The impact of hyperlink affordance, psychological reactance, and perceived business tie on trust transfer

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A B S T R A C T

This study investigates the impact of hyperlink affordance, psychological reactance, perceived loss of freedom, perceived business tie between sites, and trust in source site, on trust in target site. Hyperlink affordance represents the extent that the Web encourages users’ behavior. Perceived loss of freedom is based on psychological reactance, which refers to the extent that users react to hyperlink affordance. In order to examine the research model, this study used 305 responses from Korean users to conduct three experiments: (1) evaluate trust transfer from the online source Web site to another online target site (Experiment 1), (2) evaluate trust transfer from an online site to an offline target site (Experiment 2), and (3) evaluate trust transfer from an offline site to an online target site (Experiment 3). Trust is transferred from source to target site in the test results of all three models. The hyperlink affordance affects trust transfer in the test results of Experiment 1. Perceived loss of freedom based on psychological reactance negatively affects trust transfer in the test results of Experiments 2 and 3, which decreases the effect of hyperlink affordances on trust transfer. The perceived business tie between sites affects trust transfer in the test results of Experiment 3. The study provides insights into the application of trust transfer in various settings of source and target site in online and offline business.

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1. Introduction

Digital Web environments are computer–based, simulated environments where individuals can interact with each other. Digital Web environments are rapidly emerging as an alternative means for the real world to communicate, collaborate, and organize economic activity. Trust has gained importance in academic research for evaluations of companies and information encountered on the Web (Gefen, Karahanna, & Straub, 2003; Pennington, Wikox, & Grover, 2003–2004). The lack of consumer trust in both the seller’s integrity and competence to fulfill sales is the most significant long-term barrier to realizing the potential of the digital economy in the virtual worlds (Keen, 1997). However, the mechanisms by which trust is built through these Web strategies, and their relative effectiveness in the virtual worlds, is still not well understood.

Trust is an important factor that lowers transaction risks from anonymity and uncertainty of Web environments (Gefen et al., 2003; McKnight, Choudhury, & Kacmar, 2002; Pavlou, 2003). Social exchange theory (Coleman, 1990) posits that trust is based on the belief that the trustee has the ability to make transactions. Users believe that they can obtain something from target sites that perform transactions after being linked to from the hyperlinks. As trust is the perception of belief in other business party, trust in the Web environment includes belief both in the linker’s site and the linkee’s site. Knowledge of the relative usefulness of Web strategies in building online trust and encouraging Internet shopping behavior could assist in the development of more effective practical guidelines on the design of Web strategies. It could permit a better theoretical understanding of trust building in an Internet environment. Trust in the Web-based vendor is one of the critical factors of success in online commerce (Torkzadeh & Dhillon, 2002).

The virtual nature of the Web medium challenges traditional understanding of customer trust and demands a new and more appropriate model. A lack of consumer trust in companies doing business on the Internet acts as a significant barrier to realizing the opportunities presented by the Web environment. Trust is more difficult to create online than offline because parties online do not have intense, face-to-face contact that enables trust to be built through tangible cues. For instance, an online bank has no such physical cues for trust building, although its Web site provides certain online cues. Endorsements by satisfied customers

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who are viewed as similar peers can increase consumers' trusting beliefs about an Internet store (Lim, Sia, Lee, & Benbasat, 2006). Transference-based trust determinants such as “perceived importance of third-party seal” and “perceived importance of positive referral” can positively affect consumer trust in e-vendors (Kim, 2008). Market competition in strangers' networks, where market encounters are on a one-shot basis and reputation information is communicated through outside parties, improves trust, trustworthiness, and market efficiency (Bolton, Loebcke, & Ockenfels, 2008). Customers' trust will often be influenced by different trust-assuring arguments displayed on a business-to-consumer e-commerce Web site (Kim & Benbasat, 2009).

Trust transfer occurs when a person (the trustor) bases initial trust in an entity (a person, group, or organization referred to as the target) on trust in some other related entity, or on a context other than the one in which the target is encountered (e.g., a different place). Firms make business alliances through hyperlinks in Web sites in order to overcome their relative weakness in reputation, capacity, and competitiveness. The nature of the link between two organizations represents the type and degree of interaction they share. Two common kinds of hypertext links displayed on Web sites are links between organizations sharing business affiliations, such as partnerships, and links that represent advertisements. Small- and medium-sized firms place hyperlinks on the Web sites of large firms to make up for their low brand images and to induce visitors to their site. In this case, trust can be transferred in business-to-business relations (Doney & Cannon, 1997) and from online stores to products (Lee & Lee, 2005). Trust can be transferred from the source site to the target site through hyperlinks (Stewart, 2003, 2006) or from an offline site to an online site (Lee, Kang, & McKnight, 2007).

Affordances, which were first defined by Gibson (1979), can be explained as “the extent to which users perceive certain entities present in specific environments.” Affordances are the possibilities that users act after perceiving the appearances and functions of specific entities. Thus, affordances in the Web environment can be described as action possibilities that actors have in the Web environment. The Web is characterized by such words as hyperlinks, anonymity, and interaction (Joinson, 2003). Hyperlink is the most representative characteristic of the Web. Users are connected to various networks through hyperlinks within the Web, building many perceptions, which lead to specific actions.

