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Field effects of social media platforms on information-sharing continuance: Do reach and richness matter?

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ABSTRACT

Based on the *Field Theory*, this study postulates that the cognitive processes involved in making decisions to share information on social media platforms could be dynamically affected by network features and the contextual environment. The field effect is exerted by the reach and richness of network features, which virtually form a psychological pressure on one's perception of the sharing situation. A research model is developed, in which the effects of extrinsic and intrinsic motivators on information-sharing continuance are moderated by the network features of social media platforms. A global sample from content contributors in two major social media platform contexts, experience-socialization (ES) platforms ($N = 568$) and intelligence-proliferation (IP) platforms ($N = 653$), were collected through the participatory research method. By using partial least-square analysis, the moderating effects of network features on cognitive-sharing processes under the two contexts were confirmed. For contributors on ES platforms, network features negatively moderate community identification and perceived enjoyment toward information sharing. By contrast, for contributors on IP platforms, network features negatively moderate the effects of perceived usefulness and altruistic tendencies on their intention to share, but self-efficacy for sharing is positively induced. The conceptualization of network features and refined knowledge about the situational and contextual effects of social media platforms are useful for further studies on social behaviors and may ultimately benefit platform providers in their attempts to promote information-sharing continuance.

1. Introduction

Social media (SM) platforms such as Wikipedia and Facebook incorporate highly interactive mechanisms that enable participants to share information and retrieve Internet content in a virtual learning and collaborative environment [4]. These types of platforms attempt to establish a community with informational needs and emotional bonds, in which users constantly generate and propagate information [57]. A successful community must attract a large number of participants who continually contribute to creating and sharing contents. However, high numbers of viewings from millions of people does not necessarily reflect high levels of continuous information sharing. The alarmingly high declining rate of contribution on Wikipedia [49]; Angwin and Fowler [3] and participation on Facebook [113] reveals a critical concern about continuance of sharing behavior on SM platforms. Past studies on SM platforms have attempted to explain this phenomenon with extrinsic and intrinsic motivators behind the complex decision processes of information sharing [23,60,105,111]; for example, personal (self-presentation) and emotional factors (sense of community and enjoyment) for sharing on Facebook and Twitter, and hedonic and utilitarian values (enjoyment, altruism, reciprocity, and community) for sharing on Wikis. These studies are mainly about the static state of sharing intention on SM platforms. As the reinforcing loop of motivation-sharing value has evolved, the digital environments in which people participate and share information are changing dynamically. Individual cognitive status provides only a partial view of the growing decline of information sharing on SM platforms because participants do not act alone. Instead, they act in a complex environment that involves subtle interaction among online groups and movements can be unconsciously induced by the virtual environment.

In order to understand human behavior in a society, the *Field Theory* explains that a person and his or her surrounding conditions

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must be considered as one constellation of interdependent factors [68]. While in the digital network era, many scholars [52,77,81] further explain the field effects in online environments that the strength of situation in a virtual community environment can impose psychological pressure on an individual to engage in or refrain from particular behavior. By examining online behavior from the field theory perspective, previous studies have noticed the adaptive nature of the digital platform. For instance, research on teenagers' online behavior reveals that young users on social networks act differently, such as adults, in different community conditions [17]. Their sharing decisions are influenced by the perceptions of boundaries formed by the peers and the collectively generated knowledge. As such, the behavior of online users on SM platforms can be shaped by the contexts and conditions in which they are operating [16,17,38,75]. This confirms that participants' activities and their determinants on an SM platform are complex and should be studied from a perspective that accounts for the interactive impact of individual and situational differences. Users in a virtual society are highly autonomous and their cognitive processes of information sharing could be affected by conditions such as the dynamics of people they interact and the quality of content they share. Furthermore, this situational strength may vary with different types of SM platforms due to different expectations of socialization and collaboration. Despite the increasing functionality and collaboration in SM platforms in recent years, studies on user's online sharing behavior to date have neither extended it into the situational context nor differentiated it by different platforms. To explore sharing behavior on an SM platform from a field theory perspective, this study strives to [1] identify situational factors of SM platforms, [2] examine the situational effects on the information-sharing continuance (ISC), and [3] reveal the effects of motivators on ISC under different contexts of SM platforms.

With regard to its situational factors, an SM platform with the advent of powerful network technologies can propagate multiple user contacts (reach, RE) and process a wide range of information (richness, RI) that facilitates user interactions on the digital platform and constitutes distinctive attributes of the digital resources. On an SM platform, the number of participants and all shared contents are instantly presented. The transparent network situation can immediately influence a user's intention to share information on such kind of social platform. For instance, empirical cases of requirement engineering [36] and organizational innovation [98] on Wiki-based social platforms have shown that the scope of features enables users to feel being a part of the community and encourages their willingness to create and share knowledge. Meanwhile, the number of peers and volume of sharing on a sociotechnical platform are found to stimulate a participant's egoistic motives of self-enhancement, image, and enjoyment to provide answers, correct problems, and evaluate content [115]. In this vein, the distinctive RE and RI of network features on a social platform have certain effects on users' cognitive sharing decisions.

In this study, we presume that different stocks of network features instigate different contexts of SM platforms. Shang et al. [95] classified >1000 collaboration application sites into two contexts of SM platforms: experience socialization (ES) and intelligence proliferation (IP). The former meets users' social–emotional needs, while the latter fills users' knowledge creation needs. Users are motivated by the process of working, contributing, and cooperating to further improve the comprehensiveness and quality of knowledge content. Consequently, different approaches toward cultivating the continuance of information sharing could be applied to these two platform contexts to create a larger base of active contributors. A scrutiny of previous studies on SM platforms reveals that most of them focus on the functionalities of Web-collaborative technology from the standpoint of user acceptance, rather than continuance [41,53,76,86]. The paucity of related research prompts us to probe into how and how much the situational field factors interact with motivational factors and affect the sharing-continuance decisions on SM platforms. Grounded on the field theory, the moderating effects of network features on ISC are empirically tested with users from two contexts of SM platforms. The remaining sections are organized as follows. Section 2 reviews the extant literature, validates the sharing motivation model, and develops pertinent hypotheses. Section 3 presents the research method and questionnaire design. Section 4 reports the analyses and results. Section 5 discusses and explains the findings. Finally, Section 6 draws conclusions and suggests managerial implications and future research directions.

2. Literature review and hypothesis development

2.1. Motivation of information sharing

Motivation induces behaviors [34,63]. In order to trace the thread of the field effects on sharing behavior, we need to first understand motivators that inspire individuals to generate information and become involved in the information-exchanging community [31]. According to the *cognitive evaluation theory* [35], a sharing behavior is driven by both extrinsic and intrinsic motivators. The extrinsic motivation means that individuals are motivated when satisfaction does not result from the content of the activity itself but rather from external rewards that the community provides, and thus individual behavior can be evoked by the perceived values derived from the interaction [53,72]. By contrast, the intrinsic motivation occurs when an activity is undertaken for immediate demand satisfaction and the behavior is driven by some endogenous psychological feelings of personal competence and self-determination in dealing with the situation [35]. Guided by these two sources of cognitive process, we reviewed previous studies of sharing motivation and identified the individual extrinsic and intrinsic motivators for information sharing on the SM platform. Afterwards, through the focus group method, 12 experts spent an hour to select the top six motivators that affect sharing behaviors on the SM platform. The extrinsic motivators chosen include perceived usefulness (PU) [28], community identification (CI) [99], and social interaction (SI) [18]. *PU* is the degree to which an individual perceives that using a specific system will improve his or her performance or increase the total value of participation [45]. This definition draws attention to an outside benefit external to the system–user interaction – improving job performance; it is utilitarian and extrinsic in nature [107]. *CI* is the feeling of being a member of a group [45], which offers emotional support. *SI* refers to "the process by which persons acquired the knowledge, skills, and dispositions that makes them more or less able members of society" (Brim and Wheeler [18], p. 3); it engenders a feeling of social support. Moreover, the intrinsic motivators selected include altruism tendency (AT) [111], perceived enjoyment (PE) [64], and self-efficacy (SE) [14]. *AT* is a motivation to help others or a desire to do a beneficial deed without reward [111]. *PE* is defined as the emotional value that people experience from immediate pleasure or fun when using a technology or becoming involved in an activity with technology [64]. This definition is "apart from any performance consequences that may be anticipated" (Davis et al. [34], p. 1113); it is hedonic and intrinsic in nature. *SE* refers to an individual's belief in his or her own skills and ability to perform a particular behavior [89]. Note that the two motives commonly mentioned in the literature, "utilitarian" and "hedonic" motives, correspond to "perceived usefulness" and "perceived enjoyment" motivators above [107]. Furthermore, previous empirical studies

[24,25,53,56,66,67,87,88,100,111,114] have explicitly tested the associations between these motivators, and information sharing is identified in the motivation model as shown in Fig. 1. In practice, network features on these intrinsic and extrinsic motivators on SM platforms, wherein users through virtuous interactions are motivated to participate and learn (e.g., PU), enhance emotional closeness (e.g., CI and SI), and enjoy their information-sharing activities (e.g., AT and PE). If a user possesses more expertise and experience (e.g., SE) in life, members of SM communities are more receptive to the information they shared. This gives the contributor an urge to share more knowledge in concert with other people. Therefore, we adapted this motivation model and tested the field effects of SM platforms with this model.

