p < .05). The sign associated with each t-value is not unexpected. That is, one can argue that increased age implies a higher level of maturity and risk experience which leads to people being more reluctant to share personal information. Also, one can argue that marriage implies a sense of family and a higher level of responsibility to protect assets of the family against the threat of information privacy and security concerns. Hence, people become more reluctant to share personal information. However, a separate path analysis including structural model variables and control variables (i.e., age and marital status) indicated that age was not statistically significant (t = -0.415; p > .05) in explaining variance in WPPI while marital status, again, was statistically significant (t = -2.986; p < .01). Phelps *et al.* (2000) concluded that age was not significantly related to intention to provide personal information. Malhotra *et al.* (2004), on the other hand, found age to

---

[10] Not surprising! Buchanan *et al.* (2007) speculated that most people would answer "yes" considering the behaviors people may adopt to safeguard their privacy. Security concerns often result in consumers providing organizations with limited, incomplete or inaccurate information with the aim to protect their information (Alharbi *et al.*, 2013).

significantly affect a buyer's intention to provide personal information. In view of these varied results and conclusions, the effect of age on WPPI is inconclusive at best; and, hence, age was omitted from further analysis for parsimonious reasons.

4.4 COMMON METHOD VARIANCE

An exploratory factor analysis and Harman's one-factor test were used to test for common method variance (CMV) considered to be a threat to internal validity. The basic notion is that if a substantial amount of CMV is present, then (1) a single factor will emerge, or (2) one factor will account for most of the covariance in the independent and the dependent variables. More than one factor emerged; hence, condition (1) was not an issue. Also, the loadings ($\geq .4$) were spread sufficiently across the multiple factors that no one factor accounted for most of the covariance in both the independent (IUIPC and VL) and the dependent (WPPI and PCV) variables. Hence, CMV was not present in any substantial amount.

4.5 CONSTRUCT RELIABILITY

Malhotra *et al.*'s (2004) scales for IUIPC were selected for use as existing scales. Items associated with VL, TP and IS were taken from previous studies, adapted, and formed into new scales. Gefen *et al.* (2000) and Straub *et al.* (2004) suggest first testing (PCA with Varimax rotation) to see if items load as designated *a priori* citing a commonly used minimum loading level of .40 with cross-loadings less than .40. All items appear to load cleanly on their designated factors at .50 or higher and cross-load on other factors at approximately 0.40 or less (see Appendix B). For the PCV scale (i.e., items D1 through D8), D1 loads at 0.44 with a communality of only 0.39 suggesting that it is a weak indicator and might be removed from the scale. However, since this is a formative item, and, for theoretical reasons, it is kept in the scale since it otherwise might change the meaning of the distress (PCV) construct.

Concerning the VL construct, items appear to load on two factors instead of one factor as originally proposed. Item EL3 appears to load equally on both factors (.44 and .41) with low communality (.38) and was removed from the scale. The two new factors for VL were reevaluated: (IND) Individual (alpha = 0.65) comprised of items EL1 and EL2; and, (COM) Community (alpha = 0.67) comprised of items EL4, EL5 and EL6. Nunnally (1978) recommends that, for exploratory work (including newly developed scales), a minimum alpha of .60 is acceptable while for existing scales a minimum alpha of .70 is acceptable. Hence, the IND and COM scales were retained in the study as new scales; but, Control, an existing scale, was removed as a 1st order indicator of IUIPC (now denoted as PCX) because of its questionable reliability (alpha = 0.61).

4.6 MEASUREMENT MODEL VALIDATION

4.6.1 First and second order construct validity

Figure 4 illustrates a 1st order confirmatory factor analysis (CFA) with (reflective only) measurement models including standardized loadings and estimated covariances between the 1st order latent variables (LVs), the latter of which are not shown in the diagram for simplicity.

Standardized Loadings
all with p < .001
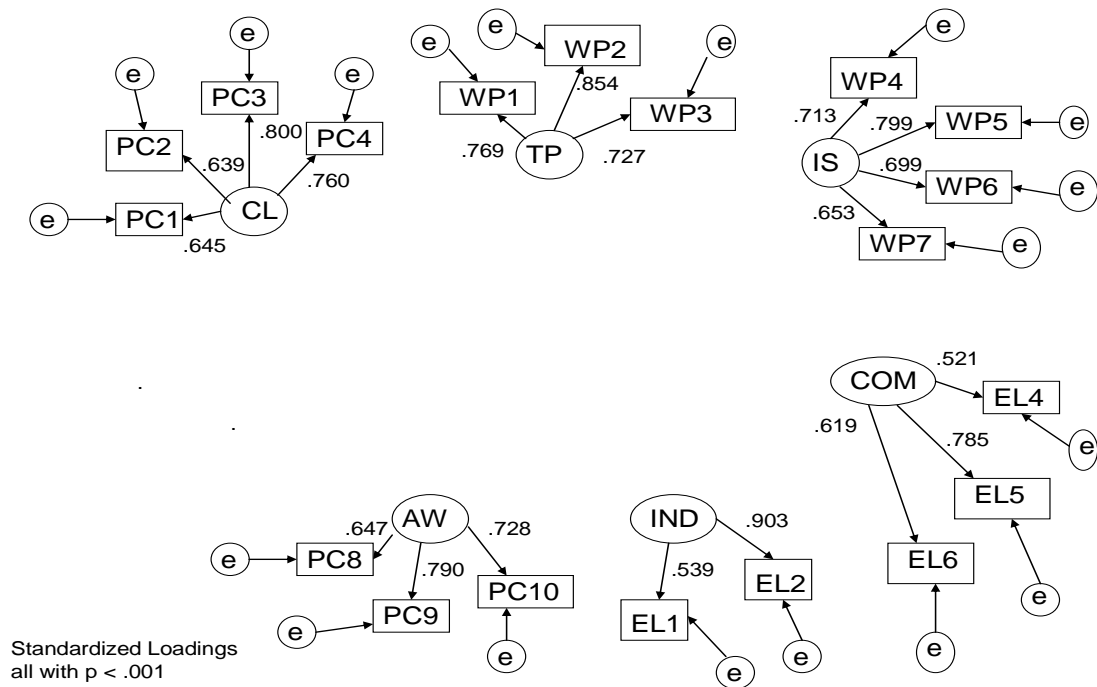
Figure 4: Integrated 1st order measurement models

Table 1 lists the AVE and $\sqrt{AVE}$ values for the 1st order LVs.

Table 1: AVE and $\sqrt{AVE}$ values for the 1st order LVs.

1st order LV	AVE	$\sqrt{AVE}$
Trust propensity (TP)	.62	.79
Information sensitivity (IS)	.52	.72
Collection (CL)	.51	.71
Awareness (AW)	.53	.73
Individual (IND)	.55	.74
Community (COM)	.42	.65

The AVE values are all above the recommended minimum of .50 except for the COM scale which has an AVE of .42 meaning that the COM factor explains only 42% of the variance in its respective indicators. The $\sqrt{AVE}$ values were found to be greater than any paired correlation between the LVs in all cases inclusive of COM. Thus, for purposes of this study, all 1st order LVs (except COM) are shown to have convergent and discriminant validity. Since COM represents a new scale for this study, it is retained with the caution that its convergent and discriminant validity may be weak at best.