Hyperlinks within the Web, however, may hinder the free action of users. In this case, users can experience psychological reactance to those hyperlinks and consider them as threats to their freedom of action. People tend to be motivated to recover freedom of action when they feel their ability to take free action is threatened. Freedom, autonomy, and self-determination of action are the most fundamental and important values (Sheldon, Elliot, Kim, & Kasser, 2001; Steiner, 1970). Hyperlink affordance provided within the environment may induce specific behaviors as well as have an equally negative influence on the same behaviors by restricting free action.

The issues of hyperlink affordance and psychological reactance can be important in trust transfer as they can be involved in the user perceptions of site attributes during movement from one site to another. Although the transfer of trust has been observed in prior studies, the effect of hyperlink affordance and psychological reactance on the mechanisms underlying transfer from online business to offline businesses or vice versa has not received a great deal of attention. This study intends to fill this gap. This study introduces hyperlink affordance, which represents action possibilities through hyperlinks in Web environments. Users perceive the ability to act from hyperlink affordances on the Internet, and their trust increases with their perception. This study investigates the impact of hyperlink affordance, perceived loss of freedom, perceived business ties between the sites, and trust in source site, on trust in target site. Hyperlink affordance represents the extent that the Web encourages users' behavior. Perceived loss of freedom is based on psychological reactance, which refers to the extent that users react to hyperlink affordance.

In order to examine the research model, using the data from Korean users, this study conducts three experiments: (1) evaluate trust transfer from the online Web site to another online target site (Experiment 1), (2) evaluate trust transfer from an online site to an offline target site (Experiment 2), and (3) evaluate trust transfer from an offline site to an online target site (Experiment 3). The results and implications of the study are included.

2. Theoretical background

2.1. Affordances theory

The ecological psychologist Gibson was the first to suggest affordances are unified relations between the environment and an actor. “The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill” (Gibson, 1979, p. 127). Affordances can be described as action possibilities that actors have in the environment. That is, an affordance exists relative to (1) properties of the environment and (2) the action capabilities of an actor (McGrene & Ho, 2000). Engaging with an interface character is related to the affordances, in other words, the character's action possibilities (Norman, 2004). A beautiful and realistic appearance increases user engagement. Thus, affective bonds between humans and interface characters are realized by both the character's visual appearance and the affordances it offers for task execution.

Expectation confirmation theory has been widely used to study consumer behavior in marketing, and has adopted the concept of affordances to explain expectation confirmation, from understanding the difference between real affordances inherent in products or services and perceived affordances (Chemer, 2005; Warren, 1984). For example, in regard to specific products, when real affordances are not better than perceived affordances, customers become dissatisfied and this decreases trust in the product as well as negatively impacts the satisfaction of customers. Li, Daugherty, and Biocca (2003) classified three-dimensional interaction types between users and products using concepts of affordances. They showed that users perceive different affordances from each product, and in some cases, virtual affordances are better than real affordances.

The affordances theory has been introduced in human–computer interaction research (Joinson, 2003; Norman, 2004; van Vugt, Hornb, Konjina, & de Bie Dimitriadou, 2006). Gaver (1991) classified affordances in terms of information provided by objects and user perception. Heeter (2000) suggested that affordances that customers perceive and develop by themselves, in addition to affordances that are designed by interface designers, should be reflected in customers' designed experiences. The concept of affordances is of particular interest in the field of human–computer interaction, which is primarily concerned with how properties of computers (the environment) and humans (actors) influence their interaction with each other. Norman (2004) stressed an integrated view that encompasses both action possibilities and delivery through user-centered design, which promotes users' behavior in specific computer environments. Perceived affordances have a greater influence on user experiences than real affordances. Indeed, affordances are closely related to communication media. While radio, television, and newspapers provide one-way communication from senders to receivers, computers and telephones enable the two-way communication of a wide range of information types, such as
emotion and intention. Communication media provide affor-
dances, although they are not physical objects (Jojison, 2003).
Van Vugt et al. (2006) measured affective affordances provided by
characters in the Web-service interface. Van Vugt et al. sug-
gested that the intent to use is influenced by the perception of
affordances, whether characters are helpful or not, to users' inter-
action with the Web-service interface.

Goals are central to affordance evaluations. While affordances
depend on the goals of actors, affordances still exist regardless of
variations in goals of actors, because affordances are inherent val-
ues in a specific environment. It is important to understand that an
affordance does not change as the needs and goals of the person
change (McGrenere, 2000). For example, a chair has the affordance
of "sitting," because of its shape, height, and carrying capacity. Hu-
mans’ ability to sit, the length of their legs, and their weight, en-
ables them to sit on the chair. A chair affords sitting, independent
of whether or not a person wants to sit. Web sites provide various affordances through hyperlinks, anonymity, and
interactivity, and these exist regardless of the goals of users.

