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Published in:
Journal of Business Research

DOI:
[10.1016/j.jbusres.2020.07.050](https://doi.org/10.1016/j.jbusres.2020.07.050)

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Recommended citation(APA):
Fujita, M., Harrigan, P., Soutar, G., Roy, S. K., & Roy, R. (2020). Enhancing member-institution relationships through social media: The role of other-user engagement behavior and similarity perceptions. *Journal of Business Research*, 121, 642-654. <https://doi.org/10.1016/j.jbusres.2020.07.050>

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Enhancing member-institution relationships through social media: The role of other-user engagement behavior and similarity perceptions

Abstract

Social media facilitates more frequent, immediate, and larger-scale exposures of people affiliated with a group than was previously possible. However, little is known about how this occurs in the case of institutions' brand pages and about its impact on existing member relationships. In examining the role perception about other users of a brand page plays on focal user identity construction, we found seeing other users demonstrating engagement behavior and recognizing similarity led to institutional identification through an increased perception of brand page sociability and identification with the page. Institutional distinctiveness also mediated the impact of other-user engagement behavior on member-institution relationships. These findings suggest traditional institutions can use social media to increase the visibility and accessibility of member-owned identity resources so as to facilitate opportunities for focal members to reinforce their self-concepts. Findings contribute to knowledge on the dynamic group processes enabled by the various engagement tools on brand pages.

Keywords

Social media marketing, customer engagement marketing, brand page, identity co-creation, social identity, social identification, PLSpredict

1. Introduction

In light of marketization, traditional social institutions such as schools, religious organizations, and government agencies are increasingly giving up the power to build identities to their constituents so as to remain relevant to our changing society (McAlexander, Dufault, Martin, & Schouten, 2014). Managing brand pages on social media sites such as Facebook and Instagram to facilitate members' engagement and active participation in the co-creation of value and identity is one such strategic initiative that leverages the blurring roles of marketers and empowered consumers. Recent studies support the effectiveness of this approach in various institutional contexts, including public transport (Jaakola & Alexander, 2014), country (Black & Veloutsou, 2017), and higher education (Fujita, Harrigan, Roy, & Soutar, 2019).

Social media facilitates more frequent, immediate, and larger-scale exposures of people affiliated with a group than was previously possible. Unlike online communities based on a forum or chatroom, people often use their true identities to participate in social media where brand pages are embedded. Consequently, the affordances of social media (i.e., visibility, interactivity, and networked audiences) facilitate a mass transmission of consumer-owned resources (Black & Veloutsou, 2017; Naylor, Lamberton, & West, 2012), allowing the marketer to leverage their group affiliation and authentic identities to its strategic advantage (Harmeling, Palmatier, Fang, & Wang, 2017). However, it is still not clear how brand page users may integrate resources from other users to construct a social identity (i.e., how people see themselves as members of a group) which is an important predictor of sustainable relationships. The lack of research in this area is particularly concerning for social institutions, as they face the complex challenge of leveraging the influences active social media participants have on focal members' perceptions about the institutional identities that were previously

controlled (McAlexander, Default, Martin, & Schouten, 2014). This study, therefore, aims to address these gaps in theory and practice.

We draw from the literature on social identity construction in the marketing and organizational research domains, since an institution's relationship marketing success largely depends on the levels of social exchange and resultant member-institution identification (Arnett, German, & Hunt, 2003; Mael & Ashforth, 1992). Social identity theory (SIT) asserts that individuals have a fundamental need to define who they are and seek to affiliate themselves with groups that allow them to fulfil this need (Tajfel, 1982; Tajfel & Turner, 1979). Central to social identity construction is *social categorization* in which members assume prototypical characteristics of in-group members as well as that of relevant out-group members and *social comparison* where they seek to achieve *positive group distinctiveness* (Tajfel & Turner, 1979; Turner, 1975). *Social identification*, then, is the key individual-level outcome of identity construction, which is "the extent to which one internalizes a given identity as a (partial) definition of self" (Ashforth & Schinoff, 2016, p. 113). In line with this definition, we operationalize the social identification construct in this study as the extent to which people define themselves according to the perceived identity of a social group. Identity theorists agree that social media technologies can create social contexts or structures that drive the categorization and comparison processes (Davis, 2016; Spears, Lea, Postmes, & Wolbert, 2011). We, therefore, posit that the visibility of other user profiles and behaviors on a brand page could provide identity stimuli that elicit these processes in the perceivers, which then drive their social identification with the page and the hosting organization.

This paper intends to address the following objectives. First, we examine different aspects of other users participating in an institution's brand page that may drive focal users' social identification. Research shows that other customers' citizenship behavior (Yi, Gong, & Lee,

2013) and perceived demographic and psychographic similarity (Karaosmanoglu, Elmadag Bas, & Zhang, 2011; Kwon, Ha, & Im, 2016) influence focal customer processes. We, therefore, investigate whether such perceptions can drive identity processing in a brand page environment. Second, in examining these other-customer drivers, we develop a scale to measure the focal user awareness of other-user engagement behavior (OUEB: e.g., other users socializing and helping each other, sharing stories and experiences, contributing and endorsing content). Third, we evaluate different paths through which perceptions of other users may drive institutional identification. Building on recent social media research by Fujita et al. (2019) and based on the customer-company identification and organizational identification literature, we examine two main processes: brand page identification (Bagozzi, Bergami, Marzocchi, & Morandin, 2012; Zhou, Zhang, Su, & Zhou, 2012) and institutional distinctiveness (Dutton, Dukerich, & Harquail, 1994; Mael & Ashforth, 1992). We also assess whether perceived sociability of a brand page mediates the relationship between perceptions of other users and brand page identification, given people are more likely to engage with a brand page when they see socialization benefits (Carlson, Rahman, Voola, & De Vries, 2018; Jahn & Kunz, 2012).

By addressing the above objectives, the paper makes the following contributions. First, we advance our understanding of the identity co-creation processes enabled by social media, which have only been explored qualitatively (e.g., Black & Veloutsou, 2017; Fujita, Harrigan, Roy, & Souter, 2019; Voyer, Kastanakis, & Rhode, 2017). Second, we demonstrate the utility of SIT in the theorization of social media marketing. SIT has informed relationship marketing and brand community research (e.g., Algesheimer, Dholakia, & Herrmann, 2005; Arnett et al., 2003; Bagozzi, Bergami, Marzocchi, & Morandin, 2012) but has been under-utilized in the field of social media marketing research (e.g., Fujita et al., 2019; Harmeling, Moffett, Arnold, & Carlson, 2017; Zaglia, 2013). In this study, we use SIT to establish the nomological network of brand page identification. Third, we respond to recent calls for more investigation of brand

pages such as those on Facebook and Instagram that are managed by organizations (e.g., Stephen, 2016). Although brand pages are the gold standard in marketing practice today, little is known about the dynamic group processes enabled by various engagement tools (Harmeling, Moffett, et al., 2017) within this strategic environment.

The rest of the paper is organized as follows. We first provide a theoretical background to this research and develop a conceptual model and hypotheses. We then discuss the method used, estimate the model, and test the hypotheses to examine the relationships between perceptions of other users (i.e., OUEB and similarity), mediating constructs (i.e., perceived brand page sociability, brand page identification, and institutional distinctiveness), and institutional identification. The results and implications are then discussed.

2. Theoretical background and research hypotheses

2.1. Social identity construction in organizations

Social identity is defined as “that part of an individual’s self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership” (Tajfel, 1978, p. 63). People become motivated to construct a social identity as members of an organization when it is perceived to have an attractive image that enhances their self-concept (Dutton, Dukerich, & Harquail, 1994). When achieved, they develop a perception of oneness with or belongingness to the organization known as organizational identification (Mael & Ashforth, 1992).

