HOW NANO-INFLUENCERS CITIZENSHIP BEHAVIOR AFFECT THEIR STICKINESS TO THE SOCIAL COMMERCE PLATFORM?
THE ROLES OF PERCEIVED VALUE

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Yeamdao Narangajavana⁴, and Vikas Kumar⁵

Abstract

Nano-influencers, defined as Social Media Influencers (SMIs) with fewer than 1000 followers, occupy a unique position in social commerce, attributable to their remarkably high levels of audience engagement. This study explores their citizenship behaviors and its impact on shaping perceptions of value. To investigate the relationship between Nano-influencers’ Citizenship Behavior (NICB), perceived value, and their stickiness to the social commerce platform (SCP), this study employs a multi-dimension approach. Data were collected from 393 nano-influencers in China who had formed partnerships with at least one SCP. Analysis was conducted via Partial Least Squares Structural Equation Modeling (PLS-SEM). Findings suggest a positive effect between NICB and perceived value, and that NICB directly impacts nano-influencers’ stickiness to the SCP. In addition, nano-influencers’ stickiness to the SCP is directly influenced by both utilitarian and emotional value, and these factors partially explain the relationship between NICB and stickiness to the SCP. However, social value and epistemic values do not have an impact on stickiness to the SCP, nor do they mediate the relationship between NICB and stickiness to the SCP. The study enhances the theoretical understanding of nano-influencers’ impacts on social commerce platforms (SCPs) by utilizing value co-creation theory to elucidate the mechanisms influencing SCP stickiness. Additionally, it provides practical insights for industry professionals aiming to augment nano-influencer engagement and loyalty through carefully designed strategic initiatives.

Keywords: Nano-influencers’ citizenship behavior, utilitarian value, emotional value, social value, epistemic value, Stickiness to the SCP

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1. INTRODUCTION

Nano-influencers, a subgroup of SMIs, are newcomers in influencer marketing, commonly characterized as individuals who possess a follower count of fewer than 1,000 (Berne-Manero & Marzo-Navarro, 2020). Their behaviors have been attracting more and more attention from industry professionals and researchers (Conde & Casais, 2023; Himelboim & Golan, 2023). Specifically, these behaviors go beyond the expected role and provide exceptional value to the firm (Yi et al., 2013). This is known as Nano-influencer citizenship behavior (hereafter referred to as NICB). Examples of such behavior include offering suggestions to enhance the service experience (Doorn et al., 2010), sharing self-portraits with a specific item (Ashley & Tuten, 2015), and providing product experience reviews, all of which facilitate the realization of co-promotion (Eisingerich et al., 2014). Despite the growing interest in NICB, research on its effects remains limited (Roy et al., 2019). This study aims to fill this gap by investigating the outcomes of nano-influencers’ behaviors.

NICB determines perceptions and responses based on social psychology’s self-perception theory (Yen et al., 2022). Such perceptions are prominent in business transactions, where benefits and costs (value) are traded. Therefore, Nano-influencers’ perceived value may be a key factor in NICB. Due to the multidimensionality of Nano-influencers’ perceived value, this study adopts Sheth et al.’s (1991) framework, which includes utilitarian, emotional, social and epistemic value in social commerce settings. As a result of Nano-influencers’ perceived value, the conceptual model includes Nano-influencers’ stickiness to the SCP.

Nano-influencers are deemed as a cost-effective and efficient approach to reaching a substantial number of followers (Rafki et al., 2021), with a high probability of converting into paying customers (Fainmesser & Galeotti, 2021). Hence, nano-influencers are increasingly favored by small and medium-sized enterprises or start-ups (Proserpio et al., 2020). However, little research has been conducted on the reasons behind nano-influencers’ continuous use of a specific SCP, stemming from their behaviors. Prior research has examined many factors that influence stickiness of the SCP, such as social commerce feature richness (Friedrich et al., 2019), online interactions (Qu et al., 2023), and community factors (Molinillo et al., 2020). AlFarraj et al. (2021) found that SMIs’ commitment to a platform is influenced by their reputation, encompassing their physical attractiveness, trustworthiness, and expertise. These characteristics not only amplify their impact but also lead them to favor long-term collaboration with a certain platform in order to uphold their reputation and professional image. Enabling nano-influencers to engage in content development and community management on platforms can greatly enhance their degree of engagement and loyalty to the SCP (Assiouras et al., 2019). This strategy allows nano-influencers to more effectively satisfy their desires for self-expression and social connection, ultimately reinforcing their reliance on and commitment to the platform. Moreover, existing research on SMIs or nano-influencers in social commerce has primarily focused on their impact on customers’ purchasing behavior and loyalty (Jun & Yi, 2020) from perspectives of SMIs attributes (Gomes et al., 2022) or the contents they generate (Romero-Rodriguez & Castillo-Abdul, 2023). Nevertheless, there is a lack of empirical studies on the impacts of nano-influencers on stickiness to the SCP.