Users perceive, however, different affordances according to
their environment, which affects users' beliefs and intention to
use. When users interact with Web sites, they perceive hyperlink
affordance embedded in Web sites, and navigate through hyper-
links to accomplish their goals. Affordances interact with charac-
teristics, experiences, and goals of users, and affect intention to
use (Van Vugt et al., 2006). Users typically act within the environ-
ment (they use an affordance) because of a goal they want to
achieve (for example, performing a task or having fun). For exam-
ple, novice users and expert users differ in their perception of afford-
dances in digital cameras, and this difference influences their belief
in the value of a digital camera and their intention to use it.

Users differ in their perception of hyperlink affordance accord-
ing to their experiences and characteristics, which leads to differ-
ent actions. This study defines hyperlink affordance as “the extent to which users make perceptions of hyperlinks on a Web site to the designated target site”. Hyperlink affordance represents users’ perception of hyperlinks provided by Web media in the hu-
man–computer interface. This study intends to examine trust as an
output of action.

2.2. Psychological reactance theory

Psychological reactance has been studied in social psychology,
communication, and consumer behavior. People experience psy-
chological reactance when they perceive that their ideas and ac-
tions are restricted. Psychological reactance represents a
motivational state for the recovery of freedom when loss of free-
dom occurs. When an individual's freedom is restricted through
the elimination of (or threat of the elimination of) a behavior, that
individual will experience a state of psychological reactance. Reac-
tance increases as the proportion of behavioral freedom restricted
increases, and with the attractiveness of the constrained behavior.
Fitzsimons and Lehmann (2004) have applied reactance theory to explain consum-
ers’ purchasing behavior as influenced by product recommenda-
tions. Kivetz (2005) showed that people who had participated in
a sales promotion chose a less attractive reward from psychologi-
cal reactance. Psychological reactance is opposite to affordances in
its effect on consumer behavior. While hyperlink affordance within
Web sites, for example, facilitates users' behavior, hyperlinks may
be perceived as a threat to the freedom of action and become intru-
sive, or seen as an annoyance or irritation.

2.3. Trust transfer

One way to solve the trust-building problem in online environ-
ments is to transfer trust from a known brick-and-mortar entity to
positive perceptions in the unknown online entity. Trust gained
through experience with an offline company positively influences
key customer perceptions of the same company's online division,
such as Web site satisfaction or intention to use its site. Stewart
(2003), who called this phenomenon “trust transfer,” applied it
specifically to business-to-consumer e-commerce in terms of buy-
ing computers online. The results revealed that Web sites that had
a picture and street address of their land-based store generated a
higher consumer intention to buy from the store.

Trust in Web sites is the trusting belief of integrity, competence,
and reciprocity provided by Web sites (McKnight et al., 2002). Ano-
nymity on the Internet can establish a relationship through effect-
ive communication without physical contact (McKenna, Green,
& Gleason, 2002). Thus, an organization that receives trust from ex-
change partners has an important intangible asset because trust
enables an organization to enter a consideration set of potential
exchange partners. Companies make various business alliances
through hyperlinks in order to make up for insufficient corporate
capacity and maintain efficient business efforts. Especially, small-
sized or venture firms actively post hyperlinks within large portals
and sites of large companies in order to utilize consumers' trust in
those sites. In this case, trust can be transferred from source sites
to target sites. Stewart (2003) explained trust transfer from com-
puter magazines to online shopping malls, which are unknown to
users. Lee et al. (2007) empirically examined whether or not trust
in an offline bank transfers (i.e., influences) perceptions about that
company's online bank. In order to do so, Lee et al. analyzed how
trust in an offline bank influences four perceptions about its online
banking counterpart (flow, structural assurance, perceived Web
site satisfaction, and perceived extent of future use).

3. Research hypotheses

Trust transfer is based on cognitive balance theory (CBT) (Heid-
er, 1958), which provided the basis for a great deal of research on
understanding the valences of relationships. CBT suggests two
types of relationships between individuals or entities, one of senti-
ment and one of unit formation. Sentiment represents the way a
person feels about or evaluates another person or object. Unit for-
mation indicates whether or not a person perceives that two peo-
ple or objects in some sense belong together. CBT posits that senti-
ment and unit relations will likely be balanced, where balance
represents both the actual state of relations among entities and the
psychological state of individuals involved in or observing those
relationships.

CBT can explain trust transfer in Web sites. If user P has trust in
Web site O and Web site O provides a positive link to Web site X,
user P will have trust in Web site X. This study examines the im-
 pact of hyperlink affordance and psychological reactance on trust
transfer in Web sites. While affordances and reactance are impor-
tant factors in Web sites, the studies on hyperlink affordance and
psychological reactance are almost nonexistent. This study intends
to fill this gap.

Web sites and IS used by organizations mostly have affordances,
and the perception of these has an influence on intention of actions (Li et al., 2003; van Vugt et al., 2006). While perception of affordances does not directly cause behaviors, it affects attitudes of users, which affect the intention of actions.
Web sites are linked with each other using hypertext links. For example, shopping mall sites are linked with other sites that are the business partners of the shopping mall. Hypertext links reflect site developers’ signals and users make decisions on click behaviors after perceiving these signals. Gaver (1991) proposed that links intended by information providers that might have perceived or hidden perception of affordances in the linker site will affect trust in the linkee site.