Identity construction in an organization is a repetitive, sensemaking process through which members acquire identity knowledge and validate their identity by using verbal and nonverbal symbolic interactions (Ashforth & Schinoff, 2016). Through this process, they develop a clearer and more stable sense of situated self that allows them to feel and behave based on their

understanding of *who they are* (Ashforth & Schinoff, 2016). It is argued that identity construction evolves out of the processing of the identity while it is an important part of the self (Reed, Forehand, Puntoni, & Warlop, 2012). A number of factors can increase identity salience, namely: (1) the number of opportunities that exist to enact and receive feedback about the identity (*social connections*), (2) the number of identity-relevant possessions and resources that are available to enact the identity well (*possessions and media connections*), and (3) the number of positive and self-enhancing feedback received about that enactment (*esteem*) (Kleine, Kleine, & Kernan, 1993, p. 226).

People who identify strongly with their organizations are highly likely to show loyalty and demonstrate citizenship behaviors (Arnett et al., 2003; Mael & Ashforth, 1992). Therefore, it is critical for organizations to create opportunities that allow members to increase self-esteem, identity-related social contacts, possessions, and media connections. Recent research on group marketing has also demonstrated the importance of building conditions that increase member awareness of their affiliation to a group and expose them to group norms (Harmeling, Palmatier, et al., 2017). For example, a university may try to achieve this by organizing social events, sharing stories about campus rituals and news, and celebrating achievements. Social media makes it easy for institutions to facilitate these initiatives, while also making it easy for constituents to access and contribute identity resources. Thus, we suggest the affordances of social media facilitate more frequent opportunities for an institution's social identity to become salient in focal members' sense of self, thereby stimulating the identity construction processes.

In higher education organizations, construction of a social identity may be particularly important, where students are at a formative age and stage and seeking to forge their own identities (Fujita, Harrigan, & Soutar, 2018; Mael & Ashforth, 1992). Universities also offer broad product and service offerings, and thus foster a range of communities with diverse

memberships and interests. For example, students may strengthen their identification with their university through the achievements of its sporting teams, as this makes them feel good about themselves, even though they have not contributed to these successes (Cialdini et al., 1976). Ultimately, universities consist of a range of organization- and student-managed communities that co-exist and serve a wide range of differing student identities (Fujita et al., 2019). Previous research has found that the interplay between marketers and users, and users and other users is central to identity construction in higher education (Fujita et al., 2018; Fujita et al., 2019). We build on this research by crystallizing the nature and impact of other-user engagement behavior.

2.2. Perceptions about other users of a brand page

2.2.1. *Other-user engagement behavior (OUEB)*

Customers in service encounters have long been recognized as constituting an important social context that drive focal customer experiences (Argo, Dahl, & Manchanda, 2005; Arnould & Price, 1993; Belk, 1975). They also form a community to provide support to each other, express themselves through the brands they use, and take part in marketing activities (McAlexander et al., 2002; Muniz & O’Guinne, 2001; Schau, Muñiz, & Arnould, 2009; Cova & Pace, 2006). The proliferation of social media has driven the theorization of customer engagement behavior (CEB) which is defined as “a customer’s behavioral manifestations that have a brand or firm focus beyond purchase resulting from motivational drivers” (Van Doorn et al., 2010, p. 254). CEBs that augment and co-develop the firm’s offering and that influence and mobilize others can benefit various stakeholders as well as the firm through the transmission of customer resources (Jaakkola & Alexander, 2014).

Brand pages provide platforms for this transmission at scale, allowing for other-user engagement behaviors (OUEBs) to become visible and accessible to focal users. Consequently, brand pages may facilitate the elicitation of group-based psychological processes that build the

focal users' awareness of their group affiliation and expose them to the desired group norms (Harmeling, Palmatier, et al., 2017). SIT asserts that this psychological sense of group is sufficient to enact group-related attitudes and behavior (Turner, 1982), suggesting that observing OUEBs on a brand page can drive focal users to construct a social identity from the identity resources they extract.

2.2.2. Other-user similarity

Perceived similarity is conceptualized as the extent to which individuals perceive others to be similar to themselves based on personal characteristics (Smith, 1998), which may be demographic or psychographic (Karasmanoglu et al., 2011). People generally hold more favorable attitudes towards similar others than they do towards dissimilar ones. SIT suggests that people are motivated to associate themselves with similar others to fulfil their needs for a clear and stable sense of self, inclusion and esteem (Tajfel & Turner, 1986; Turner, 1982). The similarity-attraction paradigm also suggests attraction to similar others is preceded by the reward one receives from the reinforcement of his/her values, goals, and perspectives (Byrne, 1971) and a feeling of being liked by them (Nelson, 1966). As noted earlier, brand pages provide platforms for the transmission of consumer-owned resources. Likewise, personal characteristics of users participating in a brand page can also become visible to focal users, suggesting that perceived similarity of other users can activate the focal user's identity construction processes through an increased psychological sense of group.

2.3. Brand page sociability and brand page identification

2.3.1. Perceived brand page sociability

Perceived sociability is a degree to which users feel an online environment facilitates valuable social interactions (Zhang, Lu, Gupta, & Zhao, 2014). The ability to reach networks and interact with other people is the fundamental premise of social media. Through social

interactions, brand community members exchange social and cultural capital and establish a social structure and relationships that provide meaning to their lives (Hajli, 2014; Muñiz & O'Guinn, 2001).

2.3.2. Brand page identification

People develop a social identity for a brand community based on a common interest in the consumption of the brand, a shared consciousness (Algesheimer et al., 2005; Muñiz & O'Guinn, 2001), and a sense of belongingness with members of the community (McAlexander et al., 2002). Indeed, brand community identification anchors the vitality of the community (Schau et al., 2009) and its members' bonds with other members, the products they use, the brand, and the organization (McAlexander et al., 2002). Similarly, people also identify with an online brand community based on functional, entertainment (Dholakia, Bagozzi, & Pearo, 2004), and social recognition value (Hartmann, Wiertz, & Arnould, 2015).

VanMeter, Grisaffe, and Chonko (2015) suggest people's attachment to a social media platform develops from their experiences using it to connect with others, recollect the past, stay informed, relax and enjoy, seek advice from others, feel supported by others, enhance a personal life, and influence and help others. Similarly, brand page users may increase their attachment to the page (or page community) given its role in facilitating community and brand engagement (Jahn & Kunz, 2012; Zaglia, 2013) and identity construction (Fujita et al., 2018). For instance, Fujita et al. (2018) posit social media content can help users to address various identity needs (i.e., understanding the self, feeling distinctive and positive about the self, and feeling connected). Thus, we expect users' levels of identification with a brand page will increase when it is seen to help fulfil their needs to construct and reinforce important identities.

2.3.3. Relationship between OUEB, brand page sociability, and brand page identification

Research suggests online community members gain a locally relevant understanding of the community's shared purposes and social structure not only through active participation but also by observing other members (Hartmann et al., 2015; Shang, Chen, & Liao, 2006). The interactive features of social media combined with smartphone-based multimedia technologies (e.g. camera, video editing apps) allow consumers to share their stories easily and experience other consumers' worlds by engaging in visual storytelling. Consequently, focal users can form a connection with the storytellers through empathy and imagery (Pera & Viglia, 2016). Social media also provides users with access to archival records of interactions between other users. As such, OUEBs may signal the brand page's social benefits to focal users.

Evidence shows that non-participating consumers, who observe relevant others contributing to product development, are likely to identify with the organization when its user-driven philosophy allows them to vicariously experience the sense of empowerment held by the contributing users (Dahl, Fuchs, & Schreier, 2015). Research also suggests that information exchanged between online brand community members help reduce uncertainty about the brand or the organization (Adjei, Noble, & Noble, 2010). Therefore, the visibility of resource exchanges among brand page users might also help focal users reduce identity ambiguity which, in turn, lead to increased levels of identification with the page community.

In sum, it is evident the community process, empowerment, pleasure, and uncertainty reduction users experience through the consumption of OUEB can result in social and relational benefits. OUEB can also influence identity co-creation by promoting social interactions that create synergy between the identities of individuals, the brand, and the community (Black & Veloutsou, 2017). The process of identity co-creation helps increase a shared understanding of the group's goals among members which drives their identification with the group (March &

Simon, 1993). Based on these arguments, we posit that greater and more frequent exposures to OUEB on a brand page increase the perception of the page as an important socialization agent and a source of identity enactment. Therefore:

- H1.** The perceived level of OUEB on a brand page is positively related to the perception of
(a) brand page sociability and (b) brand page identification.