This study examined nano-influencers in China due to the distinct features of social commerce in that country, where online social interactions and online shopping are harmoniously integrated. Platforms such as WeChat allow people to buy things in real-time while they are socializing. This has turned social commerce into more than just a way to shop, but also a cultural phenomenon that is heavily influenced by trust and community awareness. These factors have a significant effect on how consumers make decisions about what to buy (Li et al., 2018; Zhang et al., 2017). Chinese customers rely more heavily on social recommendations and online word-of-mouth compared to Western markets. This amplifies the
impact of nano-influencers, who are able to build strong trust relationships within their follower
groups (Chen et al., 2019). In China, SCPs make extensive use of interactive marketing
strategies, including live-stream selling and collaborations with key opinion leaders (KOLs).
These strategies rely on the personal charm and expertise of nano-influencers to attract and
retain user engagement (Hu et al., 2020). In short, China’s unique environment provides an
excellent opportunity to examine nano-influencers in the field of social commerce.

This study provides significant contributions to the existing literature on value co-
creation behavior by explaining the extra-role behavior exhibited by nano-influencers.
Additionally, it empirically confirms the impact of NICB on every sub-dimension of perceived
value (utilitarian, emotional, social, and epistemic values) in social commerce. The impact of
creation behavior on sub-dimensions of perceived value has been insufficiently examined
(Anshu et al., 2022; Meng & Cui, 2020).

This study aims to examine how NICB affects perceived value (with four
subdimensions), which further leads to their stickiness to the SCP with the following two
questions: (1) How does NICB affect utilitarian, emotional, social and epistemic values? (2)
How do nano-influencers utilitarian, emotional, social and epistemic values affect their
stickiness to the SCP? To examine these questions, a research framework is constructed based
on the current literature. An online survey was adopted to collect data from nano-influencers
in major Chinese cities through random sampling. Survey responses were quantified using a
five-point Likert scale. The data were analyzed with PLS-SEM to ensure the reliability and
validity of the findings and then validated using data collected from nano-influencers involved
in social commerce in China.

2. LITERATURE REVIEW AND HYPOTHESES

2.1 Theoretical Background

Nano-influencers’ Citizenship Behavior (NICB) is derived from Customer Citizenship
Behavior (CCB). To better understand and validate the multifaceted contributions of nano-
influencers in the social commerce landscape, this paper identifies six dimensions for a more
comprehensive examination of NICB in the context of social commerce. These dimensions
include feedback, advocacy, helping, and tolerance (Yi et al., 2013), along with demonstrating
relationship affiliation and participating in the SCP’s activities (Omar et al., 2020). In order to
enhance our comprehension of their role and impact, this approach aims to provide a thorough
analysis of nano-influencers’ contributions. Currently, nano-influencers provide feedback by
offering comments or recommendations on the SCP’s products or services received from
customers, which benefits the SCP (Yen et al., 2022). They engage in advocacy by promoting
the SCP or its products to acquaintances, including friends, family members, and other
influential individuals. Nano-influencers also help by providing support to customers or other
influential individuals facing complex issues beyond basic assistance. They exhibit tolerance
by remaining patient during service failures. Additionally, they display affiliation with the SCP
by showcasing its logo or branding on their bodies or personal belongings. Furthermore, nano-
influencers participate in the SCP’s activities by engaging in company-sponsored events and
organizational activities.

In the context of social commerce, stickiness is a key factor in profitability for a
company (Laczko et al., 2019). It may refer to a website’s ability to attract and retain customers
(Friedrich et al., 2019; Hu et al., 2020) who visit the site repeatedly and spend more time
browsing compared to the average customers (Hu et al., 2020). As customers spend more time
on a preferred website, the probability of them making purchases increases (Hu et al., 2020).
However, Nemzow (1999) argued that the average browsing length may not accurately reflect
purchase behavior or customer loyalty, but website visits only. Therefore, Mohamed, Moez, and Vanessa (2002) defined stickiness as the tendency to purchase certain products or services repeatedly. In this study, we define stickiness as the inclination of nano-influencers to revisit the SCP, to keep sharing its products, and to invest more time in it (Li et al., 2021).

This study defines perceived value as the comprehensive evaluation that a nano-influencer conducts regarding the utility of a social commerce site, relying on their perceptions of the benefits they receive and the costs they incur (Molinillo et al., 2021). Prior research has identified functional value, epistemic value, conditional value, social value, and emotional value as dimensions of perceived value (Sheth et al., 1991). In this study, we have chosen to exclude conditional value from our conceptual framework, as it arises as a result of social value (Sweeney & Soutar, 2001). Furthermore, functional value is substituted with utilitarian value. The term utilitarian value is employed to recognize and highlight the varied and practical advantages that SCPs provide to nano-influencers, surpassing the conventional concepts of functional value. This study also includes the concept of epistemic value for both theoretical and practical purposes. It recognizes that individuals who possess expertise and knowledge have a greater ability to influence customer attitudes and behaviors (AlFarraj et al., 2021). Hence, the suggested understanding of nano-influencers’ perceived value regarding SCPs includes four aspects: utilitarian value, emotional value, epistemic value, and social value.

