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Understanding Contributor Withdrawal from Online Communities: The Role of Cognitive Dissonance and Emotional Change

ABSTRACT

Contributors’ withdrawal from online communities is threatening the sustainability of those communities, especially those that have entered mature and saturated stages. Drawing upon organizational withdrawal research, this article re-conceptualizes contributor withdrawal in the context of online communities. To explain the underlying mechanisms by which contributors withdraw from online communities, we introduce a theory of contributor withdrawal that emphasizes within-individual variances on the changes of cognition, emotions, and behaviors, rather than across-individual variances on the final (or average) states. In light of affective events theory, contributors’ cognitive dissonances between the community they experience and the community they expected are identified as distal causes of contributor withdrawal through the mediation of emotional changes. We also propose a typology of cognitive dissonances towards online communities and the structure of emotional change. We then discuss the moderating impacts of affective dispositions and sense-making on the cognitive dissonance-emotional change relationship, and the mediating impacts of changes in attitude and expectation on emotional change-withdrawal behavior relationships.

KEYWORDS

Contributor withdrawal, cognitive dissonance, emotional change, sense-making, online communities
INTRODUCTION

Advances in information technology (IT) such as Web 2.0 have enabled new forms of individual participation and social interaction (Cormode & Krishnamurthy, 2008). Such online participation fosters online communities that remain freely accessible as virtual commons (Mayo, 2009). Also known as virtual communities or electronic communities, these online communities are defined as “social aggregations that emerge from the Internet when enough people carry on public discussions long enough, with sufficient human feeling, to form webs of personal relationships” (Rheingold, 1993, p. 5). With the growing popularity of online communities, a growing body of studies seeks to elaborate on their characteristics and values, as well as the types of online communities (Armstrong & Hagel III, 1996; Balasubramanian & Mahajan, 2001; Etzioni & Etzioni, 1999; Gupta & Kim, 2004; Plant, 2004). In contemporary online communities, Internet users are not only information consumers who are simply seeking knowledge, but are also information contributors who share knowledge. Because the knowledge embedded in online communities is a key asset of these communities and enhances their value (Bieber et al., 2002; Liu et al., 2012), practitioners such as community organizers are concerned with attracting and retaining more contributors to keep their communities prosperous and sustainable.

However, as Web 2.0 sites have matured, a bottleneck has developed around recruiting new contributors while managing the outflow of existing contributors (Gibbons et al., 2012; O'Grady, 2010). Although prior studies have thoroughly investigated the factors promoting electronic knowledge contributions (Bock et al., 2005; Chiu et al., 2006; Kankanhalli et al., 2005; Wasko & Faraj, 2005), contributors’ withdrawal from online communities to which they were previously loyal is an increasing challenge for both practitioners and scholars. Thus, the focus for community advancement has shifted from simply attracting novice participants to retaining existing contributors (Butler, 2001; Cheung & Lee, 2007; Lazar & Preece, 2002; Ma & Agarwal, 2007). With online contributors the crucial resources for the sustainability of communities in the long term (Butler, 2001; Prasamphanich & Wagner, 2011), this paper is primarily concerned with contributor withdrawal from online communities. Given that not all participants in online communities are contributors (many simply lurk), the target population of interest here is limited to online participants who have a history of actively contributing to online communities, but who eventually withdrew their contributions.

Although individual withdrawal has been intensively investigated in physical organizations (Beehr & Gupta, 1978; Hanisch, 1995a; Hanisch, 1995b; Kanungo & Mendonca, 2002; Pelled, 1999), limited attention has been paid to contributor withdrawal from communities in cyberspace (Bateman et al., 2010; Ransbotham & Kane, 2011; Shiue et al., 2010; Wang & Lantzy, 2011). Previous studies on participant withdrawal from virtual communities mainly focused on turnover, regardless of whether the participant was an information consumer or an information contributor (Bateman et al., 2010;
Ransbotham & Kane, 2011; Shiue et al., 2010; Wang & Lantzy, 2011). Given that both contributors to online communities and workers in organizations exert intellectual effort and time in the completion of specific tasks, contributor withdrawal in online communities is similar to organizational withdrawal in the workplace. Like employees in organizations, contributors to online communities may reduce their contributions by withholding effort, or even quitting outright. However, due to the unique features of online communities in which contributors are self-selected workers, contributor withdrawal is not exactly the same as employee withdrawal. Because there are no formal contractual memberships, scheduled workdays, specified work roles, or compulsory tasks in virtual communities, some behaviors of traditional employee withdrawal (e.g., lateness, early departure from work, and absenteeism) are irrelevant in the online context. It is, thus, necessary to re-conceptualize the construct of contributor withdrawal in the context of online communities. This opportunity leads to our first research question:

**RQ1. How should contributor withdrawal and its associated behaviors be conceptualized in the context of online communities?**

Attempts to understand why individuals withdraw from participation in online communities naturally brings to mind the predominance of studies that examine the reasons behind online contributions (Wasko & Faraj, 2005), as these might be inversely related. Moreover, understanding the reasons for online withdrawal could be as important as understanding those for online contribution, especially when enlisting new contributors becomes difficult and the loss of active contributors is increasing. As many online communities have experienced rapid growth, the pace at which new contributors are being attracted is slowing, while some existing contributors are gradually decreasing their efforts. When it comes to sustainability and growth, the ability to attract and retain members is a critical factor in the success of online communities (Butler, 2001; Lazar & Preece, 2002), since a stable group of contributors enables the development of community identity (Cheung & Lee, 2007; Ma & Agarwal, 2007). In other words, the saturation of community scale and the outflow of existing contributors bring about new challenges for the sustainability of online communities. Merely focusing on attracting new contributors to a relatively mature online community might not be as fruitful as during its inception. In addition, existing contributors, especially those who were once productive, might gradually withhold their efforts, or even quit. Preventing these withdrawals might be more cost effective and beneficial than merely trying to attract replacements (Rosenberg & Czepeil, 1984; Werner Reinartz et al., 2005; Winer, 2001). Apart from the threat to sustainability, withdrawal behaviors of contributors who are dissatisfied with online communities can also spread their negative attitudes and help undermine those communities (Krackhardt & Porter, 1986; Krackhardt & Porter, 1985). These issues raise our second research question:

**RQ2. What factors affect contributor withdrawal from online communities and how do these factors work to increase contributor withdrawal?**
BACKGROUND ON WITHDRAWAL BEHAVIORS

Withdrawal in Organizational Literature

Organizational withdrawal has been defined as “various behaviors employees engage in to remove themselves from their job or avoid their work” (Hanisch, 1995b, p. 604). Based on whether the organizational and work-role membership is terminated, Hanisch & Hulin (1991, p. 111) distinguished two forms of organizational withdrawal and corresponding behavioral families: work withdrawal and job withdrawal. Work withdrawal is defined as “behaviors dissatisfied individuals use to avoid aspects of their specific work role or minimize time spent on their specific work tasks while maintaining their current organizational and work role membership.” Examples include lateness and absenteeism. Job withdrawal is defined as “employees’ efforts to remove themselves from a specific organization and their work role” (e.g., turnover). Kanungo & Mendonca (2002) focused exclusively on employee withdrawal behaviors and grouped them into three broad categories: (1) avoiding or reducing membership, such as work role withdrawal, as seen in Harrison (2002); (2) avoiding or reducing performance, such as social loafing, as seen in Latane et al. (1979); and (3) avoiding extra-role behaviors (Van Dyne et al., 1995), such as declining to help co-workers or providing organizations with constructive suggestions (Van Dyne & LePine, 1998).

Given these frequently studied multiple behavioral responses serving the purpose of withdrawal to varying degrees, Hanisch (1995a) used behavioral families to synthesize the various behavioral manifestations of withdrawal behaviors. The behavioral families encompass specific behaviors or tendencies, each assessing an important and different aspect of the general construct of interest. In summary, Table 1 shows frequently studied withdrawal behaviors in organizational literature according to the intensity of withdrawal (i.e., avoiding and reducing) and the specific objects from which an individual attempts to withdraw (i.e., membership and performance).

Nature of Contributor Withdrawal from Online Communities

In this section, we conceptualize contributor withdrawal in the context of online communities, which is grounded on the literature focused on organizational employee withdrawal. Following the concept of employee withdrawal, we propose the definition of contributor withdrawal and the corresponding behavioral families that are applicable to online communities. More importantly, we emphasize the dynamic nature of contributor withdrawal; thus, the changes in contributors’ behavioral patterns, rather than their final (or average) states, are the focus of theory development.

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1 In Kanungo and Mendonca’s (2002) taxonomy, there is a third category for employee withdrawal behaviors, namely “avoiding extra-role behaviors.” A variety of extra-role behaviors, also termed “organizational citizenship behaviors,” have been studied in prior research; these behaviors have included helping coworkers, spreading goodwill, and making constructive suggestions (George & Brief, 1992; George & Jones, 1997; Podsakoff et al., 2000). However, given that extra-role behaviors are a matter of personal choice rather than an enforceable requirement of the role or the job content (Organ, 1988, p. 4), the avoidance or reduction of extra-role behaviors cannot be viewed as an employee removing himself or herself from the organization.
Table 1. Summary of Frequently Studied Organizational Withdrawal Constructs

<table>
<thead>
<tr>
<th>Intensity</th>
<th>Membership</th>
<th>Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding</td>
<td>Turnover (Hom &amp; Griffeth, 1991; Hom et al., 1984; Mobley, 1977)</td>
<td>Social loafing (Karau &amp; Williams, 1993; Latane et al., 1979)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intensity</th>
<th>Target</th>
<th>Workplace</th>
<th>Online community</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoiding</td>
<td>Membership</td>
<td>Turnover (Hom &amp; Griffeth, 1991; Hom et al., 1984; Mobley, 1977)</td>
<td>Inactivity</td>
<td>No participation. Contributors can no longer be active in the community irrespective of the termination of membership.</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
<td>Social loafing (Karau &amp; Williams, 1993; Latane et al., 1979)</td>
<td>Lurking</td>
<td>No contribution (only readership). Participants switch from being knowledge contributors to pure knowledge seekers.</td>
</tr>
<tr>
<td>Reducing</td>
<td>Membership</td>
<td>Absenteeism (Harrison &amp; Martocchio, 1998; Nichoolson &amp; Payne, 1987)</td>
<td>Not applicable</td>
<td>Unique features of online communities: 1) self-selected contributors 2) loose membership 3) voluntary tasks without scheduled work hours</td>
</tr>
</tbody>
</table>

Conceptualization of contributor withdrawal from online communities

In line with the conceptualization of employee withdrawal from the workplace (Hanisch, 1995b), contributor withdrawal in the context of online communities is defined as behaviors contributors engage in to remove themselves from online communities. Even though employee withdrawal and contributor withdrawal have similar conceptual meanings, employee withdrawal behaviors identified in organizational research are not widely applicable to the context of virtual communities. For example, some behaviors (e.g., lateness, absenteeism) that are typically examined as employee withdrawal behaviors are irrelevant in online communities, in which scheduled work hours are not required. Based on the frequently studied behavioral families of employee withdrawal, corresponding behavior families of contributor withdrawal have been identified (see Table 2). While we can observe similar behavioral patterns between employee withdrawal and contributor withdrawal, the uniqueness of contributor withdrawal, stemming from its context, is captured by re-conceptualizing its behavioral families, which include inactivity, lurking, and withholding effort.