2.3.4. Relationship between other-user similarity, brand page sociability, and brand page identification

Past research shows the presence of similar others reduces perceived barriers to social interactions (Smith, 1998). Likewise, social media can facilitate strong social influences and interactions among users who are seen to be similar to each other. For example, when perceived identity similarity is pronounced through social media memes, it can motivate the perceivers to socialize with others over these posts (Fujita, Harrigan, & Soutar, 2019). It is therefore possible that when focal users see the presence of similar others on a brand page, it will increase the perception of the page as providing active or passive socialization opportunities (i.e., interacting with other users through participation or finding about them through listening).

Similarity in a current social role can lead to attitudinal similarity and increased perceptions of shared goals (March & Simon, 1993). For example, MBA students can develop similar attitudes and identify with each other because they go through a distinctive set of educational programs and may experience similar career challenges and rewards. Karaosmanoglu et al. (2011) argue that customers become more attached to a company when they see other customers as similar to themselves in terms of demographics (e.g., income) and psychographics (e.g., value). Similarly, the mere presence of similar others (e.g., shoppers) in a consumption situation can positively influence the focal consumer's satisfaction (Kwon et al., 2016).

Naylor et al., (2012) suggest passive exposures to pictures of demographically similar users on a brand page can be sufficient to enact focal users' positive evaluation of the brand due to the inferred identity similarity evoked through such images. Positive reinforcement of self-concept through the presence of similar others may also influence focal users' evaluation of the page as an enabling platform for the construction of an important identity (Fombelle, Jarvis, Ward, & Ostrom, 2012), leading to their identification with the page. For example, mature-age students may feel positive about their role identities (e.g., parents, full-time workers) through the presence of other mature-age students participating in the brand page for their university or other sub-group (e.g., student association, faculty). In turn, they may strengthen their identification with the page through an accentuation effect (Tajfel, 1982) where the in-group similarity and out-group differences are exaggerated. Taken together, we propose:

H2. The perceived similarity of other users of a brand page is positively related to the perception of (a) brand page sociability and (b) brand page identification.

2.3.5. Relationship between brand page sociability and brand page identification

At the very heart of SIT is the need for socialization (i.e., learning about and interacting with a social group) to facilitate social identification (Tajfel, 1982). Recent social media marketing studies show that brand page followers are more likely to engage with a page when they perceive socialization benefits (Carlson et al., 2018; Jahn & Kunz, 2012). In particular, Dholakia, Blazevic, Wiertz and Algesheimer (2009) found that communication between members of a brand community influenced their bonds with each other and the community, thus providing confirmation of identification. It follows that if a brand page is perceived to facilitate socialization opportunities that help members build identity knowledge and fulfil needs for inclusion and self-verification, the importance of the page may increase as an enabler of identity enactment (Fombelle, Jarvis, Ward, & Ostrom, 2012). In short, perceived sociability

of a brand page is likely to motivate the focal users to identify with the page whereby the page itself is a forum for peer-to-peer socialization (Zhang et al., 2014; Kreijns, Kirschner, Jochems, & van Burren, 2007). Evidence also supports passive participation in an online community (i.e., lurking) helps develop feelings of kinship with the community without direct interactions with other users (Hartmann et al., 2015; Naylor, Lamberton, & West, 2012). Thus:

H3. The perception of brand page sociability is positively related to brand page identification.

2.4. Institutional distinctiveness and institutional identification

2.4.1. Perceived institutional distinctiveness

SIT holds that people strive for positive self-concept, by having a positive social identity that gives distinctive characteristics (Tajfel & Turner, 1979). People also have a natural desire to be better than out-groups and, thus, have a tendency to develop in-group favoritism. They make comparisons between in-group and out-groups to achieve *positive group distinctiveness* (Tajfel & Turner, 1979; Turner, 1975) which can “protect, enhance, preserve, or achieve a positive social identity for members of the group” (Tajfel, 1982, p. 24). Positive group distinctiveness is achieved when categorization of group-related stimuli, which may be verbal or non-verbal, activate an image of the group as having a distinctive identity. Clark (1972) argue that a collective understanding of an institution’s distinctive identity (or an *organizational saga*) involves narratives initiated by members and an embodiment of the shared narratives in the institution’s core values and practices. For example, universities may signal distinctive identities through employee citizenship behaviors, unique programs, loyal alumni, student subculture, symbols, rituals, artefacts, and traditions, all of which might stimulate an enactment of emotional attachment and a sense of pride among those members who believe the saga (Clark, 1972). A member’s perception of shared distinctiveness can be

developed throughout a lifetime of membership and it is likely that social media is an increasingly important platform that facilitates this process.

2.4.2. Institutional identification

Identification with a brand or organization is a concept that has attracted significant attention in the literature. Most recently, Stokburger-Sauer, Ratneshwar and Sen (2012) operationalized the notion of consumer-brand identification (CBI), which is “the consumer's perceived state of oneness with a brand” (p. 407). While their notion of CBI is underpinned in organizational identification, we look to Ashforth and Mael’s (1989) original work in this area. We do this because their position on identification focuses more on an individual’s oneness with or belongingness to an organization rather than a brand (Ashforth & Mael, 1989; Bagozzi et al. 2012; Bhattacharya & Sen, 2003; Mael & Ashforth, 1992). In fact, Mael and Ashforth (1992) specifically investigate alumni’s identification with their alma mater, thus applying organizational identification to the higher education context.

2.4.3. Relationship between other-user engagement behavior and institutional distinctiveness

For a social identity to help strike a balance between self-concept and membership, the distinctiveness of the group identity needs to be *shared* (Brewer & Silver, 2000). Recent research on institution-initiated social media suggests the increased visibility of and better accessibility to identity-related stimuli, including other users participating, are creating more opportunities for focal users to experience and reinforce the distinctive identity of their institution (Fujita et al., 2018). Likewise, OUEB on a brand page can provide focal users with means of gaining a shared understanding of group norms (Harmeling, Palmatier, et al., 2017), identity-related possessions and social connections (Kleine et al., 1993). This may, in turn, reinforce the distinctive image of the institution through the liking of users displaying engagement behavior on the page, suggesting:

H4. The perceived level of OUEB on a brand page is positively related to perceived institutional distinctiveness.

2.4.4. Relationship between brand page identification, institutional distinctiveness, and institutional identification

People see a relational benefit in their group membership when the in-group allows for favorable social comparisons that result in positive distinctiveness (Tajfel, 1982). According to the identity association principle, “objects and concepts contextually associated to an identity gradually acquire corresponding meanings and evaluations” (Reed et al., 2012). On social media, users who have identified with a brand page are likely to continue engaging in that page’s activities as part of their acculturation and identity projects (Fujita, Harrigan, & Soutar, 2017). This continuous process of categorization and positive comparison allows the brand page itself, as an entity contextually associated to the hosting organization’s identity, to receive affective meanings (Fujita et al., 2017). Increased corresponding meanings attached to identity-related objects, in turn, help reinforce the distinctiveness of that identity (Reed et al., 2012). Furthermore, given the positive impact customer engagement on social media has on its brand image (Godey et al., 2016), it can also shape a distinctive image of the hosting organization.

Meanwhile, evidence suggests customers’ identification with a brand community strengthens customer-company identification (Bagozzi et al., 2012) and drives customer citizenship behavior (Algesheimer et al., 2005). Likewise, customer engagement on social media has a positive impact on self-brand connections (Hollebeek, Glynn, & Brodie, 2014) and brand loyalty (Harrigan, Evers, Miles, & Daly, 2017; Jahn & Kunz, 2012). Since an organization and its constituents are interconnected via a complex network of personal, relational, and collective identities, identification with an online brand community, such as a

brand page on social media, can lead to identification with its hosting organization (Bagozzi et al., 2012; Zhou et al., 2012). Taken together, we posit:

H5. Brand page identification is positively related to (a) perceived institutional distinctiveness and (b) institutional identification.