2.2 The relationship between NICB and Nano-influencers Stickiness to the SCP

NICB has the potential to enhance the long-lasting relationship between an organization and its customers (Yi et al., 2011). This is evident from the fact that when customers actively participate in citizenship behavior, they perceive their connection with the enterprise as meaningful and make deliberate efforts to maintain it (Kim et al., 2020). Moreover, customers who actively participate in citizenship behavior are more likely to exhibit loyalty behaviors, particularly when the products or services offered by a company effectively cater to their requirements (Assiouras et al., 2019). Given the resemblance between customers and influencers, it can be assumed that the active engagement of nano-influencers with SCP employees and customers is likely to result in a tendency to maintain a relationship with the SCP. This active involvement is expected to foster stickiness towards the SCP. Therefore, the following hypothesis is posited:

H1. NICB has a positive impact on the stickiness to of the SCP.

2.3 The Relationship between NICB and Subdimensions of Perceived Value

Kim and Tang (2020) found that Value Co-creation Behaviors (VCB) have a positive impact on customers’ perceived value. In essence, active participation in co-creation activities enhances nano-influencers’ perceived value by providing a unique consumption experience (Solakis et al., 2022). CCB, as a form of VCB, has been empirically shown to increase perceived value (Tran & Vu, 2021; Xu et al., 2021). For example, the SCP may improve nano-influencers’ emotional value-behavior relationship (Jiang et al., 2019). This engagement will lead to feelings of affiliation and social value (Van den Broeck et al., 2010). Therefore, the following hypotheses are put forward:

H2a. NICB has a significant positive impact on Utilitarian Value.
H2b. NICB has a significant positive impact on Emotional Value
H2c. NICB has a significant positive impact on Social Value.
H2d. NICB has a significant positive impact on Epistemic Value.
2.4 The Relationship between Subdimensions of Perceived Value and Nano-influencers Stickiness to the SCP

Utilitarian value in marketing refers to the customer’s evaluation of whether a particular need has been satisfied through the shopping behavior performed (Babin et al., 1994). Its impact on consumers’ intentions to continue purchasing smartwatches (Saygılı & Yalçıntekin, 2021) or stickiness to mobile service providers (Oghuma et al., 2016) has been well proven. In the context of online shopping, the continuous influence of perceived utilitarian value affects online shoppers’ repurchase decisions (Ceyhan, 2019).

Emotional value refers to the perceived usefulness obtained from the emotions or affective states generated when promoting products or services offered by SCPs (Sweeney & Soutar, 2001). Emotional value can produce a direct impact on loyalty in various fields, such as tourism (Senić & Marinković, 2014), service marketing (Senić & Marinković, 2014), traditional markets (Asmayadi & Hartini, 2015), and the automobile industry (Hassan & Moosa, 2015). However, the study conducted by Wang and Prompanyo (2020) revealed that emotional value had minimal influence on customer loyalty.

Social value refers to the perceived usefulness of endorsing products or services on an SCP’s ability to satisfy nano-influencers’ desire for recognition or social esteem (Sweeney & Soutar, 2001). It can boost brand community belonging and loyalty in social commerce (Ceyhan, 2019). Nano-influencers are more inclined to endorse and invest more in a brand with greater social value (Pihlström & Brush, 2008). However, social value was found not to be positively related to customer loyalty (Rahayu et al., 2020).

Epistemic value is a SCP’s perceived usefulness in sparking nano-influencers’ curiosity, provide novelty, and satisfy their knowledge-seeking tendencies (Sheth et al., 1991). Nano-influencers’ loyalty to a brand remains steadfast (Wong et al., 2019) as long as they actively pursue new information about the brand or its offerings (Khan & Mohsin, 2017). However, no significant impact of epistemic value on brand loyalty was found by Hassan and Moosa (2015).

Therefore, hypotheses H3a to H3d are proposed as follows:
H3a. Utilitarian Value has a positive effect on stickiness to the SCP.
H3b. Emotional Value has a positive effect on stickiness to the SCP.
H3c. Social Value has a positive effect on stickiness to the SCP.
H3d. Epistemic Value has a positive effect on stickiness to the SCP.