It's been recommended by MacKenzie *et al.* (2011) that in structural models with 2nd order constructs validity also needs to be established for the 2nd order constructs based on their 1st order LV indicators. Figure 5 is illustrative of the 1st order-to-2nd order LV measurement models including standardized loadings and the 2nd order correlations.

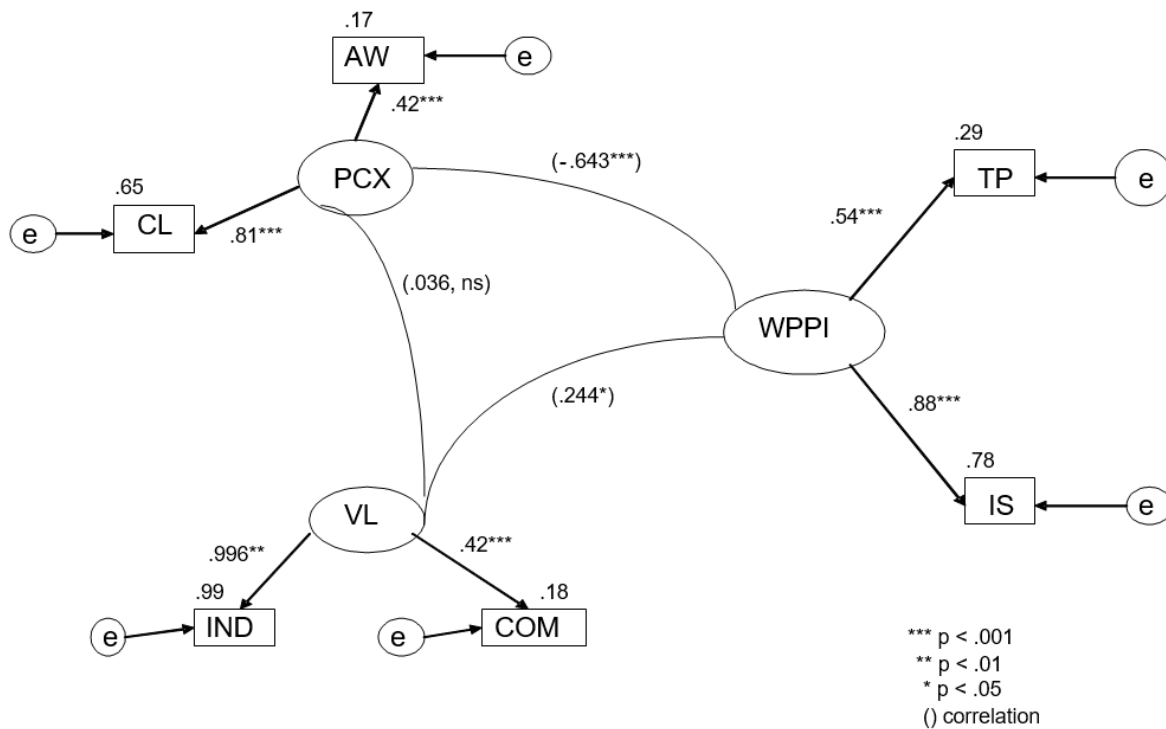Figure 5: Integrated 2nd order constructs

Source: elaborated by the authors

Table 2 lists the AVE and $\sqrt{AVE}$ values for the 2nd order LVs.

Table 2: AVE and $\sqrt{AVE}$ values for the 2nd order LVs.

	AVE	$\sqrt{AVE}$
WPPI	.53	.73
PCX	.45	.67
VL	.58	.76

The $\sqrt{AVE}$ values were found to be larger than any paired correlation between the 2nd order LVs implying 2nd order construct validity.

4.7 TESTING THE HYPOTHESES

A covariance-based structural equation modeling (SEM) approach was used to test the hypotheses. Figure 6 illustrates this full model. It includes standardized loadings and estimated path coefficients. Covariances among the "distress" (PCV) indicators themselves and the other variables are not shown here for simplicity.
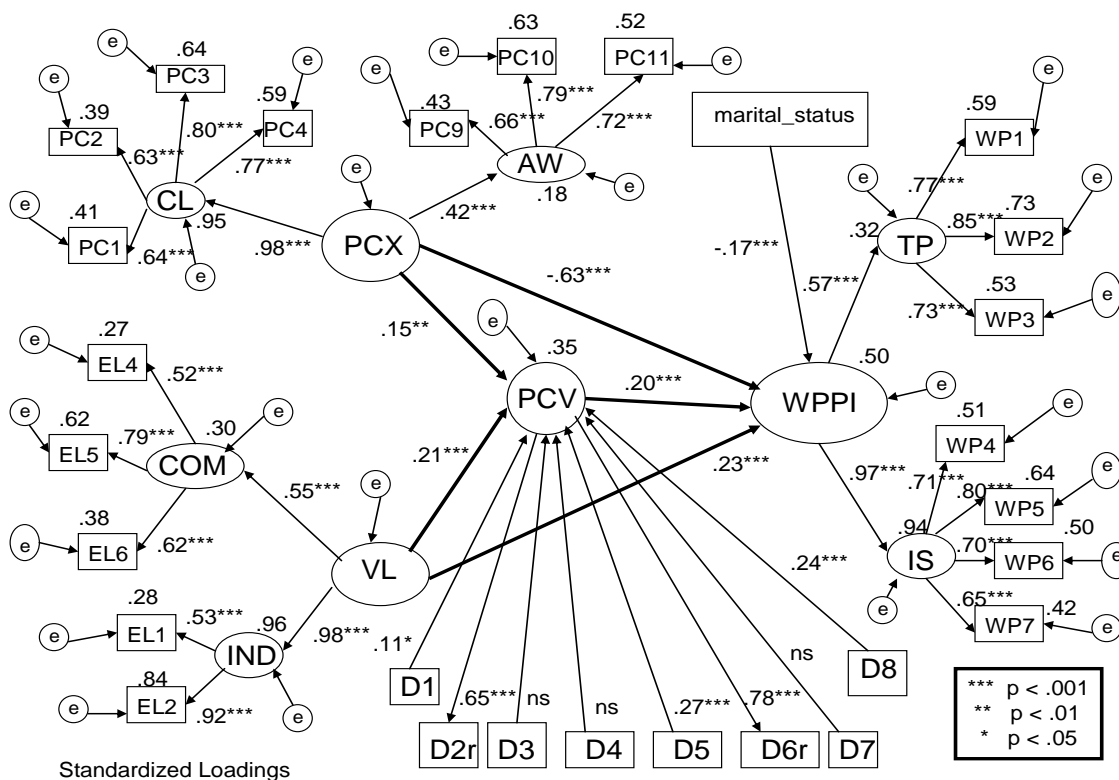
Figure 6: 1st & 2nd order factor structural model

Source: elaborated by the authors

The indices used are presumed least sensitive to sample size and supplement use of the χ^2 and χ^2/df statistics when sample size gets large (e.g., > 200). Acceptability thresholds are as follows: χ^2 (the smaller the better); χ^2/df (≤ 2); CFI (≥ .90); TLI a.k.a. Tucker-Lewis (≥ .90); IFI (≥ .90); NFI (≥ .90); and RMSEA (≤ .05). Fit indices for this model are as follows: χ^2 = 645 (d.f. = 326; p = .000); χ^2/df = 1.977, CFI = .913, TLI = .891, IFI = .914, NFI = .841, and RMSEA = .046. All the indices satisfy their threshold values except for NFI, indicating a close fit overall. For the dependent LVs, PCX and VL explain 35% of the variance in PCV while PCX, VL, and PCV explain 50% of the variance in WPPI. These percentages may appear low since only two situational factors were used, implying that other identifiable factors should contribute to higher explained variances.