2.2. Types of SM platforms

Based on Shang et al. [95], SM platforms can be categorized into ES and IP service platforms. *ES platforms* such as Facebook, MySpace, and Flickr are established for exchanging and aggregating participants' experiences and offer social-intensive support for users to meet their social–emotional needs. On such platforms, user inputs are a critical factor in creating an environment in which individuals can meet, share, discuss, and have fun together. To serve this purpose, collaborative Web technologies are applied to enhance the RI of the dialogue among participants in order to facilitate a broader perspective through the experience-sharing network. However, *IP platforms* such as Wikipedia, Answers.com, and OpenOffice.org are developed to support knowledge building, exploit and regenerate knowledge with depth. On this type of platform, users are mainly knowledge-based participants with similar contextual backgrounds. In this case, collaborative Web technologies are applied primarily to support the platform's knowledge RE and continuously improve the content and related technologies. Table 1 summarizes these two types of SM platforms. In practice, different designs of SM platforms offer different interaction environments that can shape user intention to share. Davenport et al. [30] stated that different features of SM sites provide specific mechanisms to achieve motives for usage. Consequently, these two contexts of SM platforms have different knowledge creation processes that lead to different effects on user motivation to share. In practice, different designs of social networks offer different technology capabilities that can shape user intention to share in different ways. Accordingly, these two types of SM platforms have different knowledge creation processes and require different contextual management, leading to different effects on users' ISC.

2.3. Field effects on SM platforms

Human accomplishments are considered a result of individuals' interactions with a host of personal determinants in external circumstances [9]. Based on the *Field Theory* [68], the field effects can be represented by an equation of $B = f(P, E)$, in which individual behavior (B) is the consequence of interactions between the person (P) and his or her environment (E). In the context of SM platforms, network features (E) are the essential field factors that influence an individual's motivation (P) of sharing behavior (B) because the situational strength of the virtual environment can form psychological pressure on individuals (P) and affect their mental determinants of information sharing (B). Users in a virtual environment are highly autonomous and their cognitive processes (P) of information sharing could be affected by conditions (E) such as the dynamics of people they interact with and the quality of content they share (B).

An SM platform is a self-organizing and open-activity system that establishes shared practice primarily through IT-mediated communication. This kind of platform provides a set of IT-enabled capabilities to support the exchange of information. The technology-enabled situation is mainly reflected in the number of people connected and the quality of information processed on the platform. Drawing on the real option theory, Sambamurthy et al. [94] define the IT role as a digital option generator in contemporary firms. Options are the rights to choose effective application of IT-enabled capabilities to emerging opportunities, depending on business strategy and the environment. Actively structuring and leveraging the digital resources as an option can generate customer value. Evans and Wurster [39] defined *RE* as the number of people connected and *RI* as the quality of information processed in a digitized environment. Therefore, we used these two distinctive aspects as the network features of an SM platform. The RE and RI of the network are the two key factors that evolve dynamically and construct or reconstruct the field in which users share and interact. Therefore, we choose these two predominant situational factors to reflect the technology-enabled and virtually shaped situation.

Following the conceptual framework of digital options, Karimi et al. [61] develop a latent construct of "digital resource readiness," consisting of two specific measurable constructs of "knowledge reach/richness" and "process reach/richness." They confirm the significant positive effect of digital resource readiness moderating the relationship between the extent of enterprise resource planning (ERP) implementation and the intentions of digital option adoptions. To explain further, *RE* is the extent to

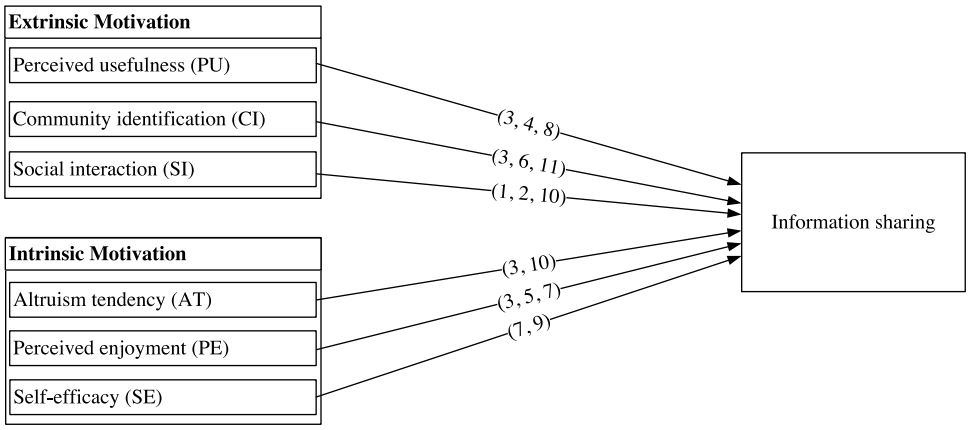

Fig. 1. Literature Support of Dimension Associations. Legend: (1) Cheung et al. [24]; (2) Chiu et al. [25]; (3) Hsu and Lin [53]; (4) Hung and Cheng [56]; (5) Lakhani and von Hippel [66]; (6) Lee et al. [67]; (7) Papadopoulos et al. [87]; (8) Park et al. [88]; (9) Tamjidyamcholo et al. [100]; (10) Wasko and Faraj [111]; (11) Yoon and Wang [114].

Table 1
Comparing two types of social media platforms: ES and IP.

	ES Platforms	IP Platforms
Function	Social-intensive support for users	Development of intellectual capital
Purpose	Exchanging and aggregating participants' experiences	Exploiting and regenerating knowledge with depth
Type of sharing	Sharing experiences voluntarily	Knowledge-based sharing with some collaboration tasks
User application	Offering social-intensive support for users to meet their social–emotional needs	Supporting knowledge building, exploiting, and combination
Exemplary cases	Facebook and LinkedIn	Wikipedia and OpenOffice.org

which the SM platform connects a variety of participants. High RE is associated with the services that tie together activities and information flows across different types of participants. However, the precise meaning of *RI* varies from one context to another [39]. For the study of RI on SM platform, we consolidate studies on information quality on SM platforms from user's perspective [24,43,58,109,112] and describe information quality as the sufficiency, reliability, and timeliness of the information provided on SM platforms. The sufficiency of information is extended from the traditional idea of the technological term of bandwidth [40] to the degree of facilitation for the exchange of adequate quantity and variety of information on the SM platform [24,43,112,109]. Information reliability is about the ability to obtain accurate and verifiable information on the SM platform [24,43,58,109,112], while information timeliness is about the information being current and reaching users in an efficient timeframe [24,43,58,109,112]. In the context of SM platforms, network technologies facilitate collaboration by enlarging the RE and RI of network features across a wide range of platform participants and activities.

According to Shang et al. [95], different SM platforms possess Web-enabled resources (network features) to form different kinds of environments for knowledge creation. A contributor may display different types of sharing behavior across different SM platforms with different degrees of RE and RI of network features. Hence, our study proposes that all motivators could be induced and moderated by RE and RI of network features. In the following sections, we hypothesize the moderating effects of network features (*E*) on the relationships between motivation factors (*P*) and ISC (*B*). The differences in these moderating effects between ES and IP platforms are also examined. Thus, we hypothesize that

H1: The moderating effects of network features are different between ES and IP platforms.

H1a: The moderating effects of RE on ISC are different between ES and IP platforms.

H1b: The moderating effects of RI on ISC are different between ES and IP platforms.

2.3.1. Perceived usefulness

PU refers to the total value an individual perceives from using a new technology [92]. Previous research has demonstrated that intention and behavior of use are driven by PU and benefits [5,79,106,108]. The willingness to share information reflects the extent to which an individual's gains from sharing information exceed the costs [28]. According to the field theory, the SM platforms with abundant sources and convenient accessibility of information content (*E*) can foster user perceptions toward the value of SM service (*P*) and improve user performance [8,22,71], all of which make them more motivated to contribute (*B*). This leads us to the following hypothesis:

H2: Network features have a positive moderating effect on the relationship between PU and ISC.