A conceptual model was constructed based on the previous discussion in Figure 1.
3. RESEARCH METHODOLOGY

This study aims to examine how NICB affects perceived value (with four subdimensions), which further leads to their stickiness to the SCP. The questionnaire utilized in the current study consisted of two sections: Part One comprised demographic data and details about the nano-influencer respondents, such as gender, age, occupation, and frequency of sharing products. Part Two consisted of the variable measurements. The scale of NICB was sub-divided into Feedback (3 items), Advocacy (3 items), Helping (4 items), and Tolerance (3 items), which were adapted from Yi and Gong (2013), along with Displays of Relationship Affiliation (2 items), and Participation in the SCP’s Activities (3 items) from Bove et al. (2009). Utilitarian value (4 items) was modified from Babin et al. (1994); while emotional value (5 items), social value (4 items), and epistemic value (4 items) were modified from Sweeney and Soutar (2001). Stickiness (3 items) was adapted from the scale developed by Zhang et al. (2019). Because items were derived from different works with different contexts, the majority of items were modified to align with the specific context of this study to ensure content validity. The 5-point Likert scale was chosen due to its convenience in providing a mid-scale (3 = neutral) that distinguishes positive and negative responses (Kim et al., 2023).

Questionnaires were disseminated during October 2023 via WeChat, a prominent SMP in China, using the ‘Questionnaire Star’ online survey platform, which is widely favored in the country. This study focused on nano-influencers with fewer than 1,000 followers. According to Hair et al. (2019), the sample size for structural model analysis should be at least ten times the observable variables. Therefore, the sample size for this study should be at least 380 respondents due to there being 38 observable variables. A total of 424 responses were received. After eliminating 34 responses from individuals who had not ordered in the past month, had over 1,000 followers, or currently resided outside China, 393 valid responses remained. Therefore, a sample size of 393 was used in this study which is considered adequate.

The model evaluation was conducted using the PLS-SEM technique, utilizing SmartPLS v.3.2.6 software (Ringle et al., 2015). The PLS-SEM was employed over covariance-based Structural Equation Modeling (SEM) for several reasons. Firstly, PLS offers a variance-centric, predictive SEM approach that is well-suited for handling complex models (Rasoolimanesh & Ali, 2018; Sarker & Khayer, 2021), especially in the context of marketing management (Hair et al., 2012), aligning effectively with the research objectives. Secondly, PLS-SEM is well-suited for evaluating indicators that contain multiple components or facets of a construct, rather than just a single latent variable (Hair et al., 2019). In this conceptual framework, the indicators of nano-influencers’ citizenship behavior – Feedback, Advocacy, Helping, Tolerance, Displays of Relationship Affiliation, and Participation in the SCP’s Activities – are more effectively measured as components, rather than as distinct factors. Thirdly, PLS-SEM does not require large sample sizes and does not assume the data follows a normal distribution (Hair et al., 2017; Hair et al., 2019).

In line with the prescribed analytical approach advocated by Anderson and Gerbing (1988), the analysis comprised two sequential stages. Firstly, an assessment of the measurement model was conducted, evaluating the validity and reliability of the measures employed. Subsequently, an examination of the structural model was implemented, verifying the hypothesized relationships as outlined in prior research (Hair et al., 2017). Additionally, to ascertain the significance of the path coefficients and loadings, a bootstrapping technique involving 5000 resamples was also conducted, following the methodology recommended by Hair et al. (2017).

4. RESULTS

Among the study participants, 85.24% were female, 34.35% were aged between 30 and
39 years of age, and 66.42% had received a college education or above. Regarding work, 35.37% were office workers, while 19.59% were government officers. The majority of respondents (69.97%) were cooperating with one SCP, while 47.07% reported visiting the SCP multiple times a day, and another 32.06% visited once a day. The majority (68.7%) had been nano-influencers promoting products on the SCP for over a year.

### Table 1 Model Measurement

<table>
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<tr>
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<th>Factor Loading</th>
<th>CR</th>
<th>AVE</th>
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<td>Feedback(F)</td>
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<td>F1</td>
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<td>F2</td>
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<td>F3</td>
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<td>A1</td>
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<td>A2</td>
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<td>A3</td>
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<td>.897</td>
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<td>H2</td>
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<td>H3</td>
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<td>H4</td>
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<td>Tolerance(T)</td>
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<td>T2</td>
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<td>T3</td>
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<td>Displays of Relationship Affiliation (DRA)</td>
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<td>DRA1</td>
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<td>DRA2</td>
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<td>PA1</td>
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<td>PA2</td>
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### Table 1 (Continued)