Unlike traditional workplaces, which are usually well-organized by specific work schedules and administrative policies, online communities are self-organizing communities with self-selected participants. Contributors are free to leave communities without explicitly terminating the membership. They might keep their user accounts but simply no longer log in. That is, contributors could be no
longer active in the community irrespective of the termination of membership. Therefore, we substitute the term *inactivity* for the term *turnover* to represent the contributors’ avoidance of online communities (i.e., neither contributing to nor visiting the site). Inactivity is the most extreme case of contributor withdrawal, involving leaving the community completely, and has been investigated in the context of online communities in the name of turnover (Bateman et al., 2010; Moon & Sproull, 2008; Ransbotham & Kane, 2011; Wang & Lantzy, 2011).

Another form of removal from online communities is avoiding contributing but continuing to visit. This is similar to social loafing in traditional group collaborations, in which some group members take advantage of other members’ contributions without making any real effort themselves. In the context of online communities, participants might withdraw from a community by switching from contributing to solely reading. They stop adding value to the community, but are still active as information seekers — that is, as lurkers. This form of contributor withdrawal is labeled *lurking*.

Along with inactivity and lurking, yet another form of withdrawal is reducing performance or membership. Some participants continue to contribute to the community, but not as intensively as before. They intentionally reduce their efforts, which is parallel to employees’ *withholding effort* in the workplace. Other typical employee withdrawal behaviors related to reducing membership are absenteeism, lateness, etc., which are related to employees’ contractual memberships with organizations. When it comes to online communities, contributors make their own decisions regarding which tasks they complete and how much time and effort they are willing to invest. Given the different time domains in which the two types of withdrawal behaviors occur (i.e., work time for employee withdrawal and non-work time for contributor withdrawal), online communities are characterized by self-selected contributors who complete tasks voluntarily with loose membership. Therefore, employee withdrawal behaviors that involve reducing membership with acts such as absenteeism are not applicable to online communities.

**Withdrawal as a dynamic behavior**

Although organizational withdrawal provides the conceptual basis for contributor withdrawal in the context of online communities, the dynamic perspective is not held when the withdrawal behavior is investigated conceptually and empirically in the traditional organization context. For instance, turnover in organizational studies is generally examined through either objective organizational records (Bentein et al., 2005; Williams & Livingstone, 1994) or subjective self-report turnover intention (Steel & Ovalle, 1984). However, the numbers of stayers and leavers within an observation window is not differentiated; therefore, the resignation of a hard-working senior employee is weighed equally with the departure of an inexperienced newcomer. Similarly, individual differences in average levels of turnover intention do not necessarily reflect the consistent differences either in actual turnover or in the evolution of intention to leave.
The various withdrawal behaviors (Hanisch, 1995a; Hanisch & Hulin, 1991) in organizations have also received extensive attention in the extant literature given researchers’ interest in the antecedents of these withdrawal behaviors, such as absenteeism (Nichoolson & Payne, 1987; Steers & Rhodes, 1978), lateness (Adler & Golan, 1981; Blau, 1994), social loafing (Karau & Williams, 1993), withholding effort (Lin & Huang, 2010), and turnover (Hom & Griffeth, 1991; Porter & Steers, 1973; Tett & Meyer, 1993). In these prior studies, the relationships between antecedents and outcome variables are established by the covariance patterns between them. Construct fluctuations that an individual experiences over time (i.e., within-individual variations) are surrogated by individual differences in variables of interest (i.e., across-individual variations). Among the antecedents of withdrawal behaviors identified in the literature are job satisfaction and dissatisfaction, which have been widely investigated across previous studies. The absolute level of job satisfaction explains a certain level of withdrawal cognition or behavior (Tett & Meyer, 1993).

However, given a hypothetical situation in which an increase in job satisfaction and a decrease in job satisfaction end up rendering the same absolute level of satisfaction for a single employee over different time periods, the negative change in job satisfaction would trigger high turnover intention, whereas the positive change in job satisfaction would hardly induce turnover intention (Chen et al., 2011). That is, the individual differences in job satisfaction cannot capture the individual changes in the levels of job satisfaction, final (or average). With the average level of job satisfaction during a given period holding constant, the change in job satisfaction would provide more salient explanations for withdrawal behavior, which is a change in behavior pattern. A few studies have recognized the salience of the dynamic relationship between withdrawal and its antecedents, and provided empirical evidence by investigating individual differences in changes of variables (e.g., job satisfaction, organizational commitment, turnover) through longitudinal observations (Bentein et al., 2005; Boswell et al., 2009; Chen et al., 2011).

Given the dynamic nature of withdrawal behavior, the concept of contributor withdrawal aims to capture changes in participants’ contribution patterns in online communities (i.e., reduction in and avoidance of contribution effort), and tease out the antecedents of such behavioral changes from a dynamic perspective. Specifically, instead of focusing on the final (or average) status of a contributor—leaving or staying—this article attempts to develop contributor withdrawal theory (CWT) by capturing dynamic relationships that explain contributors’ passive behavioral changes.
PROPOSAL OF CONTRIBUTOR WITHDRAWAL THEORY

Overview of the Contributor Withdrawal Theory (CWT)

We develop key propositions for the CWT. Our fundamental points are that contributor withdrawal is a dynamic behavior pattern reflecting a contributor removing himself or herself from online communities, and its antecedents should be the changes in factors that induce the passive changes in contributors’ behaviors. Therefore, the CWT focuses on the underlying dynamics that result in contributor withdrawal from online communities. Figure 1 shows the full model of the CWT.