2.4.5. Relationship between institutional distinctiveness and institutional identification

According to optimal distinctiveness theory, people come to identify with a group in their attempts to balance two opposing fundamental needs (i.e., a need for differentiation from others and a need for inclusion) (Brewer, 1991). In other words, the group identity becomes an important element of a person's self-concept and group identification based on the perception that their social group is distinct from other groups (Bhattacharya & Sen, 2003; Brewer, 1991; Dutton et al., 1994). Previous research support distinctiveness as an important driver of organizational identification and brand identification (Mael & Ashforth, 1992; Stokburger-Sauer et al., 2012), which suggests:

H6. Perceived institutional distinctiveness is positively related to institutional identification.

Based on hypotheses H1-H6 a research model is proposed and shown in Figure 1.

[Figure 1 about here]

3. Method

3.1. Sample

An online survey instrument was used to collect data. We sampled university students across Australia who have been following their university's official or affiliated brand page (s). They provided the name of the page they used the most and their reflection on their experiences with the page (both positive and negative). As a result, we could verify the page names provided

and validate their existence by searching for and visiting these pages (Porter & Donthu, 2008). These respondents were also members of PureProfile's consumer panel. We used the panel because recruiting brand page followers directly through such pages may result in positively skewed responses (Porter & Donthu, 2008). Participants were also probed on how often they engaged in a range of activities on the chosen page (e.g., checking the page, interacting with content, page, or friends, and contributing content). Since most of the brand page followers are lurkers whose perceptions were of interest in this study, the sample choice was deemed appropriate (Gummerus, Liljander, Weman, & Pihlström, 2012; Hartmann et al., 2015). Following the preliminary questions, the key constructs of interests were measured. We received 486 usable responses from forty universities. In line with extant literature suggesting online community members play a passive as well as active role (Shang, Chen, & Liao, 2006; Hartmann et al., 2015; Dahl, Fuchs, & Schreier, 2015; Gummerus et al., 2012; Rabbane, Roy, & Spence, 2020), the respondents demonstrated varying levels of participation in and relationship with their chosen brand page. Table 1 summarizes the sample characteristics.

[Table 1 about here]

3.2. The measures

We measured the constructs of interest, using the seven-point Likert-type scales anchored at 'strongly disagree' to 'strongly agree.' Table 2 lists the measurement items which were adapted from existing scales so as to reflect the research context. In this case, we adapted the ten-item other user similarity (SIM) scale from Karaosmanoglu et al.'s (2011) other customer similarity scale. Following their suggestion, the two aspects (demographic and psychographic similarity) were aggregated, and the construct was modelled as a unidimensional scale with two items (i.e., the two aggregated scale scores). The four-item brand page sociability (SOC) scale was adapted from Jahn and Kunz's (2012) social interaction value scale. The five-item

brand page identification (BPI) scale and the three-item distinctiveness (DIS) scale were adapted from Stokburger-Sauer et al.'s (2012) brand identification research. Finally, institutional identification (IID) was measured using a six-item scale adapted from Mael and Ashforth's (1992) research.

The other-user engagement behavior (OUEB) scale was created in this study, following Churchill's (1979) procedure. We reviewed prior research into online brand community practices (e.g., Hartmann et al., 2015; Schau et al., 2009) and customer engagement behavior (e.g., Brodie, Ilic, Juric, & Hollebeek, 2013; Jaakkola & Alexander, 2014) as well as previous research into user engagement in university social media (Fujita et al., 2018), from which an initial set of ten items were obtained. We conducted a pre-test using a sample of 111 students from an established Australian university. It is noted that the OUEB scale is measured with items beginning with the term 'people' and not 'users.' This was something that was raised in the pilot study, where 'users' in the items inferred people with an active role in the community, whereas 'people' convey those with both active and passive roles. This is important where we were interested in the role of both active and passive users. An initial exploratory factor analysis (EFA) showed evidence of unidimensionality, reliability, and validity. Consequently, a six-item OUEB scale was used in the main study, and its measurement properties in the larger data set were examined in more detail, as outlined in the results section.

3.3. Common method bias

As the online survey was the only source of data, common method bias (CMB) was addressed through procedural and statistical techniques. The procedural method included randomizing the order in which respondents saw the items and refining item wordings after the pilot study (Podsakoff et al., 2003). Statistically, Harman's single-factor analysis was used to examine whether the first factor was below the suggested threshold of 50%. We also used a

full collinearity test (listed in Table 2) to see whether the variance inflation factor (VIF) of constructs were less than the suggested 5.0 threshold (Hair et al., 2012).

4. Data analysis

The partial least squares structural equation modeling (PLS-SEM) was used to estimate the research model, with the WarpPLS 6.0 program (Kock, 2017) aiding the analysis. The approach was suitable for this study given its exploratory nature, its complex and prediction-oriented model, the likelihood that the items would not be normally distributed, and the ability to take the total variance of measurement items into consideration while testing the model (Hair, Sarstedt, Ringle, & Mena, 2012; Hair, Sarstedt, Ringle, & Gudergan, 2017). Our objective was to predict the relationship between the constructs of interest instead of testing or confirming a theory. PLS-SEM is appropriate when the research is primarily concerned with the variance explained in the dependent variable and when the assumptions of multivariate normality and interval scaled data cannot be established necessarily (Hair et al., 2017). It also allows the weights of indicators of a scale to vary, as it contributes to the composite score of the latent variables. Thus, it is suitable for theory development (Chin, 1998), which is the basis of this study, and is also not constrained by identification issues when the model is complex (Hair et al., 2017). We used the PLS regression algorithm to estimate the outer model (measurement model) and the linear algorithm for the structural paths (Kock, 2017). One-tailed p-values were used, as all of the relationships were hypothesized to be positive (Roldán & Sánchez-Franco, 2012).

5. Results

5.1. Measurement properties

Table 2 shows the measurement properties of the scales. All items loaded significantly onto their respective constructs with the standardized loadings exceeding 0.60, which were above the acceptable level for an exploratory study (Hair et al., 2012). All of the constructs were reliable and had convergent validity, as their composite reliability (CR) values exceeded 0.70 and their average variance extracted (AVE) values exceeded 0.50 (Hair et al., 2012).

[Table 2 about here]

The discriminant validity of constructs was assessed by examining the items' cross-loadings using Fornell-Larcker's criterion (Fornell & Larcker, 1981) and the constructs' full collinearity VIFs (Kock, 2015; Rasoolimanesh et al., 2017). Each item loaded highest on its intended construct (Chin, 1998) (the loading matrix is available from the authors) and the square root of the AVE score for each of the constructs were greater than the respective inter-construct correlations (Fornell & Larcker, 1981), as shown in Table 3. Henseler et al. (2015) argue neither the Fornell-Larcker criterion nor the examination of the cross-loadings allows researchers using variance-based SEM (i.e., PLS-SEM) to determine the discriminant validity of the measurement model adequately and propose the HTMT (heterotrait-monotrait) ratio of correlations as a better method. Hence, we employed this new method to provide further support. The upper confidence interval limit value was less than 0.9 and 1.0, indicating that all HTMT values were significantly lower than 1. Here, the threshold discriminant validity values for the HTMT ratio and confidence intervals (CIs; <0.90 and 1.00, respectively) were met (Henseler et al., 2015), providing additional support for discriminant validity. The constructs' full collinearity VIFs which were computed by WarpPLS were also satisfactory as they were all below 5.00. These results suggested discriminant validity could be assumed for all of the

constructs and that they can be safely used when estimating the relationships of interest in the suggested model.

Respondents were somewhat positive about the various constructs, as all of the means were above the midpoint of the scale (i.e. 4.00 on the seven-point scale used). The highest mean was for institutional distinctiveness (4.94) and the lowest was for brand page identification (4.14). All of the standard deviations exceeded 1.00, suggesting there was sufficient variation to warrant further examination of the relationships of interest.

[Table 3 about here]

5.2. Estimating the structural model

As noted earlier, the two similarity aspects (demographic and psychographic) were each aggregated to create an overall similarity construct with two items. The other constructs were measured using the items shown in Table 2. We estimated the structural model using the Stable3 resampling method in WarpPLS. This approach obtains estimates of actual standard errors that are consistent with and, in many cases, more precise than those gained through bootstrapping (Kock, 2017). Tenenhaus's goodness-of-fit (GoF) index in this case was 0.61, which was well above the 0.36 threshold for large effects (Wetzels, Odekerken-Schröder, & Van Oppen, 2009), suggesting the relationships were sufficiently strong to examine further.