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<th>Constructs and Items</th>
<th>Factor Loading</th>
<th>CR</th>
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<tr>
<td>by the SCP, or being sponsored by brands in partnership with the SCP.</td>
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<td>PA3: I would attend functions (e.g., online training, temporary hot-sale-items oriented communities) held by the SCP.</td>
<td>.893</td>
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<td><strong>Stickiness (ST)</strong></td>
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<td>ST1: I will spend more time in the SCP.</td>
<td>.923</td>
<td>.800</td>
<td>.749</td>
<td>.875</td>
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<td>ST2: I will invest more of my talents into the SCP.</td>
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<td>ST3: I will contribute more ideas to the SCP.</td>
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<td><strong>Utilitarian Value (UV)</strong></td>
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<td>UV1: Participating in the SCP’s marketing activities offers value for money.</td>
<td>.923</td>
<td>.749</td>
<td>.685</td>
<td>.875</td>
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<td>UV2: Participating in the SCP’s marketing activities is beneficial to me.</td>
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<td>UV3: Participating in the SCP’s marketing activities is worthwhile to me.</td>
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<td>UV4: Overall, participating in the SCP’s marketing activities delivers good value.</td>
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<td><strong>Emotional Value (EMV)</strong></td>
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<td>EMV1: Promoting the SCP’s products through social media is interesting.</td>
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<td>.718</td>
<td>.685</td>
<td>.902</td>
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<td>EMV2: Promoting the SCP’s products through social media is enjoyable and satisfying.</td>
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<td>EMV3: I feel relaxed when I use social media to promote the SCP’s products.</td>
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<td>EMV4: I feel good when I use social media to promote the SCP’s products.</td>
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<td>EMV5: Promoting the SCP’s products through social media is a delightful experience.</td>
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<td><strong>Social Value (SV)</strong></td>
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<tr>
<td>SV1: Sharing my experiences with the SCP on social media helps me feel acceptable.</td>
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<td>.742</td>
<td>.685</td>
<td>.887</td>
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<td>SV2: Sharing my experiences with the SCP on social media improves the way I am perceived.</td>
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<td>SV3: Sharing my experiences with the SCP on social media makes a good impression on other people.</td>
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<td>SV4: Sharing my experiences with the SCP on social media helps me gain social approval.</td>
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<td><strong>Epistemic Value (EPV)</strong></td>
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<td>EV1: The reason that I promote the SCP through social media is to learn various skills of marketing.</td>
<td>.921</td>
<td>.745</td>
<td>.685</td>
<td>.887</td>
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<tr>
<td>EV2: The reason that I promote the SCP through social media is to learn new knowledge about the products.</td>
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</tr>
<tr>
<td>EV3: Promoting the SCP through social media makes my life different.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EV4: I like to read related material found during the process of promoting the SCP through social media.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* $\alpha = $ Cronbach’s alpha; AVE = average variance extracted; CR = composite reliability.
The construct reliability and validity scores are shown in Table 1. All constructs had statistically significant factor loading values above the recommended .70 (Hair et al., 2017). Additionally, the average variance extracted (AVE) values of all constructs exceeded .50, indicating convergent validity (Fornell & Larcker, 1981; Hair et al., 2017). The measures’ composite reliability values ranged from .910 to .929, and their Cronbach’s alphas were between .806 and .902, indicating strong scale reliability. The square root of the AVE for each construct surpassed the corresponding inter-correlations (Fornell & Larcker, 1981), as shown in Table 2, while all heterotrait-monotrait ratio of correlations (hereinafter as HTMT) values remained below .9, confirming the discriminant validity.

Table 2 Fornell-Larcker Criterion and HTMT Ratios

<table>
<thead>
<tr>
<th>Advocacy</th>
<th>PA</th>
<th>DRA</th>
<th>EMV</th>
<th>EPV</th>
<th>Feedback</th>
<th>Helping</th>
<th>ST</th>
<th>Tolerance</th>
<th>UV</th>
<th>SV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocacy</td>
<td>.902</td>
<td>.477</td>
<td>.505</td>
<td>.422</td>
<td>.411</td>
<td>.527</td>
<td>.438</td>
<td>.434</td>
<td>.516</td>
<td>.306</td>
</tr>
<tr>
<td>PA</td>
<td>.420</td>
<td>.894</td>
<td>.492</td>
<td>.307</td>
<td>.402</td>
<td>.477</td>
<td>.487</td>
<td>.382</td>
<td>.500</td>
<td>.314</td>
</tr>
<tr>
<td>PRA</td>
<td>.427</td>
<td>.413</td>
<td>.915</td>
<td>.374</td>
<td>.411</td>
<td>.551</td>
<td>.434</td>
<td>.401</td>
<td>.388</td>
<td>.290</td>
</tr>
<tr>
<td>Feedback</td>
<td>.462</td>
<td>.416</td>
<td>.461</td>
<td>.308</td>
<td>.317</td>
<td>.889</td>
<td>.504</td>
<td>.421</td>
<td>.483</td>
<td>.304</td>
</tr>
<tr>
<td>Helping</td>
<td>.388</td>
<td>.428</td>
<td>.366</td>
<td>.308</td>
<td>.307</td>
<td>.857</td>
<td>.340</td>
<td>.517</td>
<td>.373</td>
<td>.388</td>
</tr>
<tr>
<td>ST</td>
<td>.382</td>
<td>.334</td>
<td>.338</td>
<td>.349</td>
<td>.324</td>
<td>.367</td>
<td>.298</td>
<td>.894</td>
<td>.363</td>
<td>.423</td>
</tr>
<tr>
<td>Tolerance</td>
<td>.448</td>
<td>.433</td>
<td>.321</td>
<td>.342</td>
<td>.437</td>
<td>.416</td>
<td>.449</td>
<td>.314</td>
<td>.879</td>
<td>.355</td>
</tr>
<tr>
<td>UV</td>
<td>.273</td>
<td>.279</td>
<td>.245</td>
<td>.326</td>
<td>.400</td>
<td>.267</td>
<td>.332</td>
<td>.377</td>
<td>.865</td>
<td>.379</td>
</tr>
<tr>
<td>SV</td>
<td>.309</td>
<td>.323</td>
<td>.319</td>
<td>.289</td>
<td>.402</td>
<td>.284</td>
<td>.345</td>
<td>.294</td>
<td>.275</td>
<td>.337</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.536</td>
<td>.518</td>
<td>.414</td>
<td>.196</td>
<td>.219</td>
<td>.546</td>
<td>.554</td>
<td>.272</td>
<td>.509</td>
<td>.157</td>
</tr>
</tbody>
</table>