H2a: RE moderates the effect of PU on ISC such that the effect of PU on ISC is stronger when RE increases.

H2b: RI moderates the effect of PU on ISC such that the effect of PU on ISC is stronger when RI increases.

2.3.2. Community identification

CI refers to the perception of belonging to a community [99]. Virtual communities are informal entities that exist in their members' cognition and are formed by specific, shared problems, or areas of interest [6]. In such entities, CI plays an influential role in participants' levels of activity and community volunteerism [99] because internal cohesion among participants promotes knowledge contribution and increases along with strong interpersonal connections [97]. Previous studies indicated that a web of knowledge could make contributors feel that they are socially tied through a structural link [111]. From a field theory perspective, interactions among members increase community bonding (*P*), while the RE and RI of user participation (*E*) can foster CI, resulting from more resonance and satisfaction with SM platforms, all of which lead to more ISC (*B*). This argument is formalized by the following hypothesis:

H3: Network features have a positive moderating effect on the relationship between CI and ISC.

H3a: RE moderates the effect of CI on ISC such that the effect of CI on ISC is stronger when RE increases.

H3b: RI moderates the effect of CI on ISC such that the effect of CI on ISC is stronger when RI increases.

2.3.3. Social interaction

SI refers to the process by which individuals act and react to those around them [18]; it can also be viewed as a social-influence motivator. An individual in a virtual community needs to build social ties to exchange information [15,21] and create social capital to engender relational capital for the members [111] and facilitate supportive interactions to produce positive psychological outcomes [85]. Hence, SI can be viewed as a channel for information and resource flows [103], supporting resource exchange and combination, knowledge sharing among users, and knowledge acquisition. Based on field theory, the RE and RI of network features (*E*) on a community platform could facilitate SI (*P*) and knowledge exchange, all of which increase ISC (*B*). This is consistent with Nonaka's [82] knowledge-creating cycle. As the network features foster the perception of SI in the community, participants are motivated to share. This leads us to the following hypothesis:

H4: Network features have a positive moderating effect on the relationship between SI and ISC.

H4a: RE moderates the effect of SI on ISC such that the effect of SI on ISC is stronger when RE increases.

H4b: RI moderates the effect of SI on ISC such that the effect of SI on ISC is stronger when RI increases.

2.3.4. Altruism tendency

AT is a self-fulfillment attitude, which drives engagement in activities [111]. Altruistically motivated individuals think that voluntarily helping others is the right thing to do [80]. Previous studies [53,110,111] suggest that individuals are motivated intrinsically to create content in a virtual community of practice

because they enjoy helping others or finding solutions to challenging problems, leading to ISC. In terms of field theory, the RE and RI of a platform (*E*) can enable members to provide help to each other by inducing AT (*P*) during the sharing process; together, these lead to ISC (*B*). When participants see more functions (or applications) created from their inputs, they incline to share more knowledge for advancing the skills of others, which is usually considered as a reward by the contributing participants. Hence, the network features can induce the AT, resulting in further engagement of the contributors in intellectual pursuits and problem-solving activities. This leads us to the following hypotheses:

H5: Network features have a positive moderating effect on the relationship between AT and ISC.

H5a: RE moderates the effect of AT on ISC such that the effect of AT on ISC is stronger when RE increases.

H5b: RI moderates the effect of AT on ISC such that the effect of AT on ISC is stronger when RI increases.

2.3.5. Perceived enjoyment

PE is the extent to which the activity of participating in a community evokes the feeling of joy, pleasure, and playfulness [64]. Previous studies [63,64,106] have found that contributors in open-source software communities agree that contribution is an act of fun [66]. Participants of virtual communities consider that information sharing is a pleasure [83] and that social capital building, network surfing, and social networking are gratifying [74], leading to ISC. On the basis of field theory, an SM platform (*E*) with RE and RI of participation and knowledge can increase the PE of a participant (*P*) during the process of exchanging and combining ideas with other users, all of which lead to ISC (*B*). This leads us to the following hypothesis:

H6: Network features have a positive moderating effect on the relationship between PE and ISC.

H6a: RE moderates the effect of PE on ISC such that the effect of PE on ISC is stronger when RE increases.

H6b: RI moderates the effect of PE on ISC such that the effect of PE on ISC is stronger when RI increases.

2.3.6. Self-efficacy

SE is the belief that one is capable of using a technology to perform certain tasks [89]. Individuals can develop and enhance their cognitive capabilities by applying their knowledge (expertise and experience) and learn new skills while interacting with others who share the same or similar practices [111]. Previous research has found that individuals with high confidence in their competence motivate themselves to contribute knowledge in concert with other people [14,54,60,111]. In practice, with the help of the members from these groups, new members become more confident in taking on additional challenges, handling unknown issues, and sharing program outputs. From the viewpoint of field theory, an SM platform with useful knowledge and the interactive process (*E*) reduce the entry barrier for newcomers and increase the likelihood of feeling self-enhancement among users (*P*), all of which encourage users to continue sharing information (*B*). This argument is formalized with the following hypotheses:

H7: Network features have a positive moderating effect on the relationship between SE and ISC.

H7a: RE moderates the effect of SE on ISC such that the effect of SE on ISC is stronger when RE increases.

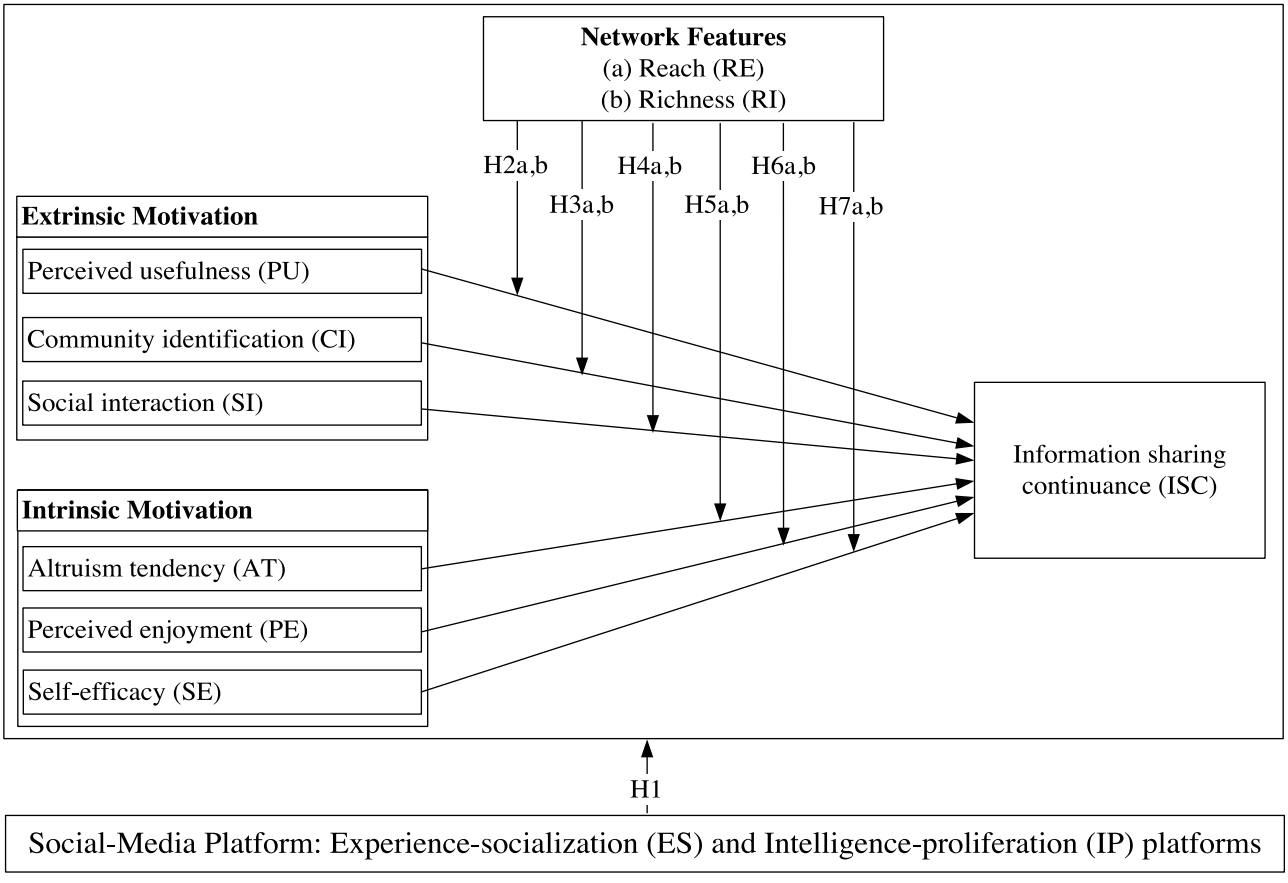

Fig. 2. Research Model.