Figure 2 shows the structural model estimates, including the R^2 values for the model's endogenous variables and the paths' standardized coefficients. The model's predictive validity was examined utilizing the explained variance (R^2) in the endogenous variables. OUEB and similarity together explained 59% of the variance in sociability. These two variables together with sociability explained 61% of the variance in brand page identification. OUEB and brand page identification explained 41% of the variance in distinctiveness, while 59% of the variance

in institutional identification was explained by its antecedents. These results suggest the structural model predicted its endogenous constructs well. This was supported by the Stone-Geisser's Q^2 coefficients, as all were considerably greater than zero (Chin, 1998).

[Figure 2 about here]

Figure 2 shows that all of the proposed hypotheses were supported, as all of the path coefficients were significant at $p < 0.001$ level. OUEB ($\beta = 0.46$) and similarity ($\beta = 0.41$) were both significant drivers of sociability, supporting H1a and H2a. Sociability, in turn, strongly influenced brand page identification ($\beta = 0.37$), supporting H3, while OUEB ($\beta = 0.24$) and similarity ($\beta = 0.28$) also impacted positively on brand page identification, supporting H1b and H2b. Brand page identification significantly affected distinctiveness ($\beta = 0.50$) and institutional identification ($\beta = 0.54$), supporting H5a and H5b. Distinctiveness was also positively impacted by OUEB ($\beta = 0.19$) while strongly influencing institutional identification ($\beta = 0.33$), supporting H4 and H6.

Following the method proposed by Zhao, Lynch, and Chen (2010), the indirect effects of the two independent variables (OUEB and similarity) on the ultimate dependent variable (institutional identification) were assessed. As all of the direct and indirect effects needed to be assessed in a single model (Carrión, Nitzl, & Roldán, 2017), direct paths were included from OUEB and similarity to institutional identification, although these paths were not hypothesized. As Table 4 shows, the total effects of all the possible paths from OUEB and similarity to institutional identification were significant (OUE on IID: six paths, $\beta = 0.34$, $p < 0.001$; SIM on IID: five paths, $\beta = 0.32$, $p < 0.001$), while the direct effects were not significant (OUE \rightarrow IID: $\beta = 0.02$, $p = 0.37$; SIM \rightarrow IID: $\beta = 0.04$, $p = 0.19$). Overall, the results suggest full mediation effects via sociability and brand page identification and through distinctiveness.

[Table 4 about here]

6. The alternate research model

Our proposed alternative model is based on the idea that the identity construction process in organizations is recursive (Ashforth & Schinoff, 2016). That is, people not only enact a social identity in response to stimuli but also actively and continuously seek out ways to maintain and reinforce the positive distinctiveness of that identity (Ashforth & Schinoff, 2016; Reed et al., 2012). As noted earlier, people are motivated to define themselves in terms of a social group, especially when it is perceived to have a distinctive identity that enhances their sense of selves. Previous brand community research suggest that the symbolic value of a brand drives the customers to connect with like-minded others in its brand community, which lead to their identification with that community (Algesheimer et al., 2005; McAlexander et al., 2002). Based on this argument, we expect that people will strengthen their identification with an online community (or a brand page) associated with their institution in their motivated attempt to enhance their feeling of positive group distinctiveness as well as in response to the identity-stimuli related to other members of that page community. More specifically, we propose an alternative path to suggest that institutional distinctiveness will have a positive impact on brand page identification. The alternate model is shown in Figure 3.

[Figure 3 about here]

We used PLS-SEM to test the alternate model, and results show all of the proposed relationships were supported, as all of the path coefficients were significant at $p < 0.001$ level. OUEB ($\beta = 0.17$), sociability ($\beta = 0.26$) and (similarity ($\beta = 0.29$) are significant drivers of brand page identification, supporting H1_a, H2_a, and H3_a. OUEB has a significant impact on institutional distinctiveness ($\beta = 0.53$), supporting H4_a. Institutional distinctiveness has a significant impact on brand page identification ($\beta = 0.311$) and on institutional identification

($\beta = 0.27$), supporting the newly proposed relationship (H5_a) and H7_a. Brand page identification has a positive impact on institutional identification ($\beta = 0.55$; $p < 0.001$), supporting H6_a.

The model's predictive validity was examined using the explained variance (R^2) in the endogenous variables (i.e., brand page identification, institutional distinctiveness, and institutional identification). OUEB, similarity, sociability, and institutional distinctiveness together explained 67% of the variance in brand page identification. The antecedents of institutional identification explained 61% of the variance. The Stone-Geisser's Q^2 values were greater than zero (Chin, 1998), further supporting the model's predictive validity.

The model's indirect effects were tested using the bootstrapping approach (with 5,000 bootstrapping resamples). Results indicate that brand page identification is a full mediator between OUEB (indirect effect = 0.10, $p < 0.001$), similarity (indirect effect = 0.16, $p < 0.001$), sociability (indirect effect = 0.14, $p < 0.001$), and institutional identification. Results also show that institutional distinctiveness partially mediates the relationship between OUEB and institutional identification, because the direct effect between OUEB and identification is not significant but the indirect effect is significant (indirect effect = 0.16, $p < 0.001$).

6.1. Comparison of the two research models

Following the advice of Shmueli et al., (2019), we compared the two models empirically using PLSpredict with the same endogenous dependent constructs in the respective models. The research model that minimizes the out-of-sample error statistics such as MAE (mean absolute error) and RMSE (root mean squared error) is chosen as the superior model (Shmueli et al., 2019). We used the PLSpredict results on construct level to compare the alternate model (Figure 3) with the original model (Figure 1) which is also a theoretically justified model for predicting institutional identification. The purpose of this analysis is to test the robustness of the two research models (Sarstedt et al., 2019). From the results of the model comparison

(shown in Table 5), it can be concluded that the alternative model is marginally better than the original model, because of its low prediction error in the dependent latent variables (i.e., institutional identification, brand page identification, and distinctiveness).

[Table 5 about here]

7. Discussion and implications

People often use their true identities to participate in social media brand pages. However, it is still not clear how users may integrate resources from other users to construct a social identity. This paper contributes to the existing knowledge by providing a better understanding of other-user effect and to shed light on identity-based social media initiatives that drive engagement marketing success. To achieve this, we investigated the process by which perceptions of relevant others participating in an institution-related brand page influenced focal users' identity construction and its impact on member-institution relationships.

The results suggest that seeing other users demonstrating engagement behavior and recognizing similarity with them can lead to focal users' identification with an institution through a more positive perception of brand page sociability and greater identification with the page. Institutional distinctiveness also mediated the impact OUEB had on institutional identification. These findings provide support for our suggestion that the affordances of social media, especially the visibility of other users, facilitates identity processing, allowing focal users to integrate meaningful identity resources provided by relevant others to construct a social identity that enhances their sense of self. The findings also suggested a brand page and the institution are both important enabling entities through which focal users fulfil fundamental identity needs (i.e. inclusion and distinctiveness), suggesting the dual impact other users have on focal users' relationships with the brand page and with the institution.

In terms of the identity construction process, sociability partially mediated the effects of OUEB and similarity on brand page identification, highlighting the fundamental role social media plays as a socialization platform that builds communal bonds. The existence of direct effects suggested the presence and actions of relevant others can be enough to make focal users attach to a page community, although it does not always require them to see social interaction value in it. Alternatively, these perceptions may be related to other factors or to an increase in other value aspects of the page (e.g. entertainment and information values enacted by user resources) that strengthen brand page identification. Thus, other potential mediating processes could be examined in future research. Here distinctiveness fully mediated the impact of OUEB and partially mediated that of brand page identification on institutional identification, suggesting focal users can fulfil a differentiation need when other users and their resources and the brand page itself are making membership meaningful and self-enhancing.

Further, the results of the two-model comparison showed that the degree of institutional identification through brand page identification was slightly stronger when institutional distinctiveness was operationalized to drive brand page identification. Together with the results of the original model, this supports the recursive nature of social identity construction (Ashforth & Schinoff, 2016). More specifically, it suggests that brand pages are providing an even more important avenue for members to maintain, reinforce, and enact that identity.