Note. HTMT = heterotrait–monotrait; DRA = Displays of Relationship Affiliation; EMV = Emotional Value; EPV = Epistemic Value; PA = Participation in the SCP’s Activities; ST = Stickiness; SV = Social Value; UV = Utilitarian Value. The diagonal factors highlighted in bold represent the square roots of the constructed AVE values. The HTMT ratios are located above the bold diagonal, while the estimated correlations are located below the bold diagonal.

Following this procedure, the structural model was evaluated. The Standardized Root Mean Square Residual (SRMR) should not exceed 0.10 when evaluating model fit (Henseler et al., 2016). With an SRMR of 0.085, the model is shown to fit well. Furthermore, we evaluated the model’s predictive power by assessing the $R^2$ and $Q^2$ values of the predictor variables. The results shown in Table 4 indicate that all $R^2$ values exceeded the .10 cutoff (Falk & Miller, 1992). Additionally, all Stone-Geisser’s $Q^2$ values for the intrinsic constructs were positive, surpassing 0. This supports the model’s predictive capabilities (Hair et al., 2017).

Table 3 presents the calculated route coefficients for the modeled relationships. As stated in hypothesis H1, NICB affects stickiness to the SCP ($\beta = .292, p \leq .001$), establishing H1. The H2a to H2d hypotheses are supported by NICB’s significant results regarding utilitarian value ($\beta = .399, p \leq .001$), emotional value ($\beta = .445, p \leq .001$), social value ($\beta = .43, p \leq .001$), and epistemic value ($\beta = .47, p \leq .001$). Hypothesis H3a, utilitarian value’s impact on nano-influencers’ stickiness to the SCP was shown to be significant ($\beta = .179, p \leq .001$), supporting H3a. Emotional value was found to influence nano-influencers’ stickiness to the SCP, supporting H3b ($\beta = .129, p \leq .05$). However, hypothesis H3c was rejected as social value did not significantly affect nano-influencers’ stickiness to the SCP ($\beta = .049, p > .05$). Hypothesis H3d is rejected as epistemic value does not significantly impact nano-influencers’
stickiness to the SCP ($\beta = .056, p > .05$).

### Table 3 Structural Model Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Path</th>
<th>Effect</th>
<th>$t$ Value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>NICB→ ST to the SCP</td>
<td>.292***</td>
<td>5.388</td>
<td>Supported</td>
</tr>
<tr>
<td>H2a</td>
<td>NICB→UV</td>
<td>.399***</td>
<td>9.347</td>
<td>Supported</td>
</tr>
<tr>
<td>H2b</td>
<td>NICB→EMV</td>
<td>.445***</td>
<td>11.011</td>
<td>Supported</td>
</tr>
<tr>
<td>H2c</td>
<td>NICB→SV</td>
<td>.43***</td>
<td>10.268</td>
<td>Supported</td>
</tr>
<tr>
<td>H2d</td>
<td>NICB→EPV</td>
<td>.47***</td>
<td>11.496</td>
<td>Supported</td>
</tr>
<tr>
<td>H3a</td>
<td>UV→ST to the SCP</td>
<td>.179***</td>
<td>3.524</td>
<td>Supported</td>
</tr>
<tr>
<td>H3b</td>
<td>EMV→ST to the SCP</td>
<td>.129***</td>
<td>2.621</td>
<td>Supported</td>
</tr>
<tr>
<td>H3c</td>
<td>SV→ST to the SCP</td>
<td>.049</td>
<td>.946</td>
<td>Rejected</td>
</tr>
<tr>
<td>H3d</td>
<td>EPV→ST to the SCP</td>
<td>.056</td>
<td>1.058</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