**Hypothesis 1.** Hyperlink affordance of the source (linker) site positively affects trust in the target (linkee) site.

Hyperlinks within Web sites, which are understood to be part of the persuasion strategy of Web personalization (Tam & Ho, 2005), can limit users’ freedom of choice. The irrelevant hyperlinks that are present without consideration of users’ preferences or styles of their purchasing behaviors may be intrusive, annoying, or irritating to customers. If this is the case, the trusting belief in the designated site can be decreased. On the other hand, if the hyperlinks are customized to users’ preferences and provide specific links to search preferred products, users can have greater trust on the hyperlinks to the designated target site. Persuasion through promotion and advertisements in the source site can result in psychological reactance. Thus, while hyperlink affordance facilitates user behaviors, perceived loss of freedom from psychological reactance negatively affects trust in the linkee site. The perception of hyperlinks as intrusive should be considered a cognitive evaluation of the degree to which the hyperlinks interrupts a person’s goals. When there is a threat to a person’s freedom, that person will attempt to restore the freedom by exhibiting opposition or resisting pressures to conform. When individuals have greater need for cognition, they search for more information when making decisions and enjoy more effortful cognitive tasks (Larsen, Wright, & Hergert, 2004). Web surfers experience psychological reactance when they are forced to be linked to other sites, leading to an increase in resistance in moving to the target site and a negative influence on the trust in the target site. Thus the following hypothesis can be suggested:

**Hypothesis 2.** Perceived loss of freedom through psychological reactance negatively affects trust in the target (linkee) site.

CBT suggests that the perception of a relationship between two organizations should lead to a decrease in the difference in the levels of trusting beliefs in the organizations (Stewart, 2006). For example, if a consumer trusts organization A, perceives that organizations A and B are partners, and trusts organization B, then the consumer may experience some cognitive balance. According to CBT, people intend to maintain cognitive consistency in their attitude. People are motivated to reduce cognitive dissonance from his or her conflicting sentiments toward two related entities, which may be done by changing their sentiment relationship to one of the objects or by changing their perception of the unit relationship between the objects. Trusting beliefs in one link partner will be increased and trusting beliefs in the other decreased, because group traits are based on individual member judgments, and if one group member is associated with high trust-inducing traits and another with lower trust-inducing traits, the abstracted group trait may fall at an intermediate level (Crawford, Sherman, & Hamilton, 2002).

Stewart (2006) posited that trusting beliefs in an organization sending a hyperlink will be affected by the interaction of the reputation of the linked organization and the perceived relationship between the linker and the linkee. Lowry, Vance, Moody, Beckman, and Read (2008) suggested that branding alliances are able to increase initial trust and transfer positive effects to Web sites. Thus, trust in a target site will be influenced by the perceived business relationship between partners, in other words, the business tie.

**Hypothesis 3.** Perceived business tie between a source (linker) and a target (linkee) site affects trust in the target (linkee) site.

CBT can be used to explain trust transfer from online to offline, and offline to online, as well as online to online business partners. Hyperlinks and introduction pages for business partners are cues for a favorable attitude of the linker site toward the linkee site. Fig. 1(a) represents that trust is transferred from the online linker site to the online linkee site when users perceive the relationship between the linker and the linkee site. Fig. 1(b) and (c) indicate that trust is transferred from the online linker site to the offline linkee site and vice versa.

**Hypothesis 4.** Trust in a source (linker) site affects trust in a target (linkee) site.

A research model is suggested in Fig. 2 and applies to three settings: online linker site to online linkee site, online linker site to offline linker site, offline linker site to online linkee site.

4. Research method

4.1. Procedures

The site used in this study is Face Shop. Face Shop mainly offers cosmetics in the middle- and low-price ranges and is one of leaders in the online and offline cosmetics industry in Korea, managing 500 shops in 13 different countries. Face Shop overcomes high entry barriers in the offline retail market using the Internet (BuisnessWeek., 2005).

This study has chosen Face Shop as the source or target site for several reasons. First, Face Shop owns offline shops nationwide and actively conducts alliance marketing with portal Web sites and shopping malls, especially as compared to competitors in the Korean cosmetics industry. This makes Face Shop a good candidate site for examining the transfer from the online to the online site. Face Shop is linked with a number of sites and is the linkee site for many linker sites; in this study, the shopping mall of Yahoo! Korea is the linker site. Yahoo! is a global company that is a business-to-business intermediary and has provided many links to business partners.

Second, Face Shop mainly targets young customers and focuses on cosmetics in the middle- and low-price ranges. Young male customers' proportion of the cosmetics market in the middle- and low-price ranges has been increasing. The demand for middle- or low-priced cosmetics is not significantly different between male and female customers, while the demand for high-priced cosmetics is largely dependent upon female customers. Thus, the study can examine the large population of young customers using Face Shop products by examining the purchase processes for the middle- and low-price range.