Drawing upon the research on attitude-behavior relations (Ajzen & Fishbein, 1980; Ajzen & Fishbein, 2000; Fishbein & Ajzen, 1974; Fishbein & Ajzen, 1975) and the tripartite model of attitude structure (Rosenberg & Hovland, 1960), we follow the cognitive-affective-behavioral framework and explain the dynamic relationships among the antecedents of contribution withdrawal in each component.

The tripartite model of attitude structure consists of three attitude components: cognition, affect, and behavior (Breckler, 1984; Rosenberg & Hovland, 1960). In the context of online communities, the cognitive component consists of contributors’ thoughts, beliefs, knowledge, and perceptual responses to online communities; the affective component refers to contributors’ emotions and affect towards online communities; and the behavioral component refers to how contributors act or behave in online communities. Considering contributor withdrawal to be a behavioral component, we identify the cognitive and affective antecedents of contributor withdrawal (Figure 1). As contribution behavior changes, contributor withdrawal corresponds to changes of attitude towards contributing to online communities, which involves changes in the three components (i.e., cognition, affect, and behavior). Therefore, instead of focusing on the absolute levels of cognitive and affective antecedents, the CWT proposes cognitive dissonance and emotional change as the distal and proximal antecedents of
contributor withdrawal.

In this theoretical model, cognitive dissonance and emotional change are conceptualized in terms of both magnitude and direction. The concept of disconfirmation is adopted from the expectation and disconfirmation theory (Oliver, 1977; Oliver, 1980). This refers to the discrepancy between expectations and actual experiences. A more positive discrepancy of actual experiences over expectations reflects greater disconfirmation in a positive direction (positive disconfirmation), whereas more negative discrepancy reflects greater disconfirmation in a negative direction (negative disconfirmation). The closer disconfirmation is to neutral, the more expectations are confirmed by actual experiences. In the same vein, the change of emotion also captures the direction and size in which the contributors’ emotions directed at online communities evolve over time. Drawing on the two dimensions (i.e., valence and arousal) for the representation of emotion (Russell, 1980; Russell, 2003; Russell, 2009), emotional change incorporates change in both valence and arousal. Positive change and negative change could occur in either valence or arousal, or both. We will discuss the structure of emotional change in detail later.

Although the relationships between cognition and emotion have been specified in prior research (Bagozzi, 1982; Fishbein & Ajzen, 1975; Triandis, 1977), the effects of cognitive discrepancy on emotional change posited by the CWT are not consistently invariable. These effects are actually moderated by contributors’ sense-making of the cognitive discrepancy, because only cognitive discrepancy that makes little sense would trigger the change of affect. If the sense of cognitive discrepancy could be interpreted or resolved by a contributor, it would not have an impact on the change in emotion or behavior.

According to the expectation disconfirmation theory, expectations act as the benchmarks for post hoc comparison, given the acquisitions of actual experiences. Besides the consequence of affective change, the unresolvable disconfirmation also means that the initial expectations involve either overstated or understated beliefs about contributing to online communities. To restore the cognitive equilibrium, contributors would revise attitudes and expectations regarding future contribution activities, which in turn influence subsequent contribution behaviors. Therefore, the affective change, which indicates the existence of unresolvable disconfirmation, would have an impact on contributor withdrawal both directly and indirectly through the change in attitudes and expectations.

The following sections discuss the model and corresponding propositions in detail.

**Cognitive-Affective-Behavioral Framework Deconstructing Satisfaction**

As noted, there has been a significant amount of organizational research exploring the causes of organizational withdrawal behaviors (Hanisch, 1995a; Hanisch & Hulin, 1991), such as social loafing (Karau & Williams, 1993), withholding effort (Lin & Huang, 2010), and turnover (Hom & Griffeth, 1991; Porter & Steers, 1973; Tett & Meyer, 1993). Drawing upon theories of attitude–behavior
relationships that state that individual affection and attitudes could be predictors of behaviors (Ajzen & Fishbein, 1980; Ajzen & Fishbein, 2000; Fishbein & Ajzen, 1974; Fishbein & Ajzen, 1975), existing studies predominantly identify employees’ affective attitude as a significant reason for withdrawal behaviors. Among the antecedents of withdrawal behaviors are dissatisfaction with work, supervision, or co-workers (Hanisch, 1995a; Harrison & Martocchio, 1998; Waters & Roach, 1971). In contrast to examining dissatisfaction as a positive predictor, some studies also use job satisfaction as a negative antecedent of withdrawal (Hanisch & Hulin, 1991).

Job satisfaction is defined by Locke (1969) as “a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences” (p. 371); this is consistent with the definition offered by Cranny et al. (1992, p. 1), who describe job satisfaction as an affective reaction to one’s job resulting from the incumbent’s comparison of actual outcomes with those that are desired. The logic underlying this definition is that job satisfaction is conceptualized as an affective experience resulting from cognitive assessments. Despite the consensus on the definition of affective response, job satisfaction is also regarded as an attitude that involves an evaluative judgment regarding one’s job or job situation (Brief, 1998; Greenberg, 2013; Miner, 1992). It seems that organizational researchers treat the affective response and the attitude connoted by job satisfaction as equivalents (Hulin, 1991; Locke, 1969). In contrast to dealing directly with the definition of job satisfaction, researchers also attempt to define the construct through its measures (Brayfield & Crockett, 1955). The widely-used measures of job satisfaction, such as the job description index (JDI, Smith et al., 1969), ask respondents to place the object of the question (i.e., the job or some facet of the job) on a scale of evaluation; this act of evaluating is at the very core of an attitude (Petty et al., 1997).