Our focus on a social institution context has enriched the literature on social media marketing by investigating a social setting rather than the traditional commercial product/service contexts. Given the necessity of relationship marketing for the prosperity of institutions that are primarily built on social exchange and reciprocal relationships (Arnett et al., 2003), this research offers evidence for the viability of social media marketing in such contexts. Higher education institutions remain unique as their offerings are highly experiential

(e.g., quality of courses) with students often unable to verify certain claims (e.g., grooming leaders of future). Also, marketing and consumer behavior aspects of higher education still remain under-researched (Chocarro, Cortinas, & Villanueva, 2018). Despite our study's sole focus on the higher education sector, we believe our findings to be generalizable to other social institutions that share similar social exchange and reciprocal relationship characteristics, such as political, religious, and sporting organizations.

Institutions are increasingly adapting to the power shift created by marketization, resulting in some members experiencing identity crises (McAlexander et al., 2014). This research offers additional evidence to the importance of status and belonging in resolving identity ambiguity (Seregina & Schouten, 2017) and sheds light on how the identity gap can be bridged through social media in retaining members. Drawing from the identity salience conditions suggested by Kleine et al. (1993), our findings suggest that the presence of similar constituents participating in an institution's brand page can strengthen identity-relevant social connections and that the availability of meaningful user-owned resources through OUEB can increase identity-relevant possessions and media connections in enhancing existing social relationships.

The first contribution of this study stems from examining the influence of other customers in a digital environment on focal customers' experiences (Gensler, Völckner, Liu-Thompkins, & Wiertz et al., 2013; Stephen, 2016) and provides additional evidence to prior research on mere virtual presence (Naylor et al., 2012). This contributes to the customer engagement literature; in particular, our development of a scale to measure OUEB furthers research on other customer engagement behavior. Despite the widely-accepted use of brand pages, little has been known about the dynamic social influence of relevant others within this organization-initiated strategic environment. Against this backdrop, we found that perceptions of other users significantly influenced brand page sociability and brand page identification. Regardless of

resource contributors' intentions and audience conscious awareness, social media exponentially increases the visibility of their background information and actions, creating opportunities for the focal audience to increase a shared understanding of the community's identity through social information processing and the liking of similar others (Byrne, 1971; Salancik & Pfeffer, 1978).

Our second contribution is a better understanding of indirect social interactions in a brand page setting utilizing the social identity theory. Specifically, we have empirically measured focal users' awareness of OUEB and perceived similarity with them, which are shaped through lurking and direct social interactions or even through lurking only. While previous studies have found pro-social consequences of direct social interaction experiences in social networking websites in general (e.g., Hajli, 2014; Wang, Yu, & Wei., 2012), research examining the realistic use of an organization-related brand page (i.e., passive consumption) has been scarce (Hartmann et al., 2015). Our results show a positive relationship between OUEB, similarity, sociability, and brand page identification.

The study's third contribution lies in the use of identity construction theories to examine the process through which member-institution relationship can be built from social media experiences, offering promising rationales for engagement marketing initiatives. Despite the advantage of social identity theory and related concepts in explaining relationship marketing and brand community success, its use in social media marketing research has been limited to the consequences of identification (e.g., loyalty, purchase intention), neglecting the usefulness of its antecedents (i.e., identity motives) in elaborating strategic drivers of user engagement that builds sustainable relationships. This research, therefore, responded to a call for research integrating a theoretical lens of identity construction to advance our understanding of the

dynamic group processes enabled by various engagement tools on social media (Gensler et al., 2013; Harmeling et al., 2017; Reed et al., 2012)

7.1 Managerial implications

Our findings may help social media managers understand the unique role community members play in achieving engagement marketing success, specifically in developing social media strategies grounded in identity-based relationship marketing. The greatest practical challenges engagement marketing faces today are the development of effective initiatives to encourage user-owned resource contributions, to manage and optimize resources, and to measure their impact (Harmeling, et al., 2017). There are also two important considerations for traditional institutions seeking to leverage other-user effects that are discussed subsequently, namely: (1) members' existing social relationships and their experiences in the physical community environment, and (2) large institutions like universities have many social media accounts managed by different functional areas and subgroups. Based on our findings, we suggest several ways to leverage OUEB and similarity in engagement marketing.

7.1.1. Motivating engagement behavior

Our findings strongly point to the importance of motivating user-owned resource contributions, not only for value co-creation but also for identity co-creation. Designing initiatives to attract and reward participation and voluntary contributions from intrinsically motivated members will create a ripple effect on passive users' engagement. The first and the most important consideration in motivating user participation is to have a consistent supply of highly relevant and valuable content that empowers the audience to pursue important identities in a broad context of their institution. For example, a university's graduate research school might create content around common challenges and rewards experienced by PhD students to stimulate discussion and help them collectively make sense of the feelings associated with that

identity. This will also anchor the institution's supportive attitudes towards student success in fostering student-university relationships (Fujita et al., 2019).

Second, managers can maximize member experience and, hence, participation by creating a synergy between digital, social, and offline encounters (Bolton et al., 2018). For example, professional associations can encourage event participants at conferences to post about their experiences and interact with each other on the brand pages by placing an event hashtag on online and offline collaterals and actively using it in their posts. These efforts can also increase identity processing opportunities by motivating the participants to revisit their own experiences and to observe other participants through the during- and post-event content and resulting OUEB available on the brand pages.

Third, participation and contributions need to be seen as easy, enjoyable, and rewarding, and social media technologies can help with these aspects. For example, a university's student life office can ask students to post pictures of their study space, share their study rituals, or express their feelings about upcoming exams in emojis to make them feel empowered and get them involved in the identity co-creation process. Contributors should also receive instant gratification through marketer reactions (e.g., comment, like), which will not only motivate subsequent engagement but also reinforce members' role clarity in the page community and increase the chance of initiating OUEB that can be seen by more users.

7.1.2. Maximizing the visibility and accessibility of relevant resources to the right audience

The presence and actions of active users need to be highly visible and accessible to passive users. The right user-owned resources must be readily-available to the right audience to maximize identity co-creation opportunities. Managers can use page analytics to monitor who is engaging with what type of content and tailor content for that microsegment so as to optimize the chance of getting engagement reactions.

Large social institutions may have a heterogeneous follower-base with their corporate brand page. For example, a university's Facebook page may attract diverse stakeholders including current and future students, alumni, employees, and industry partners. In such a case, a question arises as to how to increase similarity perceptions among people who have different backgrounds and needs. While no straight answer is clear, a brand page might focus the institution's identity that brings such differences together. Since diversity in members' social identities can increase identity synergy (Fombelle et al., 2012), a corporate page's content should focus on stories of diverse stakeholders as well as that of the institution itself. In this way, marketers can maintain the continuity in the page community and signal their efforts to create member embeddedness (Porter & Donthu, 2008; Thomas, Price, & Schau, 2013).

Some members may prefer a subgroup page (e.g., faculty's page) over that of the institution, depending on the relevance and benefits of the page, as was the case with our sample. It is therefore important to ensure subgroup pages are available and have content that focuses on relevant subgroup identities so as to increase similarity perceptions and attraction and to give access to more meaningful identity resources to those who need better clarity in their roles (e.g., newcomers) or to those who do not see the parent institution's identity image as attractive.

7.2. Limitations and future research

This research is not without its limitations that might be examined in future research. First, a cross-sectional survey was used to examine the evolving process of identity co-creation. Future research should validate our findings and build on them through longitudinal studies, as an identity can develop or diminish over time and, thus, might involve non-linear growth effects. Such an approach can also help generate valuable insight into boundary conditions in which a member of an institution faces an identity crisis or other adverse consequences as a

result of other members' involvement in identity co-creation (McAlexander et al., 2014), an important issue that is worthy of research attention.

Second, our sample included formal members (i.e., current students) of Australian universities. There are other stakeholders (e.g., alumni, staff, and future students) who might have different identity needs and also use social media to connect with their institutions and related groups. There are also other organizations, such as sports teams/clubs or political parties, which share similar member and relationship characteristics and for which the findings of this research could be tested. Future research replicating this study in different product or service brand contexts with varying groups of stakeholders will ensure a more holistic understanding of different and complex relationships.