### Table 4 Mediation Hypothesis Testing Results

<table>
<thead>
<tr>
<th>Model</th>
<th>Indirect Effect</th>
<th>95% Confidence Interval</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>NICB→UV→NIs stickiness to the SCP</td>
<td>.072***</td>
<td>[.032, .116]</td>
<td>Supported</td>
</tr>
<tr>
<td>NICB→EMV→NIs stickiness to the SCP</td>
<td>.057**</td>
<td>[.014, .101]</td>
<td>Supported</td>
</tr>
<tr>
<td>NICB→SV→NIs stickiness to the SCP</td>
<td>.021</td>
<td>-.023</td>
<td>Rejected</td>
</tr>
<tr>
<td>NICB→EPV→NIs stickiness to the SCP</td>
<td>.026</td>
<td>-.024</td>
<td>.074</td>
</tr>
</tbody>
</table>

**Note.** NICB = Nano-influencers Citizenship Behavior; UV = Utilitarian Value; EMV = Emotional Value; SV = Social Value; EPV = Epistemic Value; ST = Stickiness; NIs = Nano-influencers; SCP = Social Commerce Platform. **$p \leq .01$; ***$p \leq .001$.

The product-of-coefficients approach and bootstrapping-based resampling was employed in this study (Hayes & Scharkow, 2013) to evaluate the mediating effects. The results shown in Table 4 indicate that NICB and stickiness to the SCP are partially mediated by utilitarian value (coefficient = .072, 95% CI [.032, .116], $p \leq .001$) and emotional value (coefficient = .057, 95% CI [.014, 0.101], $P \leq .01$). However, neither social value nor epistemic value had significant mediating effects on the relationships above.

### 5. Discussion

This study sheds light on the behavior and engagement of nano-influencers on social commerce platforms (SCPs) in several ways. The demographic analysis reveals critical insights into the composition of nano-influencers. The majority of nano-influencers are female (85.24%), highlighting the significant role women play in driving social commerce. This gender distribution suggests potential opportunities for SCPs to tailor their strategies and product offerings to resonate with a predominantly female influencer base. Additionally, the significant portion of nano-influencers are aged between 30 and 39 years (34.35%), indicating that this age group is particularly active and influential, possessing both the financial resources...
and digital fluency necessary for effective promotion.

Furthermore, the demographic analysis reveals that 66.42% of nano-influencers have received a college education or higher, suggesting a well-educated cohort capable of creating high-quality, engaging content. This educational background enhances the credibility and persuasive power of their endorsements. Research has shown that influencers’ educational background can significantly impact their credibility and effectiveness in marketing (Vilkaite-Vaitone, 2024; Mabkhot et al., 2022). The employment status of nano-influencers is also crucial, with a large percentage working as office workers (35.37%) or government officers (19.59%). This employment stability may translate to a consistent and reliable presence on SCPs, strengthening their influence and engagement capabilities. The stability provided by such employment is linked to increased credibility and trustworthiness, as noted in studies on social media influencers’ effectiveness and their ability to maintain a reliable and engaging online presence (Jiménez-Castillo & Sánchez-Fernández, 2019; Sokolova & Kefi, 2020).

These findings suggest that the combination of a solid educational background and stable employment enhances nano-influencers’ credibility, making their endorsements more persuasive and effective in the context of SCPs. This is supported by research indicating that a well-educated cohort is capable of producing high-quality, engaging content, which in turn enhances their credibility and persuasive power (Jiménez-Castillo & Sánchez-Fernández, 2019; Sokolova & Kefi, 2020). Furthermore, the employment stability of nano-influencers, with many working as office workers or government officers, may translate to a consistent and reliable presence on SCPs, further strengthening their influence and engagement capabilities (Mabkhot et al., 2022; Arora et al., 2019; Abbas et al., 2018; Cooley & Parks-Yancy, 2019).

The structural model results demonstrate that Nano-Influencers’ Citizenship Behavior (NICB) significantly influences stickiness to SCPs. This finding supports the hypothesis that behaviors such as providing feedback, advocacy, helping, and tolerance, are crucial for retaining nano-influencers on these platforms. This insight highlights the importance of fostering these citizenship behaviors to enhance influencer loyalty and engagement (Vilkaite-Vaitone, 2024).

NICB’s significant impact on utilitarian, emotional, social, and epistemic values, suggests that these values are critical components of the perceived value derived from nano-influencers’ participation in SCPs. These findings highlight the multifaceted nature of value creation in social commerce, emphasizing that influencers derive varied types of value from their interactions with SCPs. Furthermore, the mediation analysis revealed that utilitarian and emotional values partially mediate the relationship between NICB and stickiness to the SCP, indicating their role in enhancing the retention of nano-influencers by translating their citizenship behaviors into perceived value. The rejection of hypotheses H3c and H3d, which posited that social and epistemic values significantly affect stickiness, suggests that these aspects might not be primary drivers of nano-influencers’ continued engagement with SCPs. Instead, utilitarian and emotional values are more pivotal in influencing their loyalty and ongoing participation (Mabkhot et al., 2022; Lou & Yuan, 2019; Lim et al., 2017).