Apart from the employee’s perspective, satisfaction is also studied from the point of view of consumers (i.e., consumer satisfaction, Yi, 1991). As with job satisfaction, the definition of consumer satisfaction also includes affect and attitude perspectives. For instance, consumer satisfaction is defined as “an emotional response to the experiences provided by, or associated with particular products or services purchased, retail outlets, or even molar patterns of behavior such as shopping and buyer behavior, as well as the overall marketplace” (Westbrook & Reilly, 1983, p. 256), or as “an evaluation rendered that the consumption experience was at least as good as it was supposed to be” (Engel & Blackwell, 1982, p. 501). Measures of consumer satisfaction are also confronted with controversy in terms of their dimensionality (Leavitt, 1977; Maddox, 1981).

In line with the tripartite model of attitude structure (Rosenberg & Hovland, 1960), a considerable amount of research has extensively studied the cognitive, affective, and behavioral components of both job satisfaction and consumer satisfaction. Instead of treating the three elements of the tripartite model as parallel components of attitude, researchers identify the antecedents and consequences of the evaluative judgments (i.e., job satisfaction and consumer satisfaction) by
establishing logical orders among these classic components. As shown in Table 3, the extant literature has reached a consensus regarding the cognitive component as an antecedent of satisfaction and the behavioral component as a consequence of satisfaction, but the nature of the affective component has not yet been determined. Two types of affect have been discussed in prior studies: stable individual disposition, and transient affective status. Despite agreement on the nature of disposition, there is a lack of consistency on the role of affective status. Some studies consider the affective component to be the cause of satisfaction by proposing this causality (Judge & Ilies, 2004; Martinez & Martinez, 2007), whereas some treat the affective component as the predictor of satisfaction by analyzing the correlation (Fisher, 1998; Westbrook, 1987).

In spite of the extensive research on job/customer satisfaction, the investigation of satisfaction in the extant literature is limited to a summary, retrospective, and comparative approach (Fisher, 1998). When it comes to voluntary contribution behaviors in online communities, the insufficiency of job/customer satisfaction data is threefold. First, contributors’ attitudes towards online communities do not merely rest on job attributes (i.e., elements related to contribution action). Contributors act as both workers (information producers) and end-users (information consumers) in online communities. Neither job satisfaction nor customer satisfaction can fully represent contributors’ attitudes, given this dual role. Second, although organizational studies do not strictly differentiate between “satisfaction as affect” and “satisfaction as attitude” (Smith et al., 1969), the discriminant validity of satisfaction should not be ignored given the conceptual distinction between affect (Ekkekakis, 2012; Russell, 1980) and attitude (Eagly & Chaiken, 1998; Rosenberg & Hovland, 1960). The conceptual overlap between satisfaction and affect also brings about the foregoing controversy regarding the relationship between affect and satisfaction. Third, the obscured conceptualization of satisfaction and its general measures in the face of an evaluative judgment (e.g., rating scales on satisfaction statements) oversimplifies the mechanisms by which an individual reacts to work-related or product-related stimuli. In prior studies revolving around the concept of satisfaction, the underlying psychological dynamics that an individual goes through still remain unknown.

Due to the deficiency of accurate conceptualization and operationalization for the concept of satisfaction noted above, it is worthwhile to deconstruct satisfaction by examining the cognitive, affective, and behavioral components separately (Weiss, 2002). That is, instead of focusing on satisfaction, we tap into these three components and propose a cognitive-affective-behavioral (see Figure 1) model to explain contributor withdrawal in the context of online communities.

Affective Events Theory (AET) as an Overarching Theoretical Lens

Affective events theory (AET) was first proposed by Weiss & Cropanzano (1996) to explain the structure, causes, and consequences of affective experiences at work. To clearly differentiate affect from satisfaction, AET regards job satisfaction as a work attitude that might be a consequence of
affective experiences. As shown in Figure 2, central to AET are affective reactions, which are caused by work events as well as individual dispositions, and which have impacts on performance and job satisfaction. It appears that the key elements of AET and the logic flow between them follow the cognitive-affective-behavioral framework exactly. By recognizing the multidimensional nature of affect experiences and their structural representations, AET emphasizes the psychological processes that are simply surrogated by satisfaction in the extant literature.

Figure 2. Affective Events Theory: Macro Structure, Reproduced from (Weiss & Cropanzano, 1996, p. 12)

Affective experiences, as the core of AET, are built upon existing research on emotions and moods (Ekkekakis, 2012). Even though emotions and moods are both affective states, and these two terms are, in general, used interchangeably (Batson et al., 1992), prior studies differentiate them both conceptually and operationally. While both emotions and moods can vary in valence, intensity, and duration, the key distinguishing feature between them is diffuseness (Frijda, 1993; Morris, 1989). Emotions are affective states focused on a target, whereas moods lack an object toward which to direct the affect. Following these distinct conceptualizations, emotions and affects are also represented by different structures (see the detailed review of structural representations of emotions and moods in Ekkekakis, 2012; Watson et al., 1988).

The causes of affective reactions examined by AET include endogenous components (e.g., affective dispositions) and exogenous components (e.g., relevant work events). As stable personalities, affective dispositions act as internal sources of affective reactions. With respect to exogenous antecedents, AET does not focus on the environmental features overwhelmingly investigated by prior research, such as job features (Friedlander, 1964; Hackman & Oldham, 1976; Herzberg et al., 1959; Stone & Porter, 1975) or organizational factors (Batlis, 1980; Cropanzano et al., 1997; Peters et al., 1980; Porter & Steers, 1973). Instead, it places primary emphasis on work events that mediate the impact of environmental features on affective reactions. Such work events, which are relevant happenings introducing shocks to existing patterns, have affective significance in generating an emotional reaction or mood change in people (Weiss & Cropanzano, 1996). In addition, apart from
the direct impact on affective reactions, dispositions also moderate the way employees affectively react to work events given individual differences in affective traits.