Third, there may be additional constructs capturing perceptions of other users, such as the extent to which a focal user has known other users offline. Likewise, there may be other important mediators of the relationship between perceptions of other users and institutional identification. For example, future research could examine the extent to which OUEB influences beliefs about page hosts' user-centric philosophy (Dahl et al., 2015) and sense of respect (Porter & Donthu, 2008) in strengthening their identification with the organization.

Finally, since social media experiences are diverse in nature, future research may examine the moderating variables that can influence the hypothesized relationships in this study. For instance, research might see whether attitude towards diversity in a brand page's follower moderates the effect similarity has on sociability and brand page identification, as those who are open to diversity may see continuity in a heterogeneous community through access to resources owned by dissimilar others (Thomas et al., 2013). Similarly, future work can study different user types (e.g., frequent vs. non-frequent users, followers vs. non-followers) that could moderate the proposed relationships in our research model.

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Figures and tables

Figure 1: Conceptual model

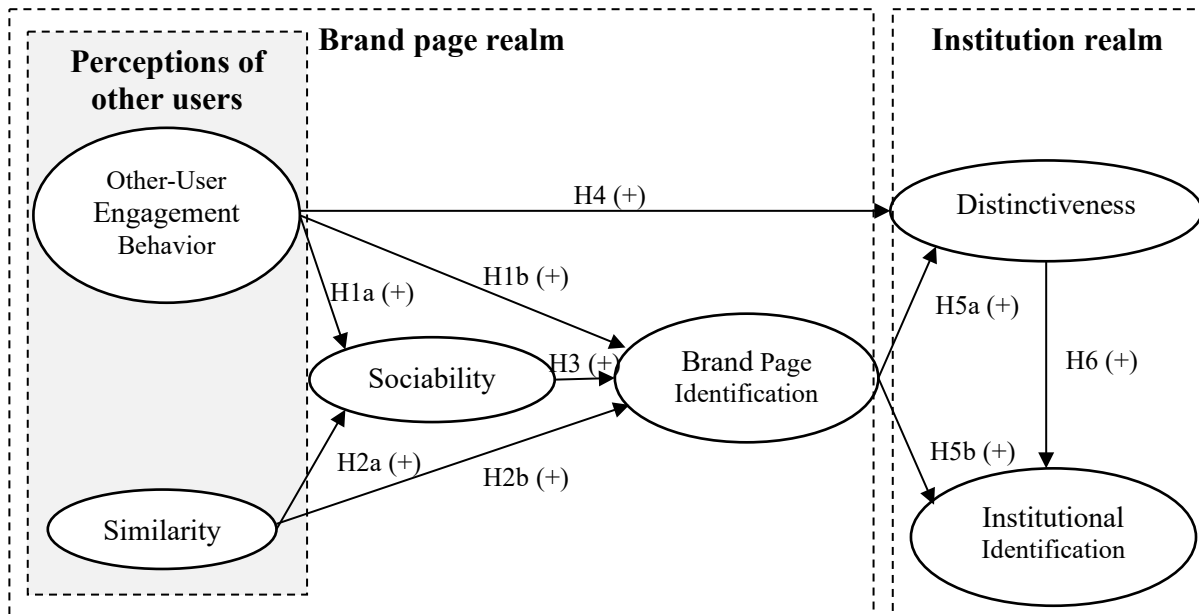
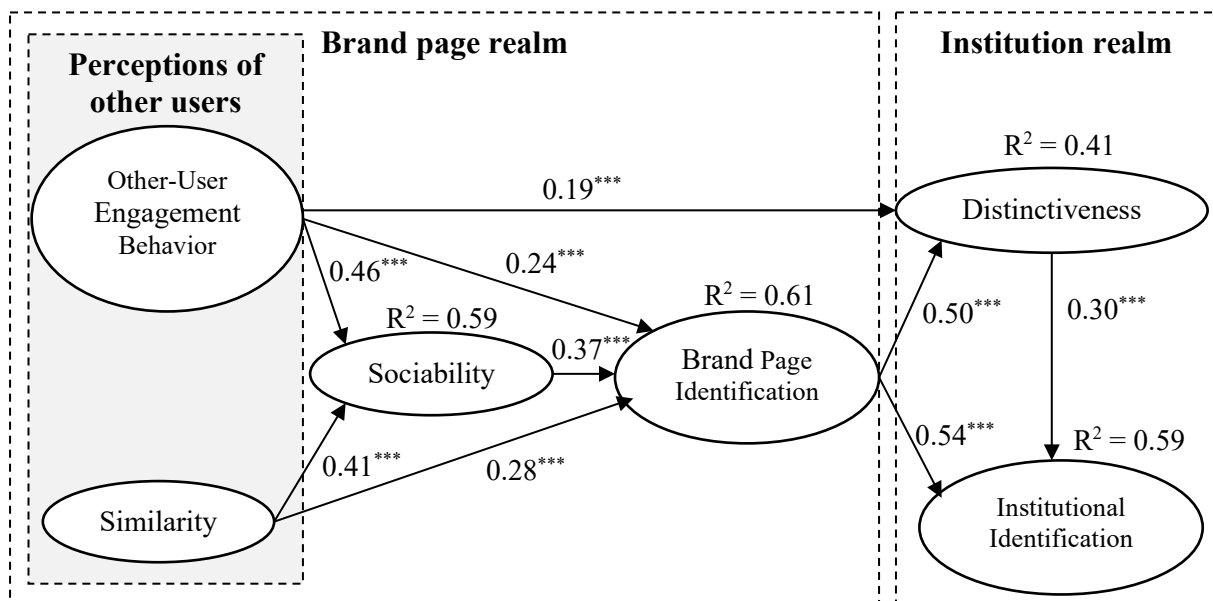
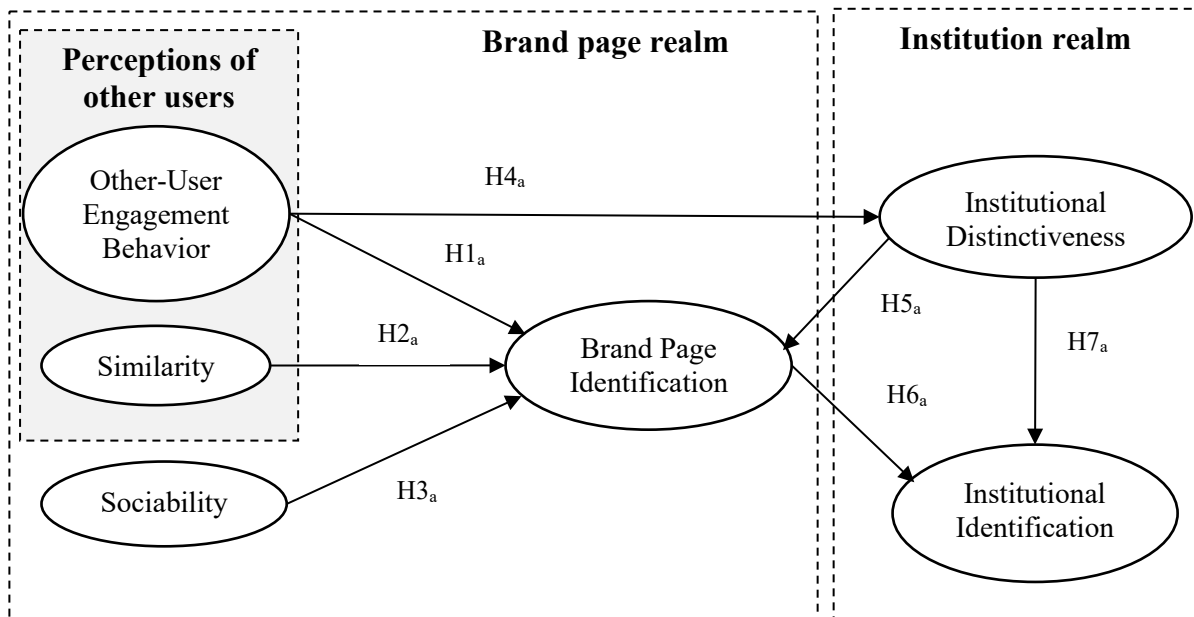


Figure 2: The structural model estimates



Note: *** p < 0.001.