H7b: RI moderates the effect of SE on ISC such that the effect of SE on ISC is stronger when RI increases.

2.4. Research model

Fig. 2 summarizes the hypotheses developed above into a research model. The ISC on an SM platform is predicted by two types of motivation: extrinsic and intrinsic. Extrinsic motivation is conceptualized as having three externally influenced constructs: PU, CI, and SI. Likewise, intrinsic motivation is regarded as having three self-determined constructs: AT, PE, and SE. In addition, we propose that both network features (i.e., RE and RI of network) moderate relationships between contributors' extrinsic and intrinsic motivations and ISC in SM communities. We empirically test this model using data collected from the two types of platforms (i.e., ES and IP platforms) in order to compare the different effects on these platforms.

3. Research method

3.1. Questionnaire design

To test the research model, a questionnaire was developed based on the literature review in the previous sections. It contains a total of nine sections, such as six sections for the six motivators, one for network features, one for the ISC, and the last one for demographic information. The scale of PU measures the degree to which contributors perceive that using an SM platform would increase their total values; the scale was adapted from Davis [32]. The scale of CI, measuring the degree to which users perceive they belong to the virtual community, was modified from Hsu and Lin [53]. SI refers to the degree to which users perceive they interact with and learn from others; the scale was adapted from Tsai and Ghoshal [103] and Chiu et al. [25]. AT is the degree of user motivation to help others; its items were designed based on Wasko and Faraj [111]. PE measures the extent to which the activity of using the SM platform evokes a feeling of pleasure and joy; the items were adapted from Agarwal and Karahanna [1] and Venkatesh et al. [108]. The sixth section includes the items for measuring SE, which is the degree to which participants perceive that they have the skills and ability to complete a task on the SM platform; the items were modified from Compeau and Higgins [27]. The seventh section includes items measuring the concept of network features, which is the degree to which users perceive the RE and RI of knowledge and participant resources available on the SM platform; the items were developed by this study. The eighth section includes the items measuring ISC that were adapted from the behavior intention scale of Davis et al. [33]. The above items were assessed using seven-point Likert scales with "1" denoting "disagree strongly" and "7" denoting "agree strongly." To detect invalid questionnaires, three items with reverse coding were inserted. Finally, the ninth section contains demographic questions.

3.2. Pretest and pilot test

A pretest was conducted after the completion of the initial questionnaire design. The participants in the pretest included four professors, three doctoral students, and two experts in the SM platform services. They were asked to evaluate the questionnaire regarding whether the items are useful and essential to measuring the intended constructs. They confirmed that all items are relevant to the corresponding constructs; this ensures the content validity. Furthermore, the participants assess the correctness and appropriateness of the items' wording and contents. Based on their feedback, we modified the questionnaire to avoid misunderstandings or unclear wording of the items; this ensures the face validity.

To test the construct validity, a pilot test was conducted with 172 samples of content-sharing contributors on SM platforms. During the pilot test, we examined the output of exploratory factor analysis using principal component analysis as the extraction method and varimax with Kaiser normalization as the rotation method. Taking 0.5 as the cutoff point (Field [42], p. 440), we deleted an item of which its factor loadings were all <0.5 or were >0.5 on multiple extracted factors (i.e., cross-loaded). Subsequently, we ran the same analysis again until every item had only one factor loading >0.5 and no cross-loading appeared. This process resulted in deleting seven unsuitable items and ensured the construct validity of the questionnaire. With the remaining items (see the Appendix A), we assessed the reliability of the constructs; the Cronbach's α coefficients of all constructs were >0.7, as suggested by Nunnally [84]. These results show that the questionnaire is reliable and valid.

3.3. Data collection

As a complementary approach to the quantitative research method, this study adopted a qualitative method, *participatory research method* [11,20,29], to collect participants' views on the research topic and enrich our findings from survey results [102]. In particular, we followed Biggs's collaborative mode of participation [13] in which researchers and local people work together on a project, that is, initiated, designed, and managed by researchers [29]. With this method, the researchers joined a large number of SM platforms to interact with their members for >3 months. As ES platforms are open to public, we frequently assess the relationship between network features and posting intentions through online discussions and published survey information on several bulletin board systems (BBSs), in chat rooms, and in user communities. We examined participants' comments of the survey design and verified our findings about the situational and contextual effects on these social networks. On the IP platforms, we sent a notice-of-survey message to each platform organizer and the organizers posted a link to the survey questionnaire on each platform. As several IP platforms only provide discussion mailing lists for their group members, we also joined specific groups on these platforms to obtain the lists for collecting the views and observing contributors' behaviors about information sharing. Throughout the research process, we contacted many members through e-mail to present our findings that include quantitative summaries of the participant data. We discussed with SM platform managers to further our understanding of the linkage between industrial knowledge and the findings. The participants became part of the team to analyze and reflect on the posted information about the research topics and help propose the findings and conclusions of the research process [29].

Specifically, this study followed the steps of participatory research described by Burke et al. [20]. In the first step, *preparation*, we began to understand how to interact with other users and study contextual concerns in SM-sharing behavior. During the *generation* step, we addressed the research questions that are used in data collection and analysis. One of the researchers became the community members of SM sites to be cognizant of situations, participated in contributing user-generated content, and interacted frequently with other contributors in understanding their thoughts. During step 3, the *structuring* step, researchers observed contributors' sharing patterns on SM platforms, and used a variance-based method, structural equation model (SEM) with SmartPLS 2.0 software, to analyze the data. In step 4, *representation*, we presented our findings in figures and tables that include quantitative summaries of the participant data. During the fifth step, *interpretation*, we discussed with SM platform managers to verify our understanding of the linkage between industrial

knowledge and the findings, as well as shared understanding about the specific characteristics of the situation. Finally, during the *utilization* step, the findings are discussed to determine their congruence to our research purpose and how they best imply the future actions.

To better compare the differences between the two major types of SM platforms, this study investigated contributors' information-sharing behavior on both ES and IP platforms. To ensure that the participants were contributors to the SM platforms, they must have experience in creating content in some way such as editing text, or posting articles, pictures, audio, or software on an SM platform. Those who had never contributed were disqualified. To perform the pilot test for the initial questionnaire design, we collected 172 valid global samples in 4 weeks. The survey responses were anonymous, and we assured the respondents that there were no right or wrong answers, and that they should answer the questions as honestly as possible. Using these samples, we removed seven unsuitable items and finalized the questionnaire. Subsequently, we underwent 4 months of global data collection process and collected a total of 1262 questionnaires. However, 41 questionnaires failed to pass the consistency tests afforded by the three reversely coded items and were excluded from the study. The remaining 1221 valid samples include 568 contributors from the ES platforms (such as Flickr, MySpace, Yahoo Blog, and Facebook) and 653 contributors from the IP platforms (such as Wikipedia, Answers.com, OpenOffice.org, and Linux communities, e.g., CentOS.org and Ubuntux.org). The demographic profile of these respondents is displayed in Table 2.

3.4. Data representativeness and analysis procedure

Before we convene any data analysis, the item responses between earlier and later response groups and among different demographic groups (website, age, gender, and experience) were tested for any significant differences. First, we adopt the split-half process to divide the sample into two equal-size groups: earlier and later groups, and test the mean differences for each questionnaire item between the two groups. Neither the chi-squared test of independence nor the Student's *t*-test of mean differences showed any significant difference between the groups. Second, the same process was applied to different demographic groups. No significant difference was found using chi-squared of independence or analysis of variance (ANOVA) test of group differences, indicating the validity of analyzing the data as a single group.

Moreover, the data for both dependent and independent variables in this study are self-reported by the same content contributors who were registered members; this could introduce some common method bias. We have mitigated this bias and validated its insignificance as follows. First, we adopted procedural, same-source bias, and statistical remedies suggested by Podsakoff, MacKenzie, Lee, and Podsakoff (2003). For procedural remedy, we conducted a pretest to ensure content and face validities. For same-source bias remedy, we distributed groups of questionnaires to different SM platforms. For statistical remedy, we conducted Harman's single-factor test [90] in the next step. Second, we performed Harman's single-factor test procedure [91] with confirmatory factor analysis (CFA). The assumption of this single-factor test was that a single factor should account for the majority of the covariance among measures if substantial amount of common method variance was present [90]. We used CFA because it represented a more sophisticated approach. The results showed that the single-factor structure fitted the data poorly for both ES and IP platforms. Based on the above three remedies, common method variances do not appear to significantly influence these findings. Nonetheless, future research should strive to obtain the data of dependent and independent variables from different informant sources to avoid potential common method bias.

