



# Who are likely to build strong online social networks? The perspectives of relational cohesion theory and personality theory

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## ABSTRACT

Little is known about the underlying mechanisms of building strong social networks and who are likely to build them. To address these issues, we develop a new theoretical framework grounded in relational cohesion theory and personality theory. We test the framework using data from a sample of 436 users of social networking sites. We use structural equation modelling for data analysis. We find that openness and agreeableness are positively, while conscientiousness and neuroticism are negatively, related to exchange frequency. In turn, exchange frequency is positively related to pleasure-satisfaction and interest-excitement, which are positively related to relational cohesion, which is related to seven aspects of online relationships, namely relational depth, breadth, code change, predictability, commitment, interdependence, and network convergence. Our study is the first to use the two theories to explain how personality traits affect online relationships. Our findings provide insights for information systems managers to make effective decisions on resource allocation and target markets.

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## 1. Introduction

Research on social networks of users of online information systems (ISs) is vibrant and spans fields including social media networks (Kane, Alavi, Lbianca, & Borgatti, 2014) and media communication (e.g., Teng, Chen, Chen, & Li, 2012). Research has found that social networks (or communication or electronic networks) contribute to effective collaboration (Ransbotham & Kane, 2011) and knowledge exchange (Beck, Pahlke, & Seebach, 2014), which in turn boost job performance (Sykes, Venkatesh, & Johnson, 2014; Zhang & Venkatesh, 2013). Moreover, social communication using social networking tools enhances job security (Wu, 2013). Social interactions within social networks determine when and how a piece of content becomes successful (Susarla, Oh, & Tan, 2012). The literature has demonstrated the strong impacts of social networks on various job-related outcomes, indicating the

importance of acquiring a better understanding of social networks.

Pertinent studies use network-level analyses to examine user-generated content and communication activity in online social networks (Shriver, Nair, & Hofstetter, 2013; Susarla et al., 2012). However, the social network formation literature has insufficiently examined whether and how node-level features (e.g., personality traits) affect the formation of social networks. The recent literature suggests that one of the most interesting research issues is to understand how social media user profiles impact user behaviour (e.g., Kane et al., 2014). Moreover, active engagement in communities boosts individual users' spending (Kaptein, Parvinen, & Pöyry, 2015), highlighting the relevance of research on this issue.

Among the various typologies used to describe an individual psychological profile, the Big Five personality traits have been widely applied in various contexts. In particular, highly extraverted individuals actively use the Internet for recreational purposes, such as playing online games and engaging in chat rooms (Hamburger & Ben-Artzi, 2000). Researchers have recently adopted a mining approach to link personality to social behaviour (e.g., Ortigosa, Carro, & Quiroga, 2014).

However, little research has examined how the Big Five

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personality traits are related to the formation of social networks amongst users of online information systems, leaving a conspicuous research gap. Research addressing this gap can advance classical and core psychological knowledge (i.e., the Big Five personality traits) by linking it to a popular and contemporary global phenomenon (i.e., social networks of users of online information systems). As of now no study has been undertaken to fill this gap, which indicates the uniqueness of our research. Moreover, research findings that help close this gap can provide insights for managers on the importance of user personality profiles to the formation of user networks and, subsequently, business success. In sum, research addressing this issue is both academically unique and practically significant. To fill this gap, we define strong online social networks as networks that comprise members having strong online relationships with one another, as such relationships form the building blocks for strong online social networks.

Therefore, we aim to fill this gap by conducting this study with a purpose of examining how the Big Five personality traits affect the development of interpersonal relationships in online social networks. The development of relationships could be explained by relational cohesion theory, which theorizes the process by which online relationships are formed, indicating that this theory is applicable in this study. Moreover, personality theory provides a widely personality typology and elicits the impacts of personality traits, justifying the adoption of personality theory. Therefore, we adopt both relational cohesion theory and personality theory to develop our research model and hypotheses. In addition, our study explains the formation of online social networks by innovatively incorporating personality traits into relational cohesion theory, thus extending and enriching both theories. Supplementing relational cohesion theory with personality theory provides a solid theoretical basis for systematically building a body of knowledge for understanding online social networks. Such knowledge can help online information systems managers effectively build communities of loyal users.