4.8 "DISTRESS" (PCV) CONSTRUCT

One research goal was the operationalization of the "distress" construct. It was defined as a construct with formative indicators based on Pavlou and Gefen's (2005) work with psychological contract violation in online marketplaces. That is, the six formative indicators (D1, D3, D4, D5, D7, and D8) shown in Figure 6 are based on common sources of contract violation identified by Pavlou and Gefen (2005) with individual sellers in online marketplaces. The indicators D2r and D6r were added as reflective indicators (JARVIS *et al.*, 2003) for model identification purposes. Results show that three of the six formative indicators *product misrepresentation* D3 (β = .086, p = .132), *contract default* D4 (β = .053, p = .358), and *not honoring product guarantees* D7 (β = .097, p = .093) are not statistically significant[11]. The two reflective indicators are significant: D2r (β = .652, p < .001), and D6r (β = .778, p < .001). Pavlou and Gefen (2005) indicated that the six identified causes are not exhaustive but representative of what commonly causes PCV with individual online sellers. This would potentially undermine the content validity of the distress (PCV) construct since as formative indicators these sources do not capture the full meaning of the construct's domain. These authors also stated that "these behaviors may not necessarily result in PCV", which by implication extends to distress, thus, making the non-statistically significant results plausible for this population sample. Despite the foregoing implications, the fact that three formative indicators (*fraud* D1, *product delivery delay* D5, and *refusal to follow payment policies by the seller* D8) and the two reflective indicators (*anger* D2r and *frustration* D6r) were statistically significant would suggest support for the distress (PCV) construct. Other formative indicators should be identified and tested that would ensure a more complete content validity for this construct.

4.9 MEDIATION EFFECTS OF DISTRESS (PCV)

The second and last research question concerned itself with the mediating effects that "distress" would have on the independent variable relationships (i.e., PCX and VL) with the dependent variable, WPPI. Baron and Kenny's (1986) approach was used to test mediation. Sobel's model was used to test the statistical significance of mediation[12].

The following regression equations were used in the mediation analysis of "distress" (PCV) on the PCX-to-WPPI relationship.

---

[11] Empirically, Pavlou and Gefen (2005) showed that five of the indicators were statistically significant at the p < .01 level with *product guarantees* being statistically significant at the p < .05 level.

[12] Sobel test calculator uses the Sobel test to tell you whether a mediator variable significantly carries the influence of an independent variable to a dependent variable; i.e., whether the indirect effect of the independent variable on the dependent variable through the mediator variable is significant. This calculator returns both the one-tailed and two-tailed probability values.

$\text{WPPI} = b_{01} + c * \text{PCX (Model 1)}$

$\text{PCV} = b_{02} + a * \text{PCX (Model 2)}$

$\text{WPPI} = b_{03} + c' * \text{PCX} + b * \text{PCV (Model 3)}$

Table 3: Distress (PCV) mediation results on PCX to WPPI relationship

	B	Std. Error	β	t	p	R^2
Model 1 (c)	-.799	.083	-.374	-8.628	< .001	.140
Model 2 (a)	.302	.057	.241	5.319	< .001	.058
Model 3 (c')	-.903	.093	-.423	-9.681	< .001	.179
(b)	.347	.075	.203	4.645	< .001	

Betas (β): (c – c') = -.374 – (-.423) = .049 (> 0) indicating partial mediation.

Sobel Test Statistic: 3.485 (> 2), Prob (1 tail): .0003 (< .001), Prob (2 tail): .0005 (< .001)

The Sobel test results indicate that partial mediation by the "distress" variable on the PCX-to-WPPI relationship is statistically significant.

The following regression equations were used in the mediation analysis of "distress" (PCV) on the VL-to-WPPI relationship.

$\text{WPPI} = b_{01} + c * \text{VL (Model 1)}$

$\text{PCV} = b_{02} + a * \text{VL (Model 2)}$

$\text{WPPI} = b_{03} + c' * \text{VL} + b * \text{PCV (Model 3)}$

Table 4: Distress (PCV) mediation results on VL to WPPI relationship

	B	Std. Error	β	t	p	R^2
Model 1 (c)	.222	.066	.156	3.371	.001	.024
Model 2 (a)	.185	.038	.222	4.861	< .001	.049
Model 3 (c')	.200	.067	.140	2.964	.003	.029
(b)	.119	.081	.070	1.475	.141	

Betas (β): (c – c') = .156 – .140 = .016 (> 0) indicating partial mediation.

Sobel Test Statistic: 1.406 (< 2), Prob (1 tail): .079 (> .05), Prob (2 tail): .159 (> .05)

The Sobel test results indicate that the partial mediation by the "distress" variable on the VL-to-WPPI relationship is not statistically significant. This was expected since the coefficient "b" was not statistically significant (p = .141).

5   DISCUSSION

5.1 RESEARCH QUESTIONS

The research questions posed in the Introduction have been answered by the results (shown in Table 5) of this research study. First, "distress" (PCV) was shown to have a positive influence on an individual's WPPI that is statistically significant (p < .001). Second, "distress" (PCV) was shown to partially mediate the impact of privacy concerns (PCX) on WPPI; but, its mediation of (perceived) VL on WPPI was not statistically significant. In the context of this research study one can interpret this latter result to mean that an individual might be more motivated to take action if they perceived that their personal information was being covertly collected (a privacy concerns issue) but perhaps less motivated to take action if they did not receive a discount coupon (a vendor loyalty issue).

Table 5: Results summary of tested hypotheses

Hypothesis	Statement	Supported	Reason
H1+	e-Buyers' willingness to provide personal information is positively impacted by e-buyer "distress" in an online buyer-seller situation.	Yes	Positive relationship is supported
H2+	e-Buyers' "distress" is positively impacted by e-buyer information privacy concerns in an online buyer-seller situation.	Yes	Positive relationship is supported
H3-	e-Buyers' willingness to provide personal information is negatively impacted by e-buyer information privacy concerns in an online situation that is mediated by e-buyers' "distress".	Yes/Yes	Both a positive and partial mediated relationship is supported
H4+	e-Buyers' "distress" is positively impacted by e-vendor loyalty in an online buyer-seller situation.	Yes	Positive relationship is supported
H5+	e-Buyer WPPI is positively impacted by vendor loyalty in an online buyer-seller situation that is mediated by e-buyer "distress".	Yes/No	Positive relationship is supported but mediation is not supported

6 IMPLICATIONS

6.1 RESEARCHER IMPLICATIONS

Smith *et al.* (1996) created a fifteen-item, four-dimensional scale, concern for information privacy (CFIP), consisting of the dimensions *collection, unauthorized secondary use, improper access*, and *errors*. Stewart and Segars (2002) showed that CFIP was a second-order factor that governed the behavior of its four first-order factors. Malhotra *et al.* (2004) conceptualized the second-order, three-dimensional construct IUIPC as "the degree to which an Internet user is concerned about online marketers' collection of personal information, the user's control over the collected information, and the user's awareness of how the collected information is used". Malhotra *et al.* (2004) adopted Smith *et al.*'s (1996) definition of "collection" and believed that their new scales for "control" and "awareness" effectively represented the other three CFIP dimensions. Table 6 illustrates and compares the Cronbach alpha reliabilities for the various dimensions analyzed in Smith *et al.* (1996), Malhotra *et al.* (2004) and this current study[13].