To test the hypotheses postulated in this study, we considered two methods of estimating the parameters of an SEM: the covariance-based method and the variance-based (or component-based) method [47]. Although the covariance-based method

Table 2
Demographics ($N = 1221$).

Measure	Items	ES platforms ($N = 568$)		IP platforms ($N = 653$)	
		Frequency	Percentage	Frequency	Percentage
Website	Flickr,	154	27.1	*	*
	MySpace,	52	9.2	*	*
	Yahoo Blog,	138	24.3	*	*
	Facebook,	224	39.4	*	*
	Wikipedia,	*	*	474	72.6
	Answers.com,	*	*	50	7.7
	OpenOffice.org,	*	*	51	7.8
	and Linux communities (e.g., CentOS.org and Ubuntux.org)	*	*	78	11.9
Age	Under 19	29	5.1	12	1.8
	19 to <24	332	58.5	316	48.4
	24 to <29	165	29.0	262	40.1
	29 to <36	34	6.0	58	8.9
	36 or more	8	1.4	5	0.8
Gender	Female	170	30.1	383	58.7
	Male	398	70.4	270	41.3
Experience in contribution	Under 1 year	45	7.9	65	10.0
	1 to <2 years	90	15.8	132	20.2
	2 to <3 years	114	20.1	113	17.3
	3 to <4 years	99	17.4	93	14.2
	4 to <5 years	77	13.6	70	10.7
	5 to <6 years	43	7.6	40	6.1
	6 years or more	100	17.6	140	21.4
	Subtotal	568	100	653	100

*Indicates "Not applicable for this platform".

uses the solution process for simultaneous equations to find the estimates, the variance-based method performs a multiple regression analysis independently for each endogenous variable with a resampling estimation process [48]. As suggested by Hair et al. [47], covariance-based SEM should be used if the research objective is theory testing and confirmation. By contrast, if the research objective is prediction and theory development, then the appropriate method is variance-based SEM, such as partial least square (PLS) method. Because the aim of this study is to predict the moderating effect of network options on ISC, we shall use PLS method to analyze our data with SmartPLS 2.0 software. Finally, in this novel participatory research approach the researchers not only involved in the data collection process but also joined the social network sites to observe and validate the research results and reveal insights about the moderating influence of the network contexts.

4. Analyses and results

Following Anderson and Gerbing's [2] recommendations, we adopted a two-step approach for data analysis. The first step involves the analysis of the measurement model, while the second step tests the validity of the structural model. The goal of the two-step approach is to establish the reliability and validity of the measures before assessing the structural relationships among the latent constructs in the model.

4.1. Assessment of measurement model

For the assessment of measurement model, we first examine the reliability using composite reliability values. As shown in Table 3, all the values are >0.7, satisfying the value suggested by Hair et al. [46]. Furthermore, we assess the convergent validity of the scales with the two criteria suggested by Fornell and Larcker [44]: first, all indicator loadings should be significant and >0.7, and second, the average variance extracted (AVE) for each construct should exceed 0.5. The results show that the loadings in the CFA models of both ES and IP platforms are all above the 0.7 threshold (see Appendix B). The values of AVE range from 0.65 to 0.91(see Table 3), which are all >0.5. Therefore, both conditions are met and the convergent validity is confirmed.

Finally, we verify the discriminant validity of the scales using the guidelines suggested by Fornell and Larcker [44], which specified that the square root of the AVE from the construct should exceed the correlation shared between the construct and the remaining constructs in the model. Table 4 presents the correlations among the constructs with the square root of the AVE on the diagonal cells in the matrix. All the diagonal values exceed the interconstruct correlations between the construct and the remaining constructs; thus the discriminant validity is acceptable. In order to avoid the multicollinearity problem, the correlations among all constructs are all well below the 0.85 threshold [65], and the variance inflation factor (VIF) values for all independent variables are all <5 (shown in Table 3), the threshold suggested by Hair et al. [47]. Thus, we concluded that the scales have sufficient reliability and validity.

4.2. Assessment of structural model

The path coefficients of the structural model are shown in Fig. 3. The results indicate that three out of the six moderating effects (H3, H5, and H6) are different between the two types of SM platforms. Although the three significant moderating effects are all negative, the network features of ES platform significantly moderate CI and PE, but those of the IP platform significantly moderate AT. Overall, the values of Cohen's [26] effect size for the moderating effect of the two network features are significant. The following sections discuss the moderating effects of RE and RI in detail.

4.2.1. Moderating effects of RE

Fig. 3 reveals that RE on the ES platform moderate the relationship between CI and the ISC ($\beta = -0.775$, $p < 0.01$); and the relationship between PE and the ISC ($\beta = -0.656$, $p < 0.05$). The effect size is small ($f^2 = 0.056 > 0.02$) and the direct effect of the RI on ISC is $\beta = 0.505$ ($p < 0.1$). However, RE on the IP platform moderate the relationship between PU and the ISC ($\beta = -0.676$, $p < 0.05$); the relationship between AT and the ISC ($\beta = -0.574$, $p < 0.05$); and the relationship between SE and the ISC ($\beta = 0.910$, $p < 0.001$). The effect size is large ($f^2 = 0.519 > 0.35$) and the direct effect of the RI on ISC is $\beta = 0.715$ ($p < 0.05$).

4.2.2. Moderating effects of RI

As shown in Fig. 3, the path coefficients reveal that RI on the ES platform moderate the relationship between PU and the ISC ($\beta = -0.421$, $p < 0.1$); the relationship between CI and the ISC ($\beta = -0.674$, $p < 0.01$); the relationship between PE and the ISC ($\beta = -0.640$, $p < 0.05$); and the relationship between SE and the ISC ($\beta = -0.521$, $p < 0.1$). The effect size is small ($f^2 = 0.041 > 0.02$) and the direct effect of the RI on ISC is $\beta = 0.570$ ($p < 0.1$). However, RI on the IP platform moderate the relationship between PU and the ISC ($\beta = -0.403$, $p < 0.1$); the relationship between AT and the ISC ($\beta = -0.447$, $p < 0.1$); and the relationship between SE and the ISC ($\beta = 0.640$, $p < 0.05$). The effect size is large ($f^2 = 0.440 > 0.35$) and the direct effect of the RI on ISC is $\beta = 0.595$ ($p < 0.05$).

5. Discussion

The results of this study show that the extrinsic and intrinsic motivators are moderated by the RE and RI of network features of the SM platforms. All the hypotheses are supported except H4; that

Table 3
Summary of measurement scales: ES platforms ($N = 568$) versus IP platforms ($N = 653$).

Construct (ID)	No. of Items	Mean (Standard Deviation)		VIF		AVE		Composite Reliability	
		ES Platform	IP Platform	ES Platform	IP Platform	ES Platform	IP Platform	ES Platform	IP Platform
Perceived usefulness (PU)	3	5.02 (1.12)	5.28 (0.58)	1.44	1.26	0.80	0.70	0.92	0.87
Community identification (CI)	3	5.28 (1.02)	4.53 (0.74)	1.66	1.49	0.69	0.71	0.87	0.88
Social interaction (SI)	3	4.16 (1.70)	4.94 (0.78)	1.22	1.79	0.89	0.72	0.96	0.89
Altruism tendency (AT)	3	5.76 (0.75)	5.16 (0.76)	1.49	1.27	0.65	0.83	0.85	0.94
Perceived enjoyment (PE)	3	5.83 (0.74)	5.44 (0.66)	1.52	1.38	0.76	0.74	0.90	0.89
Self-efficacy (SE)	3	5.73 (0.89)	5.69 (0.79)	1.29	1.20	0.69	0.76	0.87	0.90
Richness (RI)	3	4.86 (1.24)	5.63 (0.82)	1.83	2.25	0.76	0.80	0.90	0.93
Reach (RE)	3	5.49 (0.91)	5.66 (0.88)	1.91	2.44	0.66	0.89	0.85	0.96
Information-sharing continuance (ISC)	3	5.82 (0.87)	5.58 (0.90)	DV	DV	0.87	0.91	0.95	0.97

Note: DV indicates that ISC is the dependent variable; VIF is the variance inflation factor; AVE is the average variance extracted.

Table 4
Correlations: ES platforms versus IP platforms.