The study sample is composed of undergraduate students who registered for the summer semesters in 2009–2011. Among these students, those who do not have prior experience with Face Shop and its offline sites were selected. This is to ensure experimental control for prior experience or trust in Face Shop in the study of trust transfer from one site to another. The target sample was divided into three groups of participants in three experiments. Participants in Experiment 1 were guided to use the Yahoo! Korea Shopping (http://kr.shopping.yahoo.com) site as the online linker (source) site and to move to the linkee (target) site, Face Shop (http://kr.ysp.shopping.yahoo.com/ysp/thefaceshop/), through one of three hyperlinks on the Yahoo! Korea Shopping site before completing the study questionnaire. Experiment 2 assessed trust transfer from an online site to an offline target site. The linker site is Face Shop and the linkee site is an offline site of Face Shop in Seoul. While consumers visit the physical, offline site for
making real transactions, they can visit the online Face Shop site to obtain information about products or location/directions to the offline site beforehand. There are three links on the Face Shop site that provide locations and directions for the physical stores as well as Internet sites of offline sites if they exist. The respondents were guided to use the Face Shop site and the offline site of Face Shop before completing the study questionnaire. Experiment 3 is to evaluate trust transfer from an offline site to an online target site. The offline site of Face Shop is the linker site and Face shop is the linkee site. The respondents were instructed to use the Face Shop site and the offline site of Face Shop before making their answer to the study questionnaire. Participants in the three experiments were instructed to make purchases on the target site. Participants in the three experiments then completed a questionnaire on an Internet-based survey site.

The respondents also visited offline malls and submitted their predesigned document that certifies their visits to researchers in offline malls. Of those who were contacted, 305 out of 339 individuals participated in the study (participation rate = 89.4%). Respondents included 215 male students (83.3%) and 43 female students (16.7%) and the average age and the average years of Internet usage were 24 and 7.8, respectively. A Chi-square test was used to examine whether the response to each item differed according to a respondent’s experience and gender, because previous studies suggested that experience (Taylor & Todd, 1995) and gender (Gefen & Straub, 2000) affect Internet usage. The Chi-square test result indicated that experience and gender did not affect the response to each item ($\chi^2 = 2.671$, $p = 0.645$; $\chi^2 = 3.549$, $p = 0.355$) (see Table 1).

This study considers (1) trust transfer from one online Web site to another online target site (Experiment 1); (2) trust transfer from online site to an offline target site (Experiment 2); and (3) trust transfer from an offline site to an online target site (Experiment 3). We tested Experiment 1 to assess trust transfer from one online Web site to another online target site.

### 4.2. Measures of variables

The measures of hyperlink affordance are based on studies of trust transfer such as those conducted by Gibson (1979), Norman (2004), and van Vugt et al. (2006). The sentences in the items are rephrased in Experiments 1, 2, and 3, replacing “the site” and “the designated Web site” with the correct corresponding name of the linker (Yahoo or Face Shop) and the linkee site (Face Shop or offline site for Face Shop) in each experiment. In order to measure hyperlink affordance and perceived loss of freedom in Experiments 2 and 3, “hyperlinks to the designated target site” are replaced with “the hyperlinks showing information (location or products) about offline sites.” Perceived loss of freedom is measured by assessing psychological reactance, which is adapted from the conceptualization offered by Brehm and Brehm (1981), and Wicklund (1974). In Experiments 2 and 3, hyperlink affordance and perceived loss of controls are measured in terms of hyperlinks between an online site and the Internet site of an offline site. The measures of perceived business tie are adapted from Stewart (2003). The items for trust in the linker site and the linkee site are adapted from Doney and Cannon (1997) (see Table 2).

### 5. Results

#### 5.1. Data analysis

The research model depicted in Fig. 2 was analyzed using PLS (Partial Least Square), a powerful approach to examining structural models involving multiple constructs with multiple indicators. PLS enables testing of the psychometric properties of the scales used to measure a variable, as well as estimation of the parameters of a structural model (Wold, 1982). PLS requires less-strict conditions for sample size and residual distribution than other multivariate techniques by using a component-based estimation of parameters (Chin, 1998). PLS is better for predicting causal relationships in the initial stage of theory development than for estimating the fitness.
of a full structural model. This study intends to explore the causal relationships among the causal effect of hyperlink affordance, psychological reactance, perceived loss of freedom, perceived business tie between the sites, and trust in the source site, on trust in the target site. Thus, PLS is an appropriate approach in such an exploratory investigation, which focuses on the causal relationships among variables rather than on the fitness of a structural model.

5.2. Measurement properties of variables

Validity and reliability tests were conducted for each variable. The content validity is the representativeness or sampling adequacy of the content of a measure, and is concerned with the representativeness of the content of the measure for the universe of the property being measured. This study adapts the measures used by previous studies and conducts pretesting by practitioners and experts to enhance the content validity of the instrument.