The consequences of affective reactions fall into two categories: affect-driven behaviors and judgment-driven behaviors. Affect-driven behaviors are the direct outcomes of affective experiences, whereas judgment-driven behaviors are indirectly caused by affective experiences through work attitude, which is conceptualized as an evaluative judgment made about one’s job (e.g., job satisfaction). The distinction between affect-driven and judgment-driven behaviors implies the direct and indirect behavioral consequences of affective experiences.

Another fundamental tenet of AET is the time perspective. Instead of treating affect and attitude as static, AET posits that “affect levels fluctuate over time and that the patterns of these fluctuations are predictable to a great extent” (Weiss & Cropanzano, 1996, p. 11). These affective fluctuation patterns, which are represented by the structure of affect, in turn exert influence on the variations of job attitudes and behaviors.

Given the macro structure in Figure 2, however, AET does not elaborate on the underlying processes by which events in the workplace trigger affective reactions, which in turn influence attitudinal and behavioral outcomes (Ashton-James & Ashkanasy, 2005). Furthermore, it is time-consuming to fill in the details pertaining to the phenomenon of interest (i.e., contributor withdrawal in the context of online communities). Concerning AET’s higher-order abstraction and workplace-dominated context, CWT specifies the key factors of cognitive, affective, and behavioral components on the basis of AET. To echo AET’s call for a more focused examination of the changing nature of not only affective experiences but also the causes and consequences of affect (Weiss & Beal, 2005), CWT emphasizes changes in cognition and affect as distal and proximal momentums for changes in behavioral patterns. In the following sections, we will discuss the dual nature of contributor withdrawal and conceptualizations for work events and affective reactions, followed by explanations for the dynamic relationships among the identified factors.

**Dual Nature of Contributor Withdrawal as Affect- and Judgment-Driven Behavior**

In the context of online communities, contributor withdrawal could be either affect-driven or judgment-driven behavior. On the one hand, in parallel with employee withdrawal, contributors probably go through a similar evaluation process to form attitudes, which in turn induce the decision to withdraw. In that case, contributor withdrawal is a judgment-driven behavior. On the other hand, due to the relatively low cost associated with quitting and the voluntary nature of the engagement, defection can be a direct consequence of affective experiences. After all, withdrawal from an online community is not the formal resolution of an employment contract, but typically the withdrawal of one’s participation, or possibly just the reduction of one’s effort. In other words, it can be equated to a shifting of resources from the organization to the self or to another organization. Furthermore, even if
a contributor explicitly withdraws from a community, the corresponding loss of benefits is typically small, and the decision can easily be reversed without significant cost. Hence, contributors do not necessarily need to go through salient evaluative judgments before removing themselves from online communities. That is, contributor withdrawal could be an affect-driven behavior as well.

Given the various behavioral manifestations (e.g., contributor withdrawal), some behaviors that require a deliberate decision (e.g., inactivity) might be the indirect outcomes of affective experiences followed by an overall evaluation, whereas some behaviors are immediate responses to an affective experience without any evaluation judgments (e.g., withholding effort).

**Emotional Changes as Affective Reactions Causing Contributor Withdrawal**

Although AET emphasizes the important role of time in examining affective fluctuations, the discussion on affective reactions primarily rests on the definitions and structures of emotions and moods (Ekkekakis, 2012; Frijda, 1993; Morris, 1989; Russell, 2003). However, emotion involves an emergent process during which individuals react flexibly and dynamically to environmental contingencies, thus requiring a dynamic computational architecture (Scherer, 2009). Regarding participation in online communities, contributors have already formed certain affective states towards the engagements, and also adjust their affective states as they acquire more information and experience through interaction with their communities. When contributors intentionally change their behavioral patterns by reducing effort, it implies that the underlying affective reactions are no longer merely establishing specific affective states. Instead, contributors’ affects are switched from previous states to current states that are consistent with withdrawal behaviors. In other words, affective reactions are actually affective changes or shifts engendering the corresponding changes of behavior. The extent to which contributors remove themselves from online communities is mainly determined by the within-individual fluctuations of affective states (i.e., affective change), rather than the across-individual variance of final (or average) affective states.

As for contributor withdrawal as a behavioral consequence, the essence of the cause is the change of affective state, rather than the final (or average) affective state. It implies that contributors’ withdrawal from an online community does not necessarily indicate that they are displeased with that community. Regardless of the emotional state in which contributors end up, they will withdraw from online communities as long as they go through negative changes in their emotions. For example, a contributor who starts contributing to an online community with enthusiasm might become indifferent or disinterested and reduce the time spent there. In this case, it is the change in the contributor’s emotion that results in withholding effort from the online community, while the final (or average) affective state itself could still be positive or neutral.

The follow-up question we try to answer is how to conceptualize affective change in the context of online communities. According to the above-mentioned difference in diffuseness between
emotions and moods (Frijda, 1993; Morris, 1989), emotions are directed toward a specific object (i.e., online communities), whereas moods lack this focus. In AET, affective reactions include both emotions and moods, given the context of the workplace, in which employees’ job-related emotions could significantly influence their general moods (Judge & Ilies, 2004). In contrast to the necessity of contributing in the workplace, contributing to online communities is more like an extracurricular activity that might not be the core source of mood changes. Therefore, we assume that the effect of emotions directed at online communities on overall mood is not salient, and primarily focus on contributor emotions towards online communities as the affective states of interest. As mentioned earlier, change is recognized in two dimensions: direction (i.e., increase or decrease) and magnitude (i.e., the degree of increase or decrease). Taken together, affective change in CWT is conceptualized as emotional change in terms of direction and magnitude.