	ES platforms									IP platforms								
	AT	CI	ISC	PE	PU	RE	RI	SE	SI	AT	CI	ISC	PE	PU	RE	RI	SE	SI
AT	**0.81**									**0.91**								
CI	0.39	**0.83**								0.27	**0.84**							
ISC	0.45	0.41	**0.93**							0.43	0.40	**0.96**						
PE	0.52	0.40	0.53	**0.87**						0.40	0.21	0.44	**0.86**					
PU	0.28	0.43	0.38	0.27	**0.89**					0.21	0.35	0.30	0.27	**0.83**				
RE	0.33	0.41	0.46	0.38	0.43	**0.81**				0.27	0.33	0.71	0.36	0.32	**0.94**			
RI	0.26	0.43	0.39	0.31	0.47	0.59	**0.87**			0.28	0.31	0.69	0.37	0.27	0.73	**0.90**		
SE	0.27	0.38	0.34	0.26	0.28	0.40	0.28	**0.83**		0.13	0.27	0.35	0.18	0.23	0.36	0.32	**0.87**	
SI	−0.05	−0.11	0.10	0.07	0.04	0.24	0.26	0.01	**0.94**	0.28	0.50	0.56	0.38	0.36	0.53	0.46	0.28	**0.85**

Note: Diagonal elements (in bold) are the square root of the average variance extracted (AVE). Off-diagonal elements are the correlations among constructs.

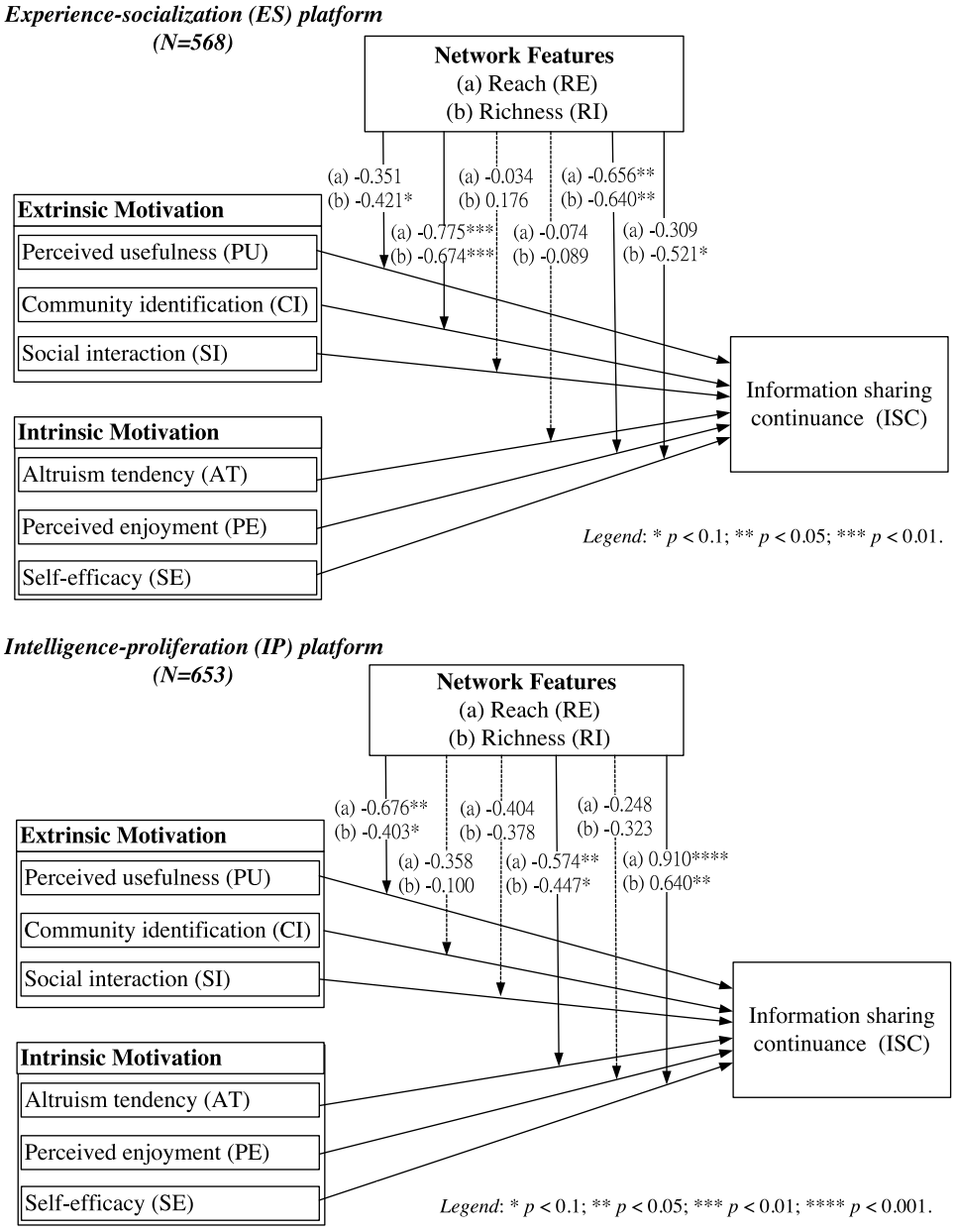

Fig. 3. Moderating Effect of Network Features in Two-Platform Contexts.

is, SI's effect on sharing continuance is not affected by network features. This is probably because social network has a clear small-world characteristic, which was first introduced by Milgram [78]. It indicates that people constantly interact with a small group of

people, who have similar interests and available resources in a physical world. This small world has an invisible wall preventing unrelated people to intrude. Today's virtual world breaks the wall and allows people on social network sites to reach more people and create more social ties. The strength of a tie depends on the degree of trust and understanding between the two actors of the tie. Strong ties are not limited to a group of close relatives and friends; such ties may exist between unmet friends if they constantly share intangible resources such as experiences, thoughts, information, emotion, or support. With these small groups, they maintain stable relationships and are comfortable to interact. Nevertheless, most people do not share other private resources with people whom they never met, unless they know that the background of this person is true and real. In this vein, SI enables a person to create and maintain strong relationships with a small and stable group. These relationships affect the person's intention to continue sharing information on the social network and cannot be affected by the RE and RI of the network; thus H4 is not supported.

As shown in Fig. 3, RI of the ES platforms negatively moderates the effects of PU and SE on sharing, and both RE and RI negatively moderate the effects of CIs and PE on sharing. Meanwhile, negative moderating effects also appear on the IP platforms where contributors' PU and AT on ISC are negatively moderated by RE and RI; but their SE to share is positively moderated by both RE and RI. In the following sections, we examine specifically how the network features significantly affect each motivator on the two different contexts of SM platforms and explain the findings with previous research outcomes and practical cases collected from the participatory research process.

5.1. Moderating effects on ES platforms

5.1.1. Perceived usefulness

On the ES platforms, the relationship between PU and ISC is negatively moderated by RI. Based on our observation, contents of an ES platform could appear to be a divergence of postings with little focus. Large amounts of wide-ranging information on an ES platform could render users losing confidence in the quality of the posted information and decrease users' intentions to share. Taking Facebook as an example, many users frequently share every aspect of their lives in texts, photographs, or videos. However, through the participatory research method, we found excessive posts might overwhelm readers and make them feel senseless to stay in the loop. In addition, some users on ES platforms express concern about the great diversity of information posting on a social network and could reduce their intention to share due to spamming and information explosion, which includes flame wars, trolling, personal attacks, hijacking, and repetitive arguments.

5.1.2. Community identification

On the ES platforms, the relationship between CI and ISC is negatively moderated by the network situations of RE and RI. This finding may be further explained by previous studies [104,111] indicating that network contributors usually enjoy identity expression and care about those they communicate with in the network. However, clueless posting at random with members of numerous backgrounds can demotivate a person to participate. For example, Facebook's "online shopping group" has rampant members; any user can automatically be added to the list of the group as long as a friend pulls him/her into a community. The added members most likely are unaware of their newly initiated memberships. However, Hollenbaugh and Ferris [51] stated that Facebook may also have harmful effects on the depth, breadth, and amount of user self-disclosure. As such, without a consent-of-membership mechanism, the posts are of little interest for this group of members and their senses of CI are small. In addition, members of this type of group do not possess a sense of belonging because they often found that the posts are unrelated to their living circle and that information sharing cannot give resonance to life. Over time, these members gradually lose interest in identifying or staying with the group.

5.1.3. Perceived enjoyment

On an ES platform, the relationship between PE and ISC is negatively moderated by both network features. There are two possible reasons for this finding. First, it is noted that members of a social network enjoy the interactive communications among like-minded people [105,116,117] but a great volume of senseless postings can reduce the joy of resonance among members. Second, too many initiatives for participants to interact can exhaust the enjoyment of the activities. Studies on network externality [117] have indicated that as the network's size increases, the perceived playfulness (enjoyment) increases and so does the ISC. Through the participatory research method, we have observed that users are more often requested to join activities or groups in which they do not have interests; they develop low or no cohesion to enjoy the interactions, and their enthusiasm to become involved in more content sharing is reduced.