Table 6: 1st order scale reliabilities for CFIP and IUIPC factors

Factor	Construct	Smith *et al.* (1996)	Malhotra *et al.* (2004)*	Current Study
COLL (CL)	CFIP/IUIPC	0.88	0.83	0.80
ERRO	CFIP	0.84	0.88	
SECO	CFIP	0.80	0.82	
IMPR	CFIP	0.75	0.77	
AWAR (AW)	IUIPC		0.74	0.76
CONT (CT)	IUIPC		0.78	0.61

* Malhotra *et al.* (2004) tested all dimensions for CFIP and IUIPC. COLL: collection, ERRO: errors, SECO: unauthorized secondary use, IMPR: improper access, AWAR: awareness, CONT: control

All scales have reliability values above .70 for established scales except for the CONT scale (.61) as obtained in this current study. Malhotra *et al.*'s (2004) figures closely match up with those of Smith *et al.* (1996) regarding the four CFIP factors. Despite significant differences in the wording of individual items for AWAR and CONT with respect to ERRO, SECO and IMPR, Malhotra *et al.*'s (2004) figures closely match up with those of Smith *et al.* (1996). The current study results for COLL and AWAR closely match up with those of Malhotra *et al.* (2004). However, a surprising discrepancy arises with respect to the large difference in values for CONT between Malhotra *et al.* (2004) and the current study. Given that the latter two studies used the same set of items for the CONT scale, the discrepancy might be attributed to (1) differences between the populations

---

[13] Factor abbreviations are those used in the Smith *et al.* (1996) and Malhotra *et al.* (2004) studies. Corresponding abbreviations as used in section 4 of this article are shown in parentheses.

from which the samples were drawn or (2) the way the questionnaires were administered. Malhotra *et al.* (2004) indicated that strict instructions were provided as to the quality of data collection implying that those who surveyed respondents were most likely informed as to how to properly administer the questionnaires. That enhances the prospect of population differences as the source of the discrepancy and the suggestion that the CONT scale (and, therefore, IUIPC in general) may not generalize very well to other populations. Malhotra *et al.* (2004) even advise that "care must be taken in any effort to generalize our findings beyond the boundary of our sample." Therefore, one might conclude from this discussion that (1) IUIPC in general may not have external validity and that (2) the CONT scale may not exhibit high reliability across a variety of populations. These findings should provide insight and incentive for researchers to study the generalizability of IUIPC in other population settings.

Psychological contract violation [and by implication distress in the online buyer-seller exchange] exists primarily in the eye of the beholder (PAVLOU and GEFEN, 2005). People will tolerate inequity until some threshold level is exceeded which itself is difficult to specify since it depends on many other factors — e.g., importance, cost of action, probability that action leads to resolution — that may differ for each person (COSIER and DALTON, 1983). This suggests a relationship between equity sensitivity and distress (PCV). So, in future studies researchers might utilize Huseman *et al.*'s (1987) equity sensitivity construct which categorizes individuals based on their respective differences in reacting to perceived inequity. Researchers (e.g., KICKUL and LESTER, 2001) have studied the moderating influence of equity sensitivity the results of which could be useful in exploring the moderating effects of equity between the situational determinants of personal information disclosure and distress (PCV).

Because new scale items were adapted from multiple sources, there is the possibility of imprecise phraseology and inconsistent wording. The authors believe that more harmony among items can be developed for each of the new scales that would increase their internal consistency reliability as well as the convergent and discriminant validity of the constructs they are intended to measure.

6.2 MANAGEMENT IMPLICATIONS

The fact that distress (PCV) was shown to exhibit mediation capabilities has management implications. Specifically, mediation suggests that an individual would be more highly motivated in specific situations to do what is necessary to complete the exchange. For example, in this research study for the two independent variables PCX and VL, the results would indicate that an individual would be motivated to restore equity in the exchange for a privacy concerns issue more so than for an issue concerning the buyer's expectation of the vendor's loyalty. That is, an individual might be more motivated to act if they perceived that their personal information was being covertly collected (a privacy concerns

issue) but perhaps less motivated to act if they did not receive a discount coupon (a vendor loyalty issue). Such information would provide managers with insight into which situational factors (and perhaps more importantly which of their sub elements) to emphasize in their customer relationship strategies.

As shown in Figure 6, the loadings of the 1st order factors collection (.98, p < .001) and awareness (.42, p < .001) on the 2nd order construct PCX indicate that collection has more than twice the weight of awareness and has by far the most variance explained (.95) by PCX. This information would clearly indicate to managers that collection is paramount followed by awareness in the minds of online buyers at least as represented by the population sample used in this study. The introduction of the VL construct and its dimensions would offer sellers insight into buyers' expectations about what buyers consider as important in cultivating and retaining relationships with online consumers. Figure 6 shows that VL explains over three times as much of the variance in subject responses regarding individual benefits (.96) as it does for the group-related community benefits (.30) indicating that, in general, managers should stress the former in cultivating and retaining relationships with online consumers. At a more basic item level, however, it should be noted (Appendix B) that increasing perceived vendor loyalty may have more to do with sending a personal "thank you" (communality of 0.71 for item EL5) than it does for providing coupons, discounts and the like (communality of 0.53 for item EL4). Also, item EL2 [*I would revisit an online seller that makes me feel like I am a unique customer*] with the second highest communality of 0.59 would further suggest that managers consider sending a personal "thank you" for each online purchase. Making purchase recommendations (communality of 0.54 for item EL1) and providing a consumer community network (communality of 0.56 for item EL6) were less important (relatively speaking) and managers might consider giving less priority to these in cultivating and retaining relationships with online consumers.

6.3 PUBLIC POLICYMAKING IMPLICATIONS

One can argue that the results support stronger government policies towards "regulation" of the collection and sharing of buyers' personal information. Most online websites voluntarily display privacy seals, e.g., TRUSTe, and awareness statements indicating that buyers have some assurance that information privacy and security concerns are addressed[14]. However, industry efforts to address privacy through self-regulation "have been too slow and have failed to provide adequate and meaningful protection" forcing consumers to bear too much burden in protecting their privacy (FTC, 2010).[15] In their 2010 report the U.S. Federal Trade

---

[14]Keith *et al.* (2016) examined the effectiveness of privacy seals in mobile applications ("apps") and found the practice unstandardized and unused despite their common deployment in traditional e-commerce.