Construct validity was assessed using convergent and discriminant validity. Convergent and discriminant validity can be tested using principal component factor analysis. All items were subjected to factor analysis to ensure that items measuring each construct loaded more highly on their intended constructs than on other constructs. Separate domain factor analyses were performed with data in Experiments 1, 2, and 3, as shown in Table 3. The three commonly employed decision rules for identification of factors – minimum eigenvalue of 1, simplicity of structure, and minimum factor loading of 0.5 – were followed (Hair, Anderson, Tatham, & Grablowsky, 1979). The principal component factor solution with varimax rotation produced a five-factor solution. The results revealed that all the variables separately loaded on the same factor, as was originally suggested (see Table 4).

After the exploratory factor analysis, this study conducted a confirmatory factor analysis to examine reliability based on Cronbach α and composite reliability, and convergent and discriminant validity based on (AVE: Average Variance Extracted) and the correlation among variables (Formell & Lackner, 1981). Confirmatory factor analysis is used to check the validity and reliability of measures that are refined in the exploratory factor analysis.

Composite reliabilities are greater than 0.8 and Cronbach α’s of variables range from 0.705 to 0.901, which are greater than Nunnally’s guideline of 0.7 (Nunnally, 1994). Thus, results of the reliability analysis indicate that variables have a high reliability. AVE’s of variables range from 0.694 to 0.869, indicating a high convergent validity. Further, in Table 5, the square root of AVE of each variable is greater than correlations with other variables, which represents high discriminant validity.

5.3. Test results

Fig. 3 indicates the test results using PLS.

In Experiment 1, hyperlink affordance and trust in the source site significantly affect trust in the target site (t = 2.0694, p < 0.05; t = 5.5771, p < 0.01). In Experiment 2, perceived loss of freedom significantly and negatively influences trust in the target site (t = −2.0578, p < 0.05), while trust in the source site significantly and positively affects trust in the target site (t = 4.6760, p < 0.01). In Experiment 3, perceived loss of freedom significantly and negatively influences trust in target the site (t = −1.6035, p < 0.05), while perceived business tie between the sites and trust in the source site positively and significantly affect trust in the target site (t = 3.0198, p < 0.01; t = 3.8108, p < 0.01). The test results of hypotheses are presented in Table 6.

5.4. Discussions

Hyperlink affordance is an important factor for trust in the target site only in Experiment 1, which tests trust transfer from an online site to another online site. Hyperlink affordance represents the perception of hyperlinks in a network environment and is not effective in explaining trust in a related offline site. Perceived loss of freedom turns out to be an important factor for trust in the target site in Experiments 2 and 3, which test trust transfer from an online to another offline and an offline to an online site, respectively. Users consider perceived psychological reactance when they move from an online to an offline and an offline to an online site. When they change their channel, however, from an online to an offline and an offline to an online site.
Table 3
Exploratory factor analysis.

<table>
<thead>
<tr>
<th>Items</th>
<th>Link affordance</th>
<th>Perceived loss of freedom</th>
<th>Perceived business tie between the sites</th>
<th>Trust in source site</th>
<th>Trust in target site</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Experiment 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA1 0.8037</td>
<td>0.1694</td>
<td>0.0234</td>
<td>0.3407</td>
<td>0.3527</td>
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<tr>
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<td>LOF1 0.2263</td>
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<td>-0.0509</td>
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<tr>
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<td>-0.1398</td>
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</tr>
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<td></td>
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<td>LOF3 -0.1951</td>
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<tr>
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<td>0.9224</td>
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<td>TS2 0.0427</td>
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<td>0.9224</td>
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<td>TT1 -0.0092</td>
<td>-0.2035</td>
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<td>0.4717</td>
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<td>TT2 0.0734</td>
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<tr>
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<tr>
<td>LA1 0.8637</td>
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<td>-0.2737</td>
<td>-0.1329</td>
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<td>LA2 0.9363</td>
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<td>0.1918</td>
<td>-0.2926</td>
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<td>-0.1623</td>
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<tr>
<td>LOF3 0.2124</td>
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<td>0.0049</td>
<td>0.8789</td>
<td>0.2669</td>
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<td>TS2 -0.2257</td>
<td>-0.1414</td>
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<td>0.8788</td>
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<td>0.3963</td>
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<tr>
<td>TT2 -0.0466</td>
<td>-0.1325</td>
<td>0.2308</td>
<td>0.3828</td>
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</tr>
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</table>

Bold values indicates loadings $p < 0.001$.

Table 4
Confirmatory factor analysis.