5.1.4. Self-efficacy

For users of the ES platforms, the content RI affects negatively the effect of SE on ISC. Taking Facebook as an example, it makes the information-sharing behavior easy and motivates users to connect, share information, and develop relationships. However, they can also provide the means to wander aimlessly, spending time to seeing people, or discovering information without any value. If the content is too diverse and complex, community members may perceive more barriers to collaborate [55].

5.2. Moderating effects on IP platforms

5.2.1. Perceived usefulness

On the IP platforms, users' PU of IP platforms is reduced by higher RE and RI. This finding refines previous research that the more the knowledge shared, the more the perceived value for sharing [19,60,116]. Contributors on IP platforms are usually professional developers who use the platform to deepen their knowledge and skills. A large number of participants with various reasons for interactions may decrease their intention to share due to a lack of confidence in the quality of these participants' knowledge. It should be noted that members of an SM platform have distinct expectations and attitudes toward the community. As the size of the platform grows, many users of the platform content tend to lack specific goals and usually do not stay long on the site. Serious contributors are reluctant to share their thought with the unknown viewers of diversified backgrounds because of the concerns about usefulness of their efforts. Through the participatory research method, we have observed this phenomenon as a member of the Linux community during the data collection period. On a regular working day, the volume of viewers may be as high as 400–800, while the number of regular contributors on the platform may be as low as 5. The gap between the numbers of viewers and contributors may reduce contributors' intention to share. To overcome this situation, they often use e-mail to discuss in-depth technical problems only among a few members, instead of sharing their insights on the platform.

5.2.2. Altruism tendency

On the IP platforms, the relationship between AT and ISC is negatively moderated by both network features. This is contrary to our common beliefs that users benefit from social networking and in return are more willing to help others by sharing personal experiences with the community. There are two possible reasons

for this negative effect. First, on an IP platform, abundant knowledge postings could reduce the feel of need for enhancing the width and the depth of one's knowledge base. Second, platform members have a variety of backgrounds in a specific knowledge field; this makes the contributors feel that sufficient peer support on the platform is available and there is no need for them to offer further help. Considering Wikipedia as an example, the site began with a goal to provide everyone in the world free access to the sum of all human knowledge. But the decline in participation has raised questions about the viability of the encyclopedia to continue expanding its breadth and improving its quality [3]. Although a Wikipedia contributor's main interest is in writing new content to help individuals' learning, doing so is a lot more difficult today than it used to be because many subjects have already been fully explored. Users in a saturated intelligence community such as Wikipedia may be demotivated to contribute knowledge to the community.

5.2.3. Self-efficacy

The user's SE on IP platforms is the only motivator that is positively moderated by the RE and RI of the SM network. This finding supports previous studies that when more members join the professional community, contributors' SE can increase through learning from useful knowledge and advice of the other members [72]. It appears that sufficient volume of knowledge can make contributors confident about sharing with people of similar background and expertise. Katz and Shapiro [62] suggested that the feeling of control over the technology increases the intention to participate. Other studies [69,73,117] have indicated that on a large network community, users could gain more knowledge or social support from the large user base. This may also relate to the bandwagon effect [7] of the Web's potent RE that a larger stream of people may send signals to others that the service is not too difficult to use. Through the participatory research method, we found many contributors often think that "*if they can, why can't I?*" This could induce confidence in ISC.

6. Implications and future research

This study contributes to the field of behavioral research on SM platforms by identifying and conceptualizing the influence of situational factors on the information-sharing behavior in two contexts of SM platform. It investigates the situational effects on information-sharing behavior with insights on the cognitive state of participants. It establishes theoretical beliefs about network–feature effects and user's ISC by structural equation modeling. Finally, it concludes that the RE and RI of SM platforms really matter, but in a negative way; demonstrating the diminishing effects of most motivators on sharing continuance, refuting the fallacy of "Big is beautiful" (having critical mass) on the SM platform. In addition, the contributions of our study to the field theory are [1] to extend the field theory into the virtual community; [2] to enrich the theory with situational factors and contextual factors on SM platforms; and [3] to explain the dynamics of field effects on ISC.

6.1. Theoretical contributions

The link between sharing motivators and continuance intention on an SM platform is rather complex. Adding network–feature effects as a moderator is an important step toward establishing a better understanding of the interactive online situation. Especially, the negative moderating effects of network features defy the mainstream view of the network influence that bigger size and greater contents could induce more temptation for users to adopt [19,37,60,69,73,116]. Although *users* at one side of the network may exhibit a growing circle with increasing network scales, *content suppliers* at the other side of the network could show a declining path in sharing intention with the growing number of participants and posts. This is contrary to previous studies [10,37,69,73,96,117] that show network externality to have a strong influence on the extrinsic motivation of perceived value and drive the users toward continuous usage. With the insights on the cognitive state of content suppliers, our results reveal that once the RE and RI of network features have progressed past a certain threshold, users may perceive low or no motivation to share due to the overwhelming size or divergent contents. Throughout the growing journey of network development, some motivators play the role of a driver in the initial stage but could turn into the role of an inhibitor for sharing when the scale of network growth triggers users' concern in their perception of network usefulness, community identity, enjoyment, and AT.

Next, the effort of distinguishing the sharing intention by different types of SM platforms brings up contextual concerns in the study of continuance intentions of information technology use [12,70,101], namely, users of different contexts of SM platforms may form different expectation patterns that affect their continual sharing on the platforms. The ES platform mainly enables "processual knowledge" [59], which consists of general knowledge and experience sharing. Users' perception of community identity and enjoyment for sharing on this type of platform could reduce due to higher volume participants with futile postings. Whereas an IP platform creates "declarative knowledge" [93], which is expressed in descriptive sentences or indicative propositions, larger group size with diversified inputs may reduce member's PU and AT in posting constructive knowledge. Insights on the cognitive state of content sharing on different SM platforms render a better explanation of user's ISC behavior in different social contexts.

6.2. Managerial implications

Many studies have demonstrated that motivation management is the first step toward inducing users' participation in knowledge sharing [6,50,53]. Our findings further confirm that situational and contextual factors exert significant effects on the sharing behavior. As identified on the two contexts of SM platforms, RE and RI can affect users' CI, AT, and SE differently. This implies that RE and RI really matter, but more is not necessarily better. The development of network features requires careful control over users' affective perception about the social environment.

The challenge for an SM platform manager is to identify the type of sharing needed on the platform because different types of community users share for different reasons and interact in different ways. Managers of ES platforms need to pay more attention to building interactive and collaborative systems for monitoring, recognizing, and rewarding information sharing. They might consider building user-filtering and user-posting control mechanisms to induce resonance on experience sharing and form collaboration activities within groups of certain interests. Managers of IP platforms would need to consider focusing on aligning knowledge categorization with the specific knowledge interests of their targeted professional groups. They might further consider ways to stimulate users' self-enhancement and encourage group support within specific knowledge groups [53,110,111], because knowledge-seeking users are more comfortable in sharing common expertise and identifying themselves with a limited number of knowledge groups. Organizations providing SM services for socialization or knowledge-sharing purposes need to leverage RE and RI of network features properly in order to build effective platforms and nurture a strong, growing stream of content creation. For example on Facebook, one plausible action for the platform provider is to add a mechanism that allows a viewer to

request contributors to post the irrelevant contents to their target members through Messenger's private message service. Another action is to allow the viewer to filter any future irrelevant contents posted by the same contributor, but still keep them in the circle of friends. From a user perspective, the existing options of share button (i.e., self, private message, friend, and group) are not enough to control the incoming contents. The option of friend could expand into two levels of closeness: buddy and friend. In contrast to a simple friend, a buddy is a real friend, a good friend, or a partner. Similarly, the option of group could expand into group and public. Although a group that consists of friends of friends is a community such as a professional society or a company, the public is anyone on or off the Facebook. These actions extend the existing sharing options from four to six. In summary, SM platform providers should provide mechanisms to users for dynamically controlling the sharing circle of incoming and outgoing contents, as well as dynamically relocating a content contributor from one circle to another.

6.3. Limitations and future research

This study has its limitations in research design and data collection. As the data for this study are cross-sectional and the sample comprised only active SM platform users, all of the statistically supported relationships should be interpreted carefully. The results should be interpreted as only explaining the continuous sharing intentions of active platform users. It is possible that the results may have been influenced by self-selection bias and users with little or no sharing experience might have different experiences with and perceptions of network features. Additional studies that include inactive users or longitudinal data could be performed to explore whether the results can be generalized.