[15]Seventy percent (70%) of people disagree with the statement "privacy policies are easy to understand", few people make the effort to read them, and, empirical evidence

Commission (FTC) called for a "do not track" option that would give consumers the ability to stop advertisers from tracking their every online click. Hence, public policy should mandate (and not just recommend) that this option be adopted and implemented by the online advertising and marketing industry if it is to be effective and, as the FTC indicated, balance the privacy interests of consumers with new product and service innovations that rely on consumer information. The Do Not Track Online Act of 2015 [S.2404---114th Congress (2015-2916)] empowered the FTC to promulgate regulations for the establishment of standards and mechanisms by which individuals could request that providers of online services don't collect their personal information AND rules that prohibit providers of online services from collecting personal information or discriminating against individuals who elect not to have their personal information collected. There has also been regulatory activity at the state level. For instance, the California Business and Professions Code 22575 (enacted in 2003 and amended 2013) requires that the operator of a commercial website or online service disclose in its privacy policy how it responds to a "Do Not Track": signal and give consumers the choice about online tracking of their personal information. Industry-wise, in 2015 the Electronic Frontier Foundation (EFF), privacy company Disconnect, and a coalition of internet companies announced a stronger Do Not Track (DNT) policy standard that will better protect users from having their information tracked online. The General Data Protection Regulation (GDPR) is a rule passed by the European Union in 2016 (effective 2018) setting new rules for how companies manage and share personal data. The advent of mobile commerce (m-commerce) with location-based services gives rise to new and more serious issues regarding access to personal information that potentially threatens a person's physical privacy which further justifies a mandate for a "do not track" mechanism.[16] The federal Do Not Track Online Act of 2015 appears to address providers of mobile applications and services while the GDPR and California BPC 22575 policies don't explicitly address this. Unfortunately, the EFF DNT policy isn't necessarily appropriate for the mobile environment since it was designed mainly for desktop browsers interacting with websites. According to data published by eMarketer, online sales made on mobiles represent more than $156 billion in the U.S. in 2017 and are estimated to increase to $206.5 billion in 2018.

The advent of smart speakers and voice assistants present the newest challenge regarding information privacy issues associated with

---

suggests that consumers do not fully understand the meaning of privacy seals, e.g., TRUSTe (Tsai *et al.*, 2011). Some lawyers who write privacy policies for large companies have acknowledged that the documents are legal tender not designed to be understood by ordinary people (Turow *et al.*, 2015).

[16] Keith *et al.* (2016) cite a field study by Almuhimedi *et al.* (2015) revealing that the average consumer's location data is collected without their knowledge 5,398 times every 14 days. Angwin and Valentino-Devries (2011) have reported that both Apple iOS and Google Android mobile operating systems record and transmit location data without the knowledge or consent of device owners.

online shopping. A Voicebot/Voicify study reported that 67% of U.S. Internet users expressed some level of concern about privacy risks with smart speakers in general. A RetailMeNot 2018 study among U.S. smart speaker users found that 48% are worried about the privacy of personal information while 46% are worried about the security of payment information. According to eMarketer, among U.S. smart speaker users, 13.6% made voice purchases during January 2018. However, with an increased emphasis on visual's content role in [online] shopping, many consumers will forgo buying via screenless voice assistants (eMarketer). The RetailMeNot study found that 51% of U.S. Internet users said they would not shop on smart speakers because they like to see what they buy before a purchase, even if it's just a picture. Hence, growth in voice-based smart speaker online purchases may be slow due to the privacy/security concerns and the lack of product visibility.

7   LIMITATIONS

This research study is limited in that it does not involve a true or quasi-experimental research design as many studies of this nature do. The implication is that the study can only capture perceptions of buyer responses as opposed to actual responses. Most studies of this type have asked participants to review an actual website and self-report on their personal experience. But it can be argued that the results from those studies are not any more generalizable since websites can differ in their design and operation which cannot be represented by a one or two-website experiment.

This study is also limited in that it addresses the mediating effects of distress (PCV) on only two situational factors — *privacy concerns* and *vendor loyalty* — within the equity theory model. However, many factors can all affect a person's perceived value of input [or outcome]. Hence, future studies should consider multiple situational factors as inputs and outcomes together.

This research study does not address how prior feelings of inequity affect current levels of inequity. Some researchers argue that time diminishes the effect of prior inequity that is not resolved. Cosier and Dalton (1983) proposed a model that provided a time dimension by incorporating past inequity (i.e., residual tension) in order to predict the strength of the motivation to reduce current inequity. This implies that past inequities may indeed govern an individual's current level of distress. Future research should explore the effects of residual inequities on current feelings of inequity and the motivational strength to restore equity.

Related to this issue is a more overarching question that would seek to determine just how the Internet itself moderates/mediates the effects of residual inequities on current feelings of inequity. To create equity, more and more online shoppers are choosing to falsify the personal information they provide to online sellers in order to protect their privacy. This may be

due in large part to a history of past injustices associated with the improper collection of personal information and/or the improper distribution of personal information. The Internet has the potential to promote unfairness in both the collection and distribution of personal information by online sellers, being considered a primary violator of consumer privacy (LUO *et al.*, 2010). What is more, hidden software on mobile devices can potentially circumvent any attempt by online consumers to opt out of their Internet provider's diagnostic monitoring service by continuing to covertly collect mobile data even after the diagnostic monitoring feature is turned off[17]. So, one can potentially make the argument that Internet users are more likely to experience injustice in a buyer-seller exchange than non-Internet users. Future research should test this proposition.

This study does not sample from among students of different national cultures or even different regional cultures within the U.S. cross-cultural differences could potentially impact the moderating effects of equity sensitivity on distress. Wheeler (2002) was the first to show that cultural dimensions — collectivism, femininity, power distance, and uncertainty avoidance — are related to equity sensitivity. Future studies should investigate these cross-cultural differences and their influence on an individual's intention to restore equity.

8   CONCLUSION

This research study purports to have made four main contributions to the B2C e-commerce literature including (1) evidence that Malhotra *et al.*'s (2004) IUIPC construct may not have external validity (i.e., generalizability) across populations, (2) results showing that the concept of distress as presented in Adams' (1963) equity theory can be operationalized with formative indicators, (3) evidence that the distress (PCV) construct has mediating effects concerning the influence of specific situational factors on an individual's willingness to provide personal information to online sellers, and (4) operationalization of a vendor loyalty construct as an extension of the "personalization" concept that embodies the ideal of making each and every consumer feel unique and special.

The results of this empirical study lend credence to the equity theory notion that distress acts as an equity restoration mechanism. This result implies that individuals will respond with a resolve to restore balance in an online transactional exchange when they perceive that an injustice has occurred. To our knowledge there are no other empirical studies that provide evidential support of this notion.

---

[17] An instance of this is software developed by and available from Carrier IQ. *Monitoring every keystroke and more,* Star Ledger, December 8, 2011. (Source: Farhad Manjoo, Slate technology, slate.com).

REFERENCES

ADAMS, J. S. 1963. Toward an Understanding of Inequity, *J. of Abnormal and Social Psych.,* (67), pp. 422-436.

ADAMS, J. S. 1965. Inequality in Social Exchange. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (vol. 2, pp. 267-299). New York, Academic Press.

ALHARBI, M. I., ZYNGIER, S., and HODKINSON, C. 2013. Privacy by design and consumers' perceived privacy and security concerns in the success of e-commerce. *Journal of Enterprise Information Management*, (26:6), pp. 702-718.

ALMUHIMEDI, H., SCHAUB, F., SADEH, N., ADJEND, I., ACQUISTI, A., GLUCK, J., CRANOR, I. F., and AGARWAL, Y. (2015). Your location has been shared 5,396 times! A field study on mobile app privacy nudging. In *Proceedings of the 33rd Annual Conference on Human Factors in Computing Systems*, pp. 787-796.

ANGWIN, L. and VALENTINO-DEVRIES, J. (2011). Apple, Google collect user data. *The Wall Street Journal*. Retrieved from *https://www.wsj.com/articles/SB10001424052748703983704576277101723453610*

ASHWORTH, L., and FREE, C. 2006. Marketing Dataveillance and Digital Privacy: Using Theories of Justice to Understand Consumers' Online Privacy Concerns, *Journal of Business Ethics,* (67), pp. 107-123.