Figure 3: The alternate research model



Note: H1_a, H2_a, H3_a, H4_a, H5_a, H6_a and H7_a are hypotheses in the proposed alternate model

Table 1. Sample characteristics

Criterion	n	%	Criterion	n	%
Gender			# of university-related brand pages followed		
Female	313	64	1-3	365	75
Male	168	35	4-6	100	20
Other	5	1	7-9	8	2
Age			10 or more	13	3
18-21	166	34	Type of the brand page selected		
22-25	133	27	Page for university community	203	41
26-29	67	14	Page for student community	106	22
30 or older	120	25	Page for discipline community	65	13
Type of university enrolled at			Page for functional area	33	7
Group of 8	158	33	Page for club/society	39	8
Non Group of 8	328	67	Page for informal group	40	8
Time at the university			Page platform		
Less than 6 months	54	11	Facebook	418	86
6-11 months	98	20	Instagram	41	8
12-23 months	119	25	Twitter	11	2
2-3 years	108	22	LinkedIn	9	2
More than 3 years	107	22	YouTube	6	1
Student type			Snapchat	1	0.2
International	79	16	Page membership duration		
Domestic	407	84	Less than 2 months	32	7
			2-6 months	97	20
			7-11 months	86	18
			1-2 years	158	32
			More than 2 years	113	23
Page usage (1: Never – 7: Always)				Mean	SD
Check page posts				4.29	1.67
Interact with content (e.g., Like, comment on content)				3.77	1.71
Interact with the page (e.g., comment to the page, send a message)				2.95	1.73
Interact with friends (e.g., tag, comment, like a comment, share)				3.05	1.79
Interact with other users (e.g., like user-generated content, comment to other users)				3.06	1.76
Contribute content/information (e.g., share tips, use a university hashtag in a photo)				2.61	1.79

Note: SD: standard deviation

Table 2: The constructs' measurement properties

Constructs and measurement items	Loading (t-value)
Other User Engagement Behavior [OUE] (developed here) <i>CR: 0.87, AVE:0.54, FVIF: 2.19</i>	
OUE1: People talk about their experiences on this page.	0.81 (19.74)
OUE2: People tell stories on this page.	0.77 (18.68)
OUE3: People express emotions and feelings on this page.	0.68 (16.31)
OUE4: People share tips and ideas on this page.	0.75 (18.15)
OUE5: People support each other on this page.	0.74 (17.96)
OUE6: People endorse content on this page.	0.63 (15.01)
Similarity [SIM] (Karaosmanoglu et al., 2011)	
Demographic Similarity [DEM] <i>CR: 0.90, AVE: 0.63, FVIF: 2.39</i>	
DEM1: Other users of the page are similar in age to me.	0.73 (17.48)
DEM2: Other users of the page have a similar lifestyle to me.	0.83 (20.31)
DEM3: Other users of the page have similar social status to me.	0.85 (20.74)
DEM4: Other users of the page have similar education to me.	0.80 (19.32)
DEM5: Other users of the page have similar income to me.	0.77 (18.76)
Psychographic Similarity [PSY] <i>CR: 0.88, AVE: 0.58, FVIF: 3.74</i>	
PSY1: Other users of the page have a similar character to me.	0.74 (17.98)
PSY2: Other users of the page have similar appearance to me.	0.75 (18.06)
PSY3: Other users of the page have similar values to me.	0.76 (18.46)
PSY4: Other users of the page have a similar background to me.	0.79 (19.27)
PSY5: Other users of the page have similar life achievements to me.	0.77 (18.65)
Sociability [SOC] (Jahn & Kunz, 2012) <i>CR: 0.90, AVE: 0.68, FVIF: 2.93</i>	
SOC1: I can meet people like me on this page.	0.82 (20.09)
SOC2: I can meet new people like me on this page.	0.85 (20.89)
SOC3: I can find out about people like me on this page.	0.80 (19.36)
SOC4: I can interact with people like me on this page.	0.83 (20.24)
Brand Page Identification [BPI] (Stokburger-Sauer et al., 2012) <i>CR: 0.91, AVE: 0.67, FVIF: 3.76</i>	
BPI1: I feel a strong sense of belonging to the group that the page represents.	0.84 (20.46)
BPI2: I identify strongly with the page.	0.87 (21.40)
BPI3: The page embodies what I believe in.	0.73 (17.66)
BPI4: The page is like a part of me.	0.81 (19.61)

BPI5: The page has a great deal of personal meaning for me.	0.83 (20.28)
Distinctiveness [DIS] (Stokburger-Sauer et al., 2012)	<i>CR: 0.89, AVE: 0.73, FVIF: 1.97</i>
DIS1: [University name] has a distinctive identity.	0.82 (20.08)
DIS2: [University name] is unique.	0.87 (21.34)
DIS3: [University name] stands out from its competitors.	0.87 (21.22)
Institutional Identification [IID] (Mael & Ashforth, 1992)	<i>CR: 0.90, AVE: 0.59, FVIF: 2.44</i>
IID1: When someone criticizes [university name], it feels like a personal insult.	0.82 (20.04)
IID2: I am very interested in what others think about [university name].	0.79 (19.30)
IID3: When I talk about [university name], I usually say ‘we’ rather than ‘they’.	0.73 (17.71)
IID4: The successes of [university name] are my successes.	0.75 (18.20)
IID5: When someone praises [university name], it feels like a personal compliment.	0.84 (20.41)
IID6: If a story in the media criticized [university name], I would feel embarrassed.	0.65 (15.43)

Notes: All loadings were significant at $p < 0.001$ level; CR: composite reliability; AVE: average variance extracted; FVIF: full collinearity variance inflation factor.

Table 3: Discriminant validity and descriptive statistics

	Mean	SD	OUE	DEM	PSY	SOC	BPI	DIS	IID
Other user engagement	4.48	1.07	<i>0.733</i>						
Demographic similarity	4.31	1.12	0.475	<i>0.796</i>					
Psychographic similarity	4.26	1.04	0.583	0.755	<i>0.763</i>				
Sociability	4.36	1.22	0.694	0.549	0.705	<i>0.826</i>			
Brand page identification	4.14	1.29	0.654	0.525	0.713	0.722	<i>0.817</i>		
Distinctiveness	4.94	1.26	0.517	0.295	0.462	0.548	0.624	<i>0.853</i>	
Institutional identification	4.37	1.31	0.524	0.413	0.531	0.557	0.729	0.639	<i>0.767</i>

Notes: Square root of AVE for the constructs are shown in italics on the diagonal. Correlations are below the diagonal. SD: standard deviation.

Table 4: Mediation test results

Path	Effect	P value	Interpretation
OUE → IID	0.02	0.37	Non-significant direct effect
OUE → SOC → BPI → DIS → IID	0.03	0.13	Non-significant indirect effect
OUE → SOC → BPI → IID	0.09	< 0.001	Mediation
OUE → BPI → DIS → IID	0.03	0.10	Non-significant indirect effect
OUE → DIS → IID	0.06	0.04	Mediation (p < 0.05 level)
OUE → BPI → IID	0.12	< 0.001	Mediation
Total effect of OUE on IID	0.34	< 0.001	Mediation
SIM → IID	0.04	0.19	Non-significant direct effect
SIM → SOC → BPI → DIS → IID	0.02	0.16	Non-significant indirect effect
SIM → SOC → BPI → IID	0.08	0.002	Mediation (p < 0.01 level)
SIM → BPI → DIS → IID	0.04	0.05	Non-significant indirect effect
SIM → BPI → IID	0.14	< 0.001	Mediation
Total effect of SIM on IID	0.32	< 0.001	Mediation

Table 5: Model Comparison Using PLSpredict

Model	Endogenous Latent Variables	RMSE	MAE
Original research model (Figure 1)	Brand page identification	0.541	0.415
	Distinctiveness	0.538	0.405
	Institutional identification	0.520	0.390
Alternative research model (Figure 3)	Brand page identification	0.511	0.393
	Distinctiveness	0.518	0.385
	Institutional identification	0.506	0.351