The study confirms that network features (RE and RI) moderate the relationship of information-sharing motivation and continuance. However, other human-related factors such as perceived social support [85] or past behavior [105] are also important in the context of SM use. Future studies might benefit from testing their effects on the relationship between the motivators and the psychological or behavioral consequences of contributors' supportive communication on SM platforms.

The results of this study confirm that user motivations to share are moderated by network features, and that user behaviors on different contexts of SM platforms differ significantly and specific strategies are needed for managing platform capabilities for expanding user bases and increasing users' intention to share. The conceptualization of network features and the more refined knowledge about the situational and contextual effects of SM platforms are useful for further studies on SM platforms and may ultimately benefit platform providers in their attempts to cope with the challenges of instigating ISC.

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Appendix A. Measurement constructs, items, and sources

Measurement constructs, items, and sources

Scale	Items	Sources
1. Perceived usefulness	PU1. Using the social media platform enhances my work/learning. PU2. Using the social media platform makes it difficult to perform the activities of my work/learning (Reverse code). PU3. Using the social media platform improves my work/learning.	Davis [32]
2. Community identification	CI1. Sharing on the social media platform enhances my chance to meet someone with whom I have common interests. CI2. Members on the social media platform have a strong feeling of "one group." CI3. I am proud of being a member of the social media platform.	Hsu and Lin [53]
3. Social interaction	SI1. Members on the social media platform keep close ties with each other to exchange information (relational capital). SI2. For me, the social media platform has plenty of participants for me to work with (structural capital). SI3. The social media platform can enable various interactive activities among participants (cognitive capital).	Tsai and Ghoshal [103]; Chiu et al. [25]
4. Altruism tendency	AT1. I like helping other people on the platform. AT2. It feels good to help others with similar problems on the platform. AT3. I enjoy helping others on the social media platform.	Wasko and Faraj [111]
5. Perceived enjoyment	PE1. I have fun sharing on the social media platform. PE2. The actual process of sharing on the social media platform is enjoyable. PE3. I am unhappy while sharing on the social media platform (Reverse code).	Agarwal and Karahanna [1]; Venkatesh et al. [108]
6. Self-efficacy	SE1. I could use the social media platform without calling someone for help if I got stuck. SE2. I could use the social media platform if someone else had helped me get started (Reverse code). SE3. I could use the social media platform without anyone showing me how to do it first.	Compeau and Higgins [27]
7. Network features	***Factor 1: Reach*** RE1. The social media platform enables a great diversity of participants to engage in different activities. RE2. The social media platform facilitates all kinds of activities of content sharing among many participants. RE3. The users of the social media platform can perform various kinds of collaborative work with many other participants. ***Factor 2: Richness*** RI1. The social media platform provides various types of information at my request. RI2. The social media platform provides sufficient content for me to work with. RI3. The content on the social media platform is up to date.	This study
8. Information-sharing continuance	ISC1. I plan to continue sharing information on the social media platform in the future. ISC2. I intend to continue sharing information on the social media platform in the future. ISC3. I will continue sharing information on the social media platform in the future.	Davis et al. [33]

Appendix B. PLS confirmatory factor analysis and cross-loadings

PLS confirmatory factor analysis and cross-loadings

	ES Platforms									IP Platforms								
	AT	CI	ISC	RI	RE	PE	PU	SE	SI	AT	CI	ISC	RI	RE	PE	PU	SE	SI
AT1	**0.79**	0.21	0.31	0.16	0.26	0.42	0.18	0.15	−0.06	**0.96**	0.26	0.42	0.30	0.28	0.38	0.18	0.14	0.26
AT2	**0.80**	0.23	0.32	0.09	0.21	0.42	0.14	0.20	−0.05	**0.79**	0.21	0.31	0.17	0.17	0.33	0.21	0.09	0.22
AT3	**0.83**	0.46	0.44	0.33	0.31	0.42	0.32	0.28	−0.03	**0.97**	0.26	0.44	0.29	0.28	0.39	0.19	0.13	0.27
CI1	0.34	**0.75**	0.32	0.25	0.32	0.32	0.30	0.36	−0.12	0.25	**0.80**	0.30	0.26	0.27	0.18	0.28	0.19	0.38
CI2	0.29	**0.84**	0.28	0.38	0.30	0.29	0.33	0.27	−0.14	0.18	**0.84**	0.29	0.25	0.26	0.13	0.30	0.22	0.43
CI3	0.35	**0.89**	0.40	0.44	0.39	0.38	0.43	0.31	−0.04	0.24	**0.88**	0.40	0.26	0.30	0.20	0.31	0.27	0.45
ISC1	0.40	0.36	**0.91**	0.37	0.43	0.48	0.36	0.30	0.11	0.41	0.36	**0.96**	0.65	0.66	0.41	0.27	0.32	0.53
ISC2	0.42	0.39	**0.94**	0.34	0.43	0.51	0.34	0.33	0.09	0.42	0.38	**0.95**	0.66	0.69	0.44	0.30	0.33	0.55
ISC3	0.44	0.40	**0.94**	0.38	0.43	0.48	0.36	0.31	0.10	0.41	0.41	**0.96**	0.67	0.67	0.42	0.30	0.34	0.54
RI1	0.22	0.42	0.36	**0.89**	0.52	0.29	0.40	0.27	0.16	0.24	0.28	0.61	**0.91**	0.65	0.33	0.23	0.29	0.43
RI2	0.22	0.37	0.31	**0.88**	0.47	0.21	0.42	0.23	0.21	0.28	0.31	0.61	**0.90**	0.65	0.33	0.27	0.33	0.42
RI3	0.23	0.34	0.35	**0.85**	0.55	0.28	0.40	0.23	0.31	0.24	0.23	0.63	**0.88**	0.66	0.32	0.22	0.25	0.39
RE1	0.28	0.36	0.37	0.55	**0.81**	0.33	0.37	0.32	0.25	0.27	0.33	0.66	0.69	**0.95**	0.35	0.30	0.35	0.50
RE2	0.29	0.28	0.33	0.33	**0.78**	0.29	0.26	0.36	0.15	0.25	0.30	0.68	0.69	**0.91**	0.33	0.32	0.33	0.49
RE3	0.25	0.36	0.41	0.54	**0.84**	0.30	0.41	0.31	0.20	0.24	0.29	0.65	0.68	**0.97**	0.32	0.28	0.34	0.50
PE1	0.42	0.32	0.42	0.29	0.33	**0.83**	0.22	0.19	0.08	0.38	0.19	0.33	0.30	0.23	**0.80**	0.27	0.14	0.27
PE2	0.45	0.37	0.47	0.25	0.32	**0.88**	0.23	0.24	0.06	0.30	0.18	0.39	0.31	0.32	**0.88**	0.21	0.15	0.35
PE3	0.48	0.36	0.49	0.26	0.34	**0.90**	0.25	0.25	0.04	0.37	0.17	0.41	0.33	0.35	**0.89**	0.23	0.16	0.35
PU1	0.27	0.37	0.32	0.40	0.34	0.21	**0.88**	0.21	0.04	0.16	0.24	0.22	0.20	0.26	0.25	**0.82**	0.18	0.25
PU2	0.25	0.38	0.36	0.44	0.42	0.26	**0.92**	0.29	0.03	0.17	0.25	0.22	0.20	0.25	0.20	**0.82**	0.19	0.31
PU3	0.23	0.40	0.33	0.42	0.40	0.25	**0.88**	0.26	0.03	0.20	0.37	0.31	0.26	0.29	0.23	**0.86**	0.20	0.34
SE1	0.20	0.28	0.28	0.22	0.34	0.18	0.23	**0.83**	0.03	0.12	0.20	0.30	0.31	0.33	0.19	0.18	**0.86**	0.22
SE2	0.22	0.30	0.27	0.21	0.32	0.22	0.23	**0.85**	−0.01	0.13	0.26	0.33	0.28	0.33	0.13	0.22	**0.90**	0.26
SE3	0.25	0.36	0.29	0.27	0.34	0.26	0.25	**0.82**	0.01	0.09	0.25	0.27	0.24	0.28	0.14	0.19	**0.84**	0.24
SI1	−0.04	−0.04	0.12	0.29	0.25	0.08	0.06	0.01	**0.97**	0.20	0.60	0.39	0.33	0.33	0.22	0.24	0.20	**0.75**
SI2	−0.05	−0.16	0.10	0.23	0.22	0.06	0.03	0.02	**0.95**	0.26	0.34	0.51	0.41	0.49	0.34	0.33	0.26	**0.89**
SI3	−0.10	−0.19	0.03	0.16	0.20	0.02	−0.04	−0.01	**0.91**	0.24	0.38	0.52	0.43	0.51	0.39	0.34	0.25	**0.90**

Note: Bold numbers indicate item loadings on the assigned constructs.

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