<table>
<thead>
<tr>
<th>Variables</th>
<th># of items</th>
<th>Average</th>
<th>Standard Deviation</th>
<th>Composite reliability</th>
<th>AVE</th>
<th>Cronbach α</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Experiment 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Hyperlink affordance</td>
<td>3</td>
<td>3.261</td>
<td>1.074</td>
<td>0.923</td>
<td>0.801</td>
<td>0.870</td>
</tr>
<tr>
<td>Perceived loss of freedom</td>
<td>3</td>
<td>2.386</td>
<td>0.925</td>
<td>0.884</td>
<td>0.720</td>
<td>0.801</td>
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<tr>
<td>Perceived business tie between the sites</td>
<td>2</td>
<td>3.277</td>
<td>0.761</td>
<td>0.924</td>
<td>0.858</td>
<td>0.830</td>
</tr>
<tr>
<td>Trust in source site</td>
<td>2</td>
<td>3.681</td>
<td>0.766</td>
<td>0.892</td>
<td>0.804</td>
<td>0.742</td>
</tr>
<tr>
<td>Trust in target site</td>
<td>2</td>
<td>3.807</td>
<td>0.628</td>
<td>0.880</td>
<td>0.786</td>
<td>0.728</td>
</tr>
<tr>
<td>(b) Experiment 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyperlink affordance</td>
<td>3</td>
<td>3.004</td>
<td>0.958</td>
<td>0.908</td>
<td>0.768</td>
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<tr>
<td>Perceived loss of freedom</td>
<td>3</td>
<td>2.121</td>
<td>0.871</td>
<td>0.872</td>
<td>0.694</td>
<td>0.807</td>
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<tr>
<td>Perceived business tie between the sites</td>
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<td>3.287</td>
<td>0.922</td>
<td>0.918</td>
<td>0.848</td>
<td>0.820</td>
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<td>Trust in source site</td>
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<td>3.865</td>
<td>0.863</td>
<td>0.919</td>
<td>0.851</td>
<td>0.824</td>
</tr>
<tr>
<td>Trust in target site</td>
<td>2</td>
<td>3.848</td>
<td>0.700</td>
<td>0.920</td>
<td>0.851</td>
<td>0.825</td>
</tr>
<tr>
<td>(c) Experiment 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyperlink affordance</td>
<td>3</td>
<td>2.593</td>
<td>0.969</td>
<td>0.938</td>
<td>0.834</td>
<td>0.901</td>
</tr>
<tr>
<td>Perceived loss of freedom</td>
<td>3</td>
<td>2.202</td>
<td>0.870</td>
<td>0.892</td>
<td>0.734</td>
<td>0.811</td>
</tr>
<tr>
<td>Perceived business tie between the sites</td>
<td>2</td>
<td>3.203</td>
<td>0.799</td>
<td>0.893</td>
<td>0.806</td>
<td>0.757</td>
</tr>
<tr>
<td>Trust in source site</td>
<td>2</td>
<td>3.820</td>
<td>0.725</td>
<td>0.872</td>
<td>0.772</td>
<td>0.705</td>
</tr>
<tr>
<td>Trust in target site</td>
<td>2</td>
<td>3.797</td>
<td>0.628</td>
<td>0.930</td>
<td>0.869</td>
<td>0.849</td>
</tr>
</tbody>
</table>

offline site or an offline to an online site, they feel that their freedom of choice is restricted.
Perceived business tie is important for trust in a target site only when users move from an offline to an online site. This is in line with the result of Stewart (2006), while in online to online context, that the perceived relationship caused by a link results in positive effects for the less reputable of the linked organizations. This supports the several real cases in trust transfer from offline to online which are successful online companies have expanded their business into offline channels such as CJ Home Shopping (www.cjmall.com) and GS Home Shopping (www.geshop.co.kr), MISSHA (www.beautynet.co.kr), a quality-based and low-priced cosmetics
company. These companies that originally started as pure online companies have successfully opened offline shops, taking advantage of their online reputation and business tie between offline and online channels.

All three experiments show that trust in the source site affects trust in the target site, indicating that trust is transferred from an online to another online site, an online to an offline site, or an offline to an online site. The significant result of online to online trust transfer is in line with that of Stewart’s (2003), which examined initial trust in an unknown target when users move from an online to an offline site. The support for offline to online trust transfer is in line with Lee et al. (2007). Managers should actively utilize trust in a linked site when they start a new online or offline business.

6.2. Implications for practitioners

The results of the study have several implications for practitioners. First, managers should make their customers perceive Web design and function more in detail rather than develop more functions themselves in order to enhance trust in target sites. For instance, Li et al. (2003) suggested that virtual affordances based on three-dimensional graphic design have more positive effects on customers’ attitude and intention to buy than two-dimensional graphic design. To enhance hyperlink affordance, more detailed explanations of linked pages and visual effects should be provided rather than offering simple text or images.

Second, companies that intend to promote customers’ trust should pay more attention to the psychological reactance of customers. Customers choose a specific channel to buy products or services, which providesutility from instrumental elements, utility from product, and utility from non-instrumental elements (Balasubramanian et al., 2005). If companies intend to induce customers to select a specific channel for operational efficiency and marketing effect, customers are likely to have psychological reactance against these strategies. Perceived loss of freedom in channel selection can lead to negative images of companies, which could be prevented from offering a large range of options and sufficient explanations of alternatives. User anonymity in the Internet environment, where social cues are lacking, leads to de-individuation and the decrease of social presence. The lack of social relationships on the Internet, versus in the offline environment, can bring about more violent behaviors from users, such as malicious notes and rumors against...
specific Web sites. Thus, companies should carefully configure contents and recommend products in the possible situation of restricted freedom of choice; and marketing managers should resolve any complaints of customers who believe their freedom of choice is restricted through continuous monitoring of customer behaviors.