There are two typical structures of emotion in the extant literature: discrete emotions (Roseman, 1984; Roseman et al., 1990) and dimensional emotions (Reisenzein, 1994; Russell, 1980; Russell, 2003). Discrete-emotion advocates develop lists of basic emotions to represent a variety of experienced emotions, whereas dimensional-emotion proponents structure emotions as continuous affective states varying in valence (pleasure versus displeasure) and arousal (activation versus deactivation). Although these two structures have received empirical backup from prior studies (Barrett, 1998), we agree with AET’s advocacy of dimensional structure over discrete structure, especially given our focus on the gradient of change gauged by direction and magnitude. Therefore, the combination of two emotion dimensions (i.e., valence and arousal) with two change dimensions (i.e., direction and magnitude) constitutes the structure of emotional change (see Figure 3). Given that

![Figure 3. Structure of Emotional Change](image)

Notes. ↑: positive change; ↓: negative change; •: neutral change
emotional change may increase (positive change), be constant (neutral / no change), or decrease (negative change), with a certain degree (magnitude) determined by either valence or arousal or both, there are in total nine possible scenarios to represent emotional change.

The structure of emotional change shows that there are multiple mechanisms by which a change of emotion triggers contributor withdrawal. Although change may occur in both valence and arousal, the effect of change in each of these dimensions is not equal, because arousal is basically attached to valence to differentiate the intensity levels of emotions at a particular valence. Therefore, we posit that change in valence plays a more salient role than change in arousal in terms of causing contributor withdrawal. The greater the decrease in valence of emotion towards online communities, the greater the incidence of contributor withdrawal from those communities. That is, the negative change in emotional valence positively increases contributor withdrawal, whereas the positive change in emotional valence negatively increases contributor withdrawal. The decrease in valence change will increase the incidence of contributor withdrawal from online communities.

Proposition 1a. Valence change in contributors’ emotions towards online communities will negatively influence contributors’ withdrawal from those communities, irrespective of whether the valence change is associated with arousal change.

The effect of arousal change is more complicated compared to valence change. Arousal change in emotion can be either an accelerator or a decelerator of contributor withdrawal, depending on the direction of valence change. When there is a negative change in emotional valence, any increase in arousal actually results in a more intense emotion with decreased valence, which in turn positively increases contributor withdrawal. The change in emotional arousal, thus, has a positive effect on the increase of contributor withdrawal when valence change is negative. Conversely, if there is a positive (or neutral) change in emotional valence, any increase in arousal results in a more intense emotion with increased (or constant) valence, which in turn negatively increases contributor withdrawal.

Proposition 2b. Arousal change in contributors’ emotions towards online communities will positively influence their withdrawal from online communities when the arousal change is associated with negative changes in emotional valence.

Proposition 2c. Arousal change in contributors’ emotions towards online communities will negatively influence their withdrawal from online communities when the arousal change is associated with positive or neutral changes in emotional valence.

Cognitive Dissonance as Stimulus Causing Emotional Change

AET emphasizes the role of work events in causing behaviors and attitudes through affective mediation. Stemming from the simple definition of an event as something happening in a certain place at a certain time, AET underscores that an event carries with it “the idea of change, a change in circumstances, a change in what one is currently experiencing” (Weiss & Cropanzano, 1996, p. 31).
Focusing on events that have affective significance, AET explains, via cognitive appraisal theory, the process by which events trigger affective reactions (Ellsworth & Scherer, 2002; Lazarus, 1991; Lazarus, 1994; Smith & Ellsworth, 1985; Smith & Pope, 1992). During the appraisal process, relevant events with which people are concerned make up cues that are interpreted and evaluated to elicit emotional responses. Likewise, to elucidate how contributors change their emotions, CWT needs to answer two questions. First, what events are relevant and have affective significance in the context of online communities? Second, how are the concerned events evaluated by contributors to trigger emotional change?

In AET, events refer to happenings in the workplace that bring about a change in an individual’s circumstances or experiences. AET distinguishes work events from environmental features by suggesting that “environmental features influence affect primarily by making affective events (or the recall or imagination of affective events) more or less likely” (Weiss & Cropanzano, 1996, p. 11). In fact, events are not objective things occurring in work settings. Instead, they are an individual’s cognitive representations of the surroundings in which she or he is immersed. AET proposed the concept of work events and adopted event assessment criteria (e.g., goal relevance, goal congruence) from cognitive appraisal theory, but failed to specify in detail what these events might be. Therefore, we try to identify the building blocks that constitute the sources of contributors’ cognitive representations of online communities.

Considering online communities to be typical organizations built upon web-enabled information systems, we base the structure of these building blocks upon Leavitt’s typology of an organization as a diamond, in which tasks, people, structure, and technology are interrelated (Leavitt, 1965). In spite of the dominance of constructs proposed by the Technology Acceptance Model (TAM, Davis, 1989; Davis, 1993) and the IS success model (DeLone & McLean, 1992; DeLone & McLean, 2003) in IS adoption research, we suggest that Leavitt’s typology is more appropriate for online communities given its comprehensiveness and generalizability. To contextualize Leavitt’s typology in terms of online communities, we identify corresponding factors for each component (see Table 3). While employing Leavitt’s original diamond with its four components (i.e., task, people, structure, and technology), we split the people component into two subcategories, common bond and common identity, which are two typical attachments facilitating participation in online communities (Cheung & Lee, 2007; Prentice et al., 1994; Ren et al., 2012). Unlike hierarchical interpersonal relationships in traditional organizations (e.g., supervisor, co-workers), the relatively decentralized structure in online communities fosters attachment to peers (common bond) and attachment to the community as a whole (common identity). These two kinds of attachment also correspond to two types of interaction patterns in online communities (i.e., social interaction among peers and individual-community interaction), as well as two types of motivations for contributing to online communities (i.e., sociability
and identification with community).