This study also offers several significant research contributions. Firstly, this study enriches nano-influencer research. Previously, macro- and micro-influencers have been widely studied within the area of consumer behavior and marketing (Conde & Casais, 2023; Zafar et al., 2023), while nano-influencers in the context of social commerce have been overlooked. This study is the first to utilize value co-creation theory to explain how NICB affects nano-influencers’ SCP stickiness. This study improves the theoretical framework for nano-influencers and the SCP, offering a fresh theoretical perspective on their impact. Secondly, this study reveals CCB outcomes, an underdeveloped area. Gong and Yi (2019) suggested an increasing interest in exploring these outcomes, but only 13 of 17 articles on the topic were
published. The focus on CCB outcomes may be limited due to its perceived role as a final result rather than a moderator or mediator in customer and company concepts (Mitrega et al., 2022).

This study addresses social and epistemic values’ neglected within social commerce. E-commerce and marketing studies have confirmed that buyer-seller and retailer-supplier relationships have social and epistemic value (Hsieh et al., 2021; Shamim et al., 2024). Although strong social elements and improved interactive experiences define perceived value in the SCP (Li & Ku, 2018), this aspect has not been discussed. Meanwhile, the epistemic aspect of perceived value in the SCP, characterized by extensive product information and innovative content, has not been addressed. This study addresses the call for a comprehensive investigation into social commerce, specifically focusing on its social, emotional, and epistemic attributes (Shamim et al., 2024).

Regarding managerial implications, the study develops a comprehensive framework which incorporates the NICB-perceived value-stickiness connection to help industry professionals understand nano-influencers and SCPs’ value co-creation mechanism. This study can help SCPs to develop marketing strategies that identify and maximize value co-creation with nano-influencers. The SCP should prioritize NICB, especially regarding user-generated content and positive word-of-mouth. This behavior, whether directly or indirectly, serves as a predictor of stickiness to the SCP, based on the perceived value it generates. Thus, nano-influencers can be classified based on VCB and recognized by their engagement. Meanwhile, SCPs must prioritize strategies to increase nano-influencers’ utilitarian and emotional value. Significantly, social and epistemic values do not affect engagement expectations. The SCP can offer nano-influencers more appealing commissions or rewards to boost their enthusiasm. Fostering closer collaboration and participating in important projects strengthens emotional bonds. These strategies are essential for nano-influencers to develop deeper loyalty.

6. CONCLUSION AND RECOMMENDATION

This study has several notable findings. Firstly, the findings suggest that NICB in SCP product promotion creates utilitarian, social, emotional, and epistemic values. Previous research supports this finding (Tran & Vu, 2021; Xu et al., 2021). This study shows that NICB is crucial to value co-creation in service-dominant logic. Nano-influencers’ SCP co-promotion mechanism must account for all relevant motivations. Secondly, utilitarian and emotional values have a positive impact on nano-influencers’ stickiness to the SCP, consistent with previous research (Ceyhan, 2019). The reasons may be attributed to the nature of nano-influencers, who promote products or services to their followers by creating visually and verbally appealing content (Argyris et al., 2021). In exchange, they receive cash or non-cash benefits such as free goods or trips from companies (Campbell & Farrell, 2020).

Thirdly, SCP stickiness is unaffected by epistemic or social values. This contradicts Wong et al. (2019) and Ceyhan (2019), but is partially in line with Hassan and Moosa (2015). One explanation for this contradiction could be that stickiness from nano-influencers may not be fully generated by SCPs’ negative social value (Zhang et al., 2017). Accordingly, epistemic or social values were found not to mediate the NICB-SCP stickiness relationship. This is primarily because stickiness is mostly unaffected by social and epistemic value in this study.

Finally, further testing shows that emotional and utilitarian values partially mediate the NICB-SCP stickiness relationship. One explanation is that higher-engagement nano-influencers may post more humorous and teasing content with vivid language, start “interesting interactions”, and continue to promote products on SCPs. This engagement will provide nano-influencers with a positive emotional experience, improving their view of the SCP (Hollebeek, 2011) and encouraging them to return and share.
This study has limitations and suggests future research. First, this study does not hypothesize NICB sub-dimensions or perceived value. To precisely determine each dimension’s function, further research should examine how NICB sub-dimensions affect perceived value. Second, since citizenship behavior is crucial to co-creating values, the NICB variables must be examined. We can better understand how NICB co-creates value by studying its causes and moderating factors. These studies can also suggest ways to improve nano-influencers’ experiences. We strongly support research on the variables that may moderate the relationship between these behaviors and their antecedents, as well as the factors which precede nano-influencers’ value co-creation behaviors. Finally, China-specific nano-influencer data was collected and analyzed. To determine if nano-influencers or other influencers can be applied to other cultures, further testing is required.

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