Third, perceived business tie between sites should be considered, especially when offline companies intend to start an online business. Having an online business entails more risk than having an offline business due to online-business customer anonymity and insufficient transaction information from a non-face-to-face transaction process. Thus, in order to increase market size from moving from an offline to an online business, consumer trust in an offline channel should be utilized, especially when there is a strong business tie between offline and online business partners. Trust transfers rather easily to positive online channel perceptions, suggesting that vendors can leverage their offline trust on the condition that strong business relationships exist. Marketing materials could be subtly designed to relate positive online system attributes, such as good content and user control of the online system.

Fig. 3. The test results of Experiments 1, 2, 3.
and the safeguards and protections of the system, to aspects of the quality offline service to increase the online-to-offline transference effect.

Fourth, firms should utilize trust transfer from online to online, from online to offline, and from offline to online business. Marketing managers should recognize that trust is transferred when new online or offline channels are developed and observe the process customers experience when migrating from one channel to another. Managers can use customers’ trust in existing channels to obtain trust in new channels. They can better establish marketing-channel strategy (i.e., channel choice and convergence) from observing customers’ trust transfer processes. An affiliate program, an arrangement made between two e-commerce sites that direct viewers from one site to the other, is a good application for the online-to-onlineTrust transfer. In some instances, affiliate programs create relationships such that a payment is made for each click-through. These applications should also be investigated further in not only online-to-online transactions but also in the complex online-to-offline transactions in the virtual worlds, as this study suggests.

7. Conclusions

This study intends to examine the effects of hyperlink affordance, perceived loss of freedom, and perceived business tie between sites, on the trust transfer process from an online to another online site, from an online to offline site, and from an offline to an online site. Hyperlink affordance affects trust in the target site in the online-to-online trust transfer process and perceived loss of freedom influences trust in the target site in the online-to-offline trust transfer process. In the offline-to-online trust transfer process, perceived loss of freedom and perceived business tie between sites are shown to be important factors for trust in the target site.

The results of this study have several implications for future research. First, the affordance in this study pertains to only hyperlinks, and other types of affordances such as anonymity of user functions and interactivity should be examined in future studies. Second, the factors affecting perceived loss of freedom should be examined in order to develop effective personalization services. These include the importance of perceived freedom of choice and the size of threats. Third, as customers’ preferences are different according to whether products have a utilitarian or hedonic purpose (Babin & Darden, 1994; van der Heijden, 2004), studies on the difference in customers’ trust in products that have utilitarian and hedonic purposes are necessary. This study examined customers’ trust in companies that sell cosmetics products, which have largely a hedonic purpose. Thus, the studies that compare the results of this study with a study that examines companies that sell products with a utilitarian purpose will provide meaningful insights on the trust transfer process. Fourth, trust transfer from an unknown as well as a known source site should be examined. Various contexts of trust transfer processes should be investigated in order to explain the trust transfer process in the convergence of online and offline marketing channels.

Table 6
Test results of hypotheses.

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Path coefficient</th>
<th>t-value</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td>H1 Hyperlink affordance → trust in target site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online → Online</td>
<td>0.1730</td>
<td>2.0694*</td>
<td>Partially accepted</td>
</tr>
<tr>
<td>Online → Offline</td>
<td>0.0610</td>
<td>0.3895</td>
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</tr>
<tr>
<td>Offline → Online</td>
<td>−0.0550</td>
<td>−0.4241</td>
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<tr>
<td>H2 Perceived loss of freedom → trust in target site</td>
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<td></td>
</tr>
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<td>−0.1100</td>
<td>−0.9634</td>
<td>Partially accepted</td>
</tr>
<tr>
<td>Online → Offline</td>
<td>−0.1930</td>
<td>−2.0578*</td>
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</tr>
<tr>
<td>Offline → Online</td>
<td>−0.1090</td>
<td>−1.6035*</td>
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<td>H3 Perceived business tie between the sites → trust in target site</td>
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<td></td>
</tr>
<tr>
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<td>−0.0510</td>
<td>−0.4535</td>
<td>Partially accepted</td>
</tr>
<tr>
<td>Online → Offline</td>
<td>0.0440</td>
<td>0.4477</td>
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<tr>
<td>Offline → Online</td>
<td>0.2800</td>
<td>3.0198**</td>
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<tr>
<td>H4 Trust in source site → trust in target site</td>
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<td></td>
</tr>
<tr>
<td>Online → Online</td>
<td>0.5100</td>
<td>5.5771***</td>
<td>Accepted</td>
</tr>
<tr>
<td>Online → Offline</td>
<td>0.4430</td>
<td>4.6760**</td>
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<tr>
<td>Offline → Online</td>
<td>0.3680</td>
<td>3.8108**</td>
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</table>

*p-Value < 0.1.  
**p-Value < 0.05.  
***p-Value < 0.01.

References