## 2. Theoretical background and hypotheses

### 2.1. Relational cohesion theory

Relational cohesion theory was developed through experimentation and is characterized by equal power and mutual exchange benefits (Lawler & Yoon, 1996). In other words, relational cohesion theory is applicable in contexts where network participants have equal power or influence in reaching an exchange agreement and where each participant obtains benefits from the exchange. In online information systems, participants can exchange ideas, efforts, and information via social networks. Participants typically have equal power and derive mutual benefits from these exchanges, suggesting the potential applicability of relational cohesion theory to address human issues associated with online information systems. The minimum level of variance in equal power makes it a contextual background rather than a research issue, motivating us to exclude this concept from our study.

Relational cohesion theory posits that *frequent exchanges* arouse *positive emotions* (consisting of pleasure-satisfaction and interest-excitement) and then create *relational cohesion*, which consequently triggers commitment behaviours such as staying in the exchange relation, providing token gifts to one another, and contributing to a new joint venture (Lawler & Yoon, 1996). In addition to positive emotions, frequent exchanges trigger commitment behaviours via reduced uncertainty (i.e., the dual process of commitment); however, only positive emotions directly lead to relational cohesion (Lawler, Thye, & Yoon, 2000). Therefore, positive emotions should underpin the theoretical explanations of

relational cohesion. To ensure theory replication, we include the key elements of relational cohesion theory, i.e., exchange frequency, pleasure-satisfaction, interest-excitement, and relational cohesion (as in Table 1).

Relational cohesion theory has been enhanced and extended in several aspects. For example, network structure may enable or constrain the formation of social relationships (Lawler, Thye, & Yoon, 2006). Equal-power relationships facilitate group cohesion more than those of unequal power (Lawler & Yoon, 1996). In addition, we now have a better understanding of the dual process of commitment in that frequent exchanges provide knowledge and information about others, reducing uncertainty in predicting others' behaviour, while positive emotions are essential for creating relational cohesion in dyads (Yoon, Thye, & Lawler, 2013).

When applied in the context of online social network formation, relational cohesion theory describes the process by which individuals form relational cohesion and eventually trigger commitment behaviours, which can be incorporated into Parks and Floyd's (1996) typology of online relationships. Such typology covers the following seven aspects: *relational depth*, *relational breadth*, *code change*, *predictability of partner behaviour*, *commitment to the relationship*, *interdependence*, and *network convergence* (as in Table 1).

### 2.2. Related studies on user communication

Looking at Wikipedia, Ransbotham and Kane (2011) found that combining new and old members in a social media community can lead to collaborative outcomes, and new members can provide novel knowledge and experience to online communities. Our research is consistent with these findings. Specifically, overlapping social circles can breed successful exchange relationships that create mutual benefits. In other words, our research may provide an alternative explanation for the findings of Ransbotham and Kane (2011).

In the context of organizational communication networks, Xu, Kim, and Kankanhalli (2010) studied the roles of source preference and sourcing frequency in communication networks. We echo their work by using exchange frequency and relational cohesion to elucidate the importance of cohesive relationships in communication networks. Our research contributes to this research stream by adding the theoretical perspectives of relational cohesion and personality traits.

In workplace communication networks, Zhang and Venkatesh (2013) found that online and offline social networks are complementary and interact to influence job performance. Specifically, individuals with direct and indirect ties in both social networks can gain personal benefits. Our research also explores how social networking creates benefits for group members. However, our study is the first to assess the determinants of network overlap (i.e., network convergence), deepening the understanding of network overlap and interaction issues.

Gosling, Augustine, Vazire, Holtzman, and Gaddis (2011) found that extraversion is positively related to frequency of Facebook usage and engagement, but not to the form of the friends' list. In line with their study, we examine the impact of extraversion on online social network behaviour. Our study is in line with Gosling et al. (2011) in discussing the impact of extraversion in the online social networking context. However, our study differs from Gosling et al. (2011) by using relational cohesion theory and examining the impacts of the Big Five personality traits on various aspects of online relationships. Furthermore, our study constructs and examines the mechanism underlying the impact of personality traits on the formation of online relationships.

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