AU, N., NGAI, E. W. T., and CHENG, T. C. E. 2008. Extending the understanding of end user information systems satisfaction formation: an equitable needs fulfillment model approach. *MIS Quarterly,* (32:1), pp. 43-66.

AUSTIN, W. G. 1972. *Theoretical and Experimental Explorations in Expectancy Theory*. Unpublished master's thesis, University of Wisconsin-Madison.

AUSTIN, W. and WALSTER, E. 1974. Reactions to Confirmations and Disconfirmations of Expectancies of Equity and Inequity, *Journal of Personality and Social Psychology,* (30:2), pp. 208-216.

BARON, R. M., and KENNY, D. A. 1986. The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations, *Journal of Personality and Social Psychology*, (51), pp. 1173–1182.

BUCHANAN, T., PAINE, C., JOINSON, A. N., and REIPS, U-D. 2007. Development of Measures of Online Privacy Concerns and Protection for Use on the Internet, *Journal of the American Society for Information Science and Technology,* (58:2), pp. 157-165.

CARRELL, M. R., and DITTRICH, J. E. 1978. Equity Theory: The Recent Literature, Methodological Considerations, and New Directions. *Academy of Management Review, 3*, pp. 202-210.

CHELLAPPA, R. K., and SIN, R. 2005. Personalization Versus Privacy: An Empirical Examination of the Online Consumer's Dilemma. *Information Technology and Management, 6*, pp. 181-202.

CHEUNG, C. M. K., and LEE, M. K. O. 2001. Trust in Internet Shopping: Instrument Development and Validation Through Classical and Modern Approaches, *Journal of Global Information Management,* (9:3), July-Sept, pp. 23-35.

CHO, J. E. 2007. The Effects of Trust/Distrust on Information Privacy Concerns (IPC) and the Moderating Roles of Individual Propensities, *International Journal of Business Research,* (7:3), pp. 107-115.

CHURCHILL, A. G. 1979. A Paradigm for Developing Better Measures of Marketing Constructs, *Journal of Marketing Research,* (16), pp. 64-73.

CLARKE, R. 1999. Internet Privacy Concerns Confirm the Case for Intervention. *Communications of the ACM, Vol. 42*, No. 2, February, pp. 60-67.

COHEN, S., KAMARCK, T., and MERMELSTEIN, R. 1983. A Global Measure of Perceived Stress, *Journal of Health and Social Behavior,* (24), (December), pp. 385-396.

COSIER, R. A., and DALTON, D. R. 1983. Equity Theory and Time: A Reformulation, *Academy of Management Review* (8), pp. 311-319.

CRANOR, L. F. 1999. Internet Privacy. *Communications of the ACM,* (42:2), February, pp. 29-31.

DINEV, T., and HART, P. 2006. An Extended Privacy Calculus Model for E-Commerce Transactions, *Information Systems Research,* (17:1), pp. 61-80.

DR, 2010. 'Do Not Track' online idea copies 'Do Not Call', *Daily Record*, December 2.

EASTLICK, M., LOTZ, S., and WARRINGTON, P., 2006. Understanding online B-to-C relationships: an integrated model of privacy concerns, trust, and commitment. *Journal of business Research*, (59:8), pp. 877-886.

FARMER, M. M., and FERRARO, K. 1997. Distress and Perceived Health: Mechanisms of Health Decline, *J. of Health and Social Behavior,* (39), (September), pp. 298-311.

FISHBEIN, M., and AJZEN, I. 1975. Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research, Addison-Wesley, Reading, MA.

FORTES, N., and RITA, P., 2016. Privacy concerns and online purchasing behavior: Towards an integrated model. *European Research on Management and Business Economics*, 22, pp. 167-176.

FR 2015. Joyce, R., The Future of Digital Media Buying, *Forrester Research*, December 2, 2014, p. 10.

FTC 2010. *A Preliminary Staff Report on Protecting Consumer Privacy in an Era of Rapid Change: a Proposed Framework for Businesses and*

Policymakers; Federal Trade Commission, Bureau of Consumer Protection (December 1, 2010).

FTC 2015. *Internet of things: privacy and security in a connected world*. FTC staff report, January 2015.

FTC 2018. *Federal Trade Commission Issues 2018 Privacy and Data Security Update.* https://www.clearycyberwatch.com/2019/03/federal-trade-commission-issues-2018-privacy-and-data-security-update/

FTI Consulting, Inc. 2017. 2017 U.S. Online Retail Forecast.

GEFEN, D. 2002. Customer Loyalty in E-commerce. *Journal of the Association for Information Systems, Vol. 3*, 27-51.

GEFEN, D., STRAUB, D. W., and BOUDREAU, M. C. 2000. Structural Equation Modeling and Regression: Guidelines for Research Practice, *Communications of the Association for Information Systems*. (4:7) Retrieved from http://cais.isworld.org/articles/4-7/article.htm#Second_Generation_Data_Analysis

GLASS, R. S., and WOOD, W. A. 1996. Situational Determinants of Software Piracy: An Equity Theory Perspective, *Journal of Business Ethics,* (15), pp. 1189-1198.

GOODMAN, P. S., and FREIDMAN, A. 1971. An Examination of Adams' Theory of Inequity. *Administrative Science Quarterly, 16*, 271-288.

GOODWIN, C. 1991. Privacy: Recognition of Consumer Right. *Journal of Public Policy & Marketing,* 10 (Spring), 149-166.

HOFFMAN, D. L., NOVAK, T. P., and PERALTA, M. A 1999. Building Consumer Trust Online. *Communications of the ACM, 42*(4), 80-85.

HUI, K. L., TEO, H. H., and LEE, S.-T. T. 2007. The Value of Privacy Assurance: An Exploratory Field Experiment, *MIS Quarterly,* (31:1), pp. 19-33.

HUPPERTZ, J. W., ARENSON, S. J., and EVANS, R. H. 1978. An Application of Equity Theory to Buyer-Seller Exchange Situations. *J. of Marketing Research, Vol. XV* (May), 250-260.

HUSEMAN, R. C., HATFIELD, J. D., and MILES, E. W. 1987. A New Perspective on Equity Theory: The Equity Sensitivity Construct, *The Academy of Management Review,* (12:2), pp. 222-234.

JAEGER, J. 2010. Federal Trade Commission Explores Data Privacy, *Compliance and Technology*, March 2010, p. 48 (cont'd p. 67).

JARVIS, C. B., MACKENZIE, S. B., & PODSAKOFF, P. M. 2003. A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research. *Journal of Consumer Research, Vol. 30*, Sept., pp. 199-218.

JONES, S. M. 2010. Internet Poised to Become Bigger Force in Shopping, *Chicago Tribune*, Jan. 6, 2010, p. 17.

JOSHI, K. 1989. The Measurement of Fairness or Equity Perceptions of Management Information Systems Users. *MIS Quarterly, 13*(3), 343-358.

JOSHI, K. 1990. An Investigation of Equity as a Determinant of User Information Satisfaction, *Decision Sciences*, Fall 1990, (21:4), ABI/INFORM Global.

KEITH, M. J., THOMPSON, S. C., HALE, J., LOWRY, P. B., and GREER, C. 2013. Information disclosure on mobile devices: re-examining privacy calculus with actual user behavior. *International Journal of Human-Computer Studies*, (35:5), pp. 561-571.

KEITH, M. J., BABB, J., ABDULLAT, A., FURNER, C., and LOWERY, P. B. 2016. limited information and quick decisions: consumer privacy calculus for mobile applications. *Transactions on Human-Computer Interactions,* (8:3), pp. 88-130.

KICKUL, J., and LESTER, S. W. 2001. Broken Promises: Equity Sensitivity as a Moderator Between Psychological Contract Breach and Employee Attitudes and Behavior, *Journal of Business and Psychology,* (16:2), pp. 191-217.

KORGAONKAR, P. K., and WOLIN, L. D. 1999. A Multivariate Analysis of Web Usage. *J. Advertising Res.,* (March/April), 53-68.

LEES, M. 2009. Building Resilience in Stressful Times. *Charter, June 2009;* (80:5), *Accounting and Tax Periodicals,* p. 48.

LOHSE, G. L., and SPILLER, P. 1998. Electronic Shopping, *Comm. of the ACM,* (41:7), July, pp. 81- 88.

LUO, X., LI, H., ZHANG, J., and SHIM, J. P. 2010. Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services. *Decision support systems,* (49:2), pp. 222-234.

MacCALLUM, R. C., BROWNE, M. W. and SUGAWARA, H. M. 1996. Power Analysis and Determination of Sample Size for Covariance Structure Modeling, *Psychological Methods,* (1:2), pp. 130-149.

MacKENZIE, S. B., PODSAKOFF, P. M., and PODSAKOFF, N. P. 2011. Construct Measurement and Validation Procedures in MIS and Behavioral Research: Integrating New and Existing Techniques, *MIS Quarterly,* (35:2), pp. 293-334.

MALHOTRA, N. K., KIM, S. S., and AGARWAL, J. 2004. Internet User's Information Privacy Concerns (IUIPC): the Construct, the Scale, and a Causal Model, *Information Systems Research, (*15:4), pp. 336-355.

MARRIOTT, H. R., WILLIAMS, M. D., and DWIVEDI, Y. K. 2017. Risk, privacy and security concerns in digital retail. *The Marketing Review*, (17:3), pp. 337-365.

McKNIGHT, D. H., CUMMINGS, L. L., and CHERVANY, N. L. 1998. Initial trust formation in new organizational relationships. *Academy of Management Review*, (23:3), pp. 473-490.

MIENERT, D. B., PETERSON, D. K., CRISWELL, J. R., and CROSSLAND, M. D. 2006. Privacy policy statements and consumer willingness to provide personal information. *Journal of Electronic Commerce in Organizations*, (4:1), pp. 1-17.

MORRISON, E. W., and ROBINSON, S. L. 1997. When employees feel betrayed: a model of how psychological contract violation develops. *Academy of Management Review*. (22:1), pp. 226-256.

NUNNALLY, J. C. 1978. *Psychometric theory*, 2nd Ed., McGraw-Hill, New York.

OU, C-X, and SIA, C-L 2003. Customer loyalty strategy in the internet era, *7th Pacific Asia Conference on Information Systems*, 10-13 July 2003, Adelaide, South Australia, pp. 1734-1744.

PAVLOU, P. A. 2011. State of the information privacy literature: Where are we now and where should we go? *MIS Quarterly*, (35:4), pp. 977-988.

PAVLOU, P., and FYGENSON, M., 2006. Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior. MIS Quarterly, (30:1), pp. 115-143.

PAVLOU, P. A., and GEFEN, D. 2005. Psychological contract violation in online marketplaces: antecedents, consequences, and moderating role, *Information Systems Research,* (16:4), Dec., pp. 372-399.

PAVLOU, P. A., LIANG, H., and XUE, Y. 2007. Understanding and mitigating uncertainty in online exchange relationships: a principal-agent perspective, *MIS Quarterly,* (31:1), pp. 105-136.

PHELPS, J., NOWAK, G., and FERRELL, E. 2000. Privacy concerns and consumer willingness to provide personal information, *J. of Public Policy and Marketing,* (19:1), pp. 27-41.

PRC. 2016. Online shopping and e-commerce. PEW Research Center. https://www.pewinternet.org/2016/12/19/online-shopping-and-e-commerce/

PRC. 2017. *Internet use by age*. PEW Research Center. https://www.pewinternet.org/chart/internet-use-by-age/

PREACHER, K. J., and COFFMAN, D. L. 2006. Computing power and sample size for RMSEA (computer software). Available at http://www.quantpsy.org/

PRITCHARD, R. D. 1969. Equity theory: a review and critique. *Organizational Behavior and Huiman Performance,* 4, pp. 176-211.

ROUSSEAU, D. M. 1989. Psychological and implied contracts in organizations. *Employee Responsibilities and Rights Journal,* (2:2), pp. 121-139.

ROUSSEAU, D. M., & PARKS, J. M. 1993. The Contracts of Individuals and Organizations. L. L. Cummings, B. M. Staw, eds. *Research in Organizational Behavior*, JAI Press, Greenwich, CT, pp. 1-43.

SALISBURY, W. D., PEARSON, R. A., PEARSON, A. W., and MILLER, D. W. 2001. Perceived security and world wide web purchase intention, Industrial *Management + Data Systems*, (101: ¾), pp. 165-176.

SHENG, H, NAH, F. F-H, and SIAU, K. 2008. An experimental study on ubiquitous commerce adoption: impact of personalization and privacy concerns. *Journal of the Association for Information Systems*, (9:6), pp. 344-376.

SHIRAZI, F., and IQBAL, A. 2017. Community clouds within M-commerce: a privacy by design perspective. *Journal of Cloud Computing*: Advances, Systems and Applications, (6:22).

SMITH, H. J., MILBERG, S. J., and BURKE, S. J. 1996. Information privacy: measuring individuals' concerns about organizational practices, *MIS Quarterly,* (20:2), pp. 167-196.

SRINIVASAN, S. S., ANDERSON, R., and PONNAVOLU, K. 2002. Customer loyalty in e-commerce: an explanation of its antecedents and consequences, *Journal of Retailing* (78), pp. 41-50.

STEWART, K. A., and SEGARS, A. H. 2002. An empirical examination of the concern for information privacy instrument, *Inform. Systems Res.* (13:1), pp. 36-49.

STRAUB, D., BOUDREAU, M.-C., and GEFEN, D. 2004. Validation guidelines for IS positivist research, *Communications of the AIS*, (13:24), pp. 380-427.

TAHEREH, N. 2018. Investigating the intention to disclose information in mobile banking. *Journal of Internet Banking and Commerce,* (23:1).

TITLOW, 2011. What is agile commerce, March 19, 2011. Available at: http://www.readwriteweb.com/biz/2011/03/what-is-agile-commerce-the-future-thats-what

TSAI, J. Y., EGELMAN, S., CRANOR, L., and ACQUISTI, A. 2011. The effect of online privacy information on purchasing behavior: an experimental study. *Information Systems Research*, (22:2), June 2011. pp. 254-268.

TUROW, J., HENNESSY, M., and DRAPER, N. A. 2015. *The tradeoff fallacy*: How marketers are misrepresenting American consumers and opening them up to exploitation (2015). Annenberg School for Communication, University of Pennsylvania.

VAN SLYKE, C., SHIM, J., JOHNSON, R., and JIANG, J., 2006. Concern for information privacy and online consumer purchasing. *Journal of the Association for Information Systems*, (7:6), pp. 415-444.

VIDMAR, N., & FLAHERTY, D. H. 1985. Concern for personal privacy in an electronic age. *Journal of Communication, 35* (Spring), pp. 91-103.

WALKER, 2011. Why multichannel retail is obsolete, March 14, 2011. Available at: http://www.forbes.com/2011/03/11/multi-channel-touchpoint

WALSTER, E., BERSCHEID, E., and WALSTER, G. W. 1973. New directions in equity research, *Journal of Personality and Social Psychology,* (25:2), pp. 151-176.

WANG, T., DUONG, TD, CHEN, CC. 2016. Intention to, disclose personal information via mobile applications: A privacy calculus perspective. *International Journal of Information Management*, (36:4), pp. 531-542.

WANG, H., LEE, M. K. O., & WANG, C. 1998. Consumer privacy concerns about internet marketing. *Communications of the ACM, Vol. 41*, No. 3, March, pp. 63-70.

WATSON, D., & PENNEBAKER, J. W. 1989. Health complaints, stress, and distress: exploring the central role of negative affectivity. *Psychological Review,* (96:2), pp. 234-254.

WHEELER, K. G. 2002. Cultural values in relation to equity sensitivity within and across cultures, *Journal of Managerial Psychology,* (17), pp. 612-624.

YANG, Z., and JUN, M. 2002. Consumer perception of e-service quality: from internet purchaser and non-purchaser perspectives, *J. of Bus. Strategies,* (19:1), pp. 19-41.

YOUNG, A. L., and QUAN-HASSE, A. 2013. Privacy protection strategies on Facebook: The Internet privacy paradox revisited. *Information, Communication and Society* 16.4 (2013): 479-500.

ZIMMER, J. C., ARSAL, R. E., AL-MARZOUQ, M., and GROVER, V. 2010. Investigating online information disclosure: effects of information relevance, trust and risk, *Information and Management,* (47), pp. 115-123.

Willingness to provide personal information
- **Trust propensity**

    WP1: I think I would trust an online seller unless they gave me a reason not to trust them (adapted from Pavlou and Gefen, 2005).

    WP2: Generally speaking, I would give an online seller the benefit of the doubt (adapted from Pavlou and Gefen, 2005).

    WP3: I would tend to trust an online seller even thought I might not know much about them (adapted from Cheung and Lee, 2001).

- **Information sensitivity** (all items adapted from Salisbury *et al.*, 2001)

    WP4: I would feel secure providing personal information (e.g., age, address, phone, hobbies, etc.) to an online seller.

    WP5: I would feel secure providing sensitive financial information (e.g., income, credit/debit card, social security, etc.) to an online seller.

    WP6: I would feel totally safe providing sensitive health-related information (e.g., health data, doctor names, medications, etc.) about myself to an online seller.

    WP7: Overall, I do not think that it is safe to provide personal and sensitive information to online sellers. [reverse coded]

Perceived distress

- **Psychological contract violation** (all items adapted from Pavlou and Gefen, 2005)

    D1: Experiencing online vendor fraud (e.g., collecting money and not delivering the product) would make me very angry.

    D3: I would resent receiving a product that is significantly different (e.g., lower quality or a used product) from what the online vendor advertised.

    D4: I would feel betrayed by an online vendor who defaults on a contract (i.e., refuses to accept payment and not deliver the product).

    D5: Experiencing product delivery delays is very distressful for me.

    D7: I would be very frustrated with an online vendor who does not honor product guarantees (i.e., product refunds, returns, and warrantees).

    D8: It would be very disturbing to me if an online vendor unexpectedly refused to follow payment policy (e.g., accepting credit cards) even if initially accepted.

- **Reflective Indicators** (all items adapted from Cohen *et al.*, 1983)

    D2r: In general, I get angry when hassled by events that happen outside of my control.

    D6r: I easily become frustrated when things do not go my way.

Privacy concerns (IUIPC items from Malhotra *et al.*, 2004)

- **Collection**

    PC1: It usually bothers me when online companies ask me for personal information.

    PC2: When online companies ask me for personal information, I sometimes think twice before providing it.

PC3: It bothers me to give personal information to so many online companies.

PC4: I'm concerned that online companies are collecting too much personal information about me.

- Control

PC5: Consumer online privacy is really a matter of consumers' right to exercise control and autonomy over decisions about how their information is collected, used, and shared.

PC6: Consumer control of personal information lies at the heart of consumer privacy.

PC7: I believe that online privacy is invaded when control is lost or unwillingly reduced as a result of a marketing transaction.

- Awareness

PC8: Companies seeking information online should disclose the way the data are collected, processed, and used.

PC9: A good customer online privacy policy should have a clear and conspicuous disclosure.

PC10: It is very important to me that I am aware and knowledgeable about how my personal information will be used.

Vendor loyalty

- **Individual personalization**

EL1: I would revisit an online seller that makes purchase recommendations that match my needs. (adapted from Srinivasan *et al.*, 2002).

EL2: I would revisit an online seller that makes me feel like I am a unique customer. (adapted from Srinivasan *et al.*, 2002).

EL3: I would NOT switch from an online seller with whom I e-shop who provides me with individualized attention (e.g., high quality customer service). (adapted from Yang and Jun, 2002).

EL4: I would revisit an online seller more often if the seller proactively cultivates its relationship with me (i.e., coupons, discounts, etc.). (adapted from Srinivasan *et al.* 2002).

EL5: I would have a high regard for an online seller who sends a personal "thank you" email to confirm my order. (adapted from Yang and Jun, 2002).

EL6: I would revisit an online seller's website that provides its customers with a feedback mechanism to make comments and share purchase and post-purchase experiences. (adapted from Pavlou, 2002).

APPENDIX B: FACTOR LOADINGS AND ALPHA VALUES

	1	2	3	4	5	6	7	8	Communalities	ALPHA
WP1				0.81					0.72	0.82
WP2				0.88					0.80	
WP3				0.79					0.69	
WP4			0.54						0.59	0.80
WP5			0.82						0.75	
WP6			0.76						0.64	
WP7			0.71						0.59	
D1	0.44								0.39	(Note 1)
D2r	0.51								0.50	
D3	0.63								0.51	
D4	0.67								0.49	
D5	0.59								0.53	
D6r	0.56								0.63	
D7	0.68								0.53	
D8	0.49								0.34	
PC1		0.71							0.58	0.80
PC2		0.56							0.55	
PC3		0.75							0.67	
PC4		0.79							0.70	
PC5							0.78		0.63	0.61
PC6							0.83		0.72	
PC7							0.54		0.46	
PC8					0.77				0.62	0.76
PC9					0.76				0.65	
PC10					0.69				0.60	
EL1								0.69	0.54	0.65
EL2								0.56	0.59	
EL3						**0.44**		**0.41**	**0.38**	
EL4						0.61			0.53	0.67
EL5						0.84			0.71	
EL6						0.73			0.56	

Note 1: Distress (PCV) is a construct comprised of formative indicators; and, represented as a MIMIC (multiple indicator multiple independent causes) model. Traditionally used methods (e.g., Churchill 1979) are not appropriate for constructs that include formative indicators. So, no ALPHA value is shown for the distress (PCV) scale.