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<th>Table 3. Building Blocks of Online Communities Based on Leavitt’s Typology</th>
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In view of the building blocks for cognitive representations of online communities, we next explain how the proposed factors are appraised as stimuli for emotional change. There are multiple cognitive models used to explain the cognitive process by which employees (consumers) evaluate jobs (products/services), such as the value-percept model, the expectation disconfirmation model, and the desire congruency model. An invariable logic among these models is the cognitive assessment of situational states as individuals acquire more and more experience regarding the object of interest (e.g., job, product, service). The cognitive assessment process is in exact accordance with the cognitive appraisal theory (Lazarus, 1991; Smith & Pope, 1992). The difference among the various models rests on the reference point to which the situational states are compared. For example, the value-percept model considers an individual’s own values as comparison standards, the expectation disconfirmation model refers to an individual’s initial expectations as comparison standards, and the desire congruency model sets an individual’s original desires as comparison standards. What, then, are the comparison standards for contributors to online communities?

The models mentioned previously mainly cover two research fields: employee behaviors in organizational studies and consumer behaviors in market research. The assumption underlying these models is that individuals (either employees or consumers) have desires, goals, or expectations for the outcomes of their behaviors (which involve either performing jobs or buying products/services) given the essential role of regular work and goods consumption in people’s daily lives. Participation in online communities, however, is a self-selected voluntary activity. We do not deny that contributors also have desires, goals, or expectations when contributing to online communities just as they do in workplaces, but the concerns around such a pro-sharing activity online might be different from those related to a regular job at a workplace. Given the variety of motives for electronic knowledge sharing (Bock et al., 2005; Cheung & Lee, 2007; Chiu et al., 2006; He & Wei, 2009; Kankanhalli et al., 2005; Wang & Lai, 2006; Wasko & Faraj, 2005), we go back to contributors’ beliefs regarding online
communities to which they are motivated to contribute. As cognitive representations of online communities, beliefs depict contributors’ understandings or even imaginings about communities of interest to them, and shed light on the formation of desires, goals, and expectations. Thus, we suggest that the comparison standards for contributors are their beliefs regarding online communities.

Taken together, the appraisal process involves contributors’ concerns about online communities (i.e., collective efficacy, common bond, common identity, community structure, and technology affordance) and the way they evaluate these concerns. Contributors compare the community they experience with the community they expected in terms of the five aspects identified above. The dissonance between the experienced community and expected community turns to a stimulus for contributors’ emotional reactions. Similar to disconfirmed expectations in the expectation disconfirmation theory (Bhattacherjee, 2001; Bhattacherjee & Premkumar, 2004; Brown et al., 2011; Oliver, 1977; Oliver, 1980), disconfirmations of beliefs also vary in direction (i.e., positive, neutral, or negative) and strength. Among the competing models of expectation disconfirmation (Brown et al., 2011; Brown et al., forthcoming; Brown et al., 2008; Venkatesh & Goyal, 2010), researchers have reached consensus on the negative effect of negative disconfirmation (i.e., when expectations are unmet) on individual attitude and behavior, but there is controversy regarding the influence of positive disconfirmation (i.e., when expectations are exceeded). For instance, the contrast model suggests the positive effect of positive disconfirmation on satisfaction (Kopalle & Lehman, 2001), whereas the generalized negativity model supports the negative effect of positive disconfirmation on outcome evaluation (Olson & Dover, 1979). Our explanation for the undetermined effect of positive disconfirmation is that positive disconfirmation actually brings about a mix of positive and negative feelings. The positive feeling is attributed to the positive experiences that exceed expectations (Hom et al., 1999). The negative feeling stems from the aversion to being wrong even when the surprise is pleasant (Hogan, 1987). The eventual effect of positive disconfirmation depends on which mechanism dominates overall individual feeling, and people are probably concerned with the positive and negative stimuli in different ways. Since different theoretical lenses tend to focus on either positive or negative mechanisms, the contradictory propositions regarding the impact of positive disconfirmation come out of these competing models, all of which have empirical evidence.

Regardless of the competing models, consistent among earlier studies testing expectation disconfirmation theory is the target populations, which are dominated by employee and consumer. For CWT, however, we focus on contributors in online communities, and set beliefs regarding online communities as the comparison standard. Based on our explanation of the controversial effect of positive disconfirmation, we propose that positively disconfirmed beliefs (i.e., positive dissonance) have a positive impact on the valence change of emotion due to the following reason. In the context of online communities, which are characterized by voluntary knowledge sharing and pro-social behaviors
(Chu, 2009; Kang et al., 2007; Sproull et al., 2005), contributors prefer these communities to be as good as possible with respect to the five aspects mentioned above (i.e., collective efficacy, common bond, common identity, community structure, and technology affordance), even when that goodness goes beyond their ideal levels. Positive dissonance requires that the experienced community be even better than the expected community. Compared with the psychological tension created by positive dissonance, the positive experiences would play a more salient role in balancing the mixed feelings and result in the positive change of emotion valence. For example, contributors to Wikipedia (www.wikipedia.org) come to the open and free online encyclopedia community with the belief that the encyclopedia can be written by non-experts collectively. It turns out that the quality of Wikipedia articles are comparable to traditional encyclopedia through self-organizing coordination (Giles, 2005; Kittur & Kraut, 2008). Although the content quality in Wikipedia might exceed contributors’ original expectations (positive dissonance), the positive emotional change stemming from the content of high quality can far overweigh the negative emotional change resulting from cognitive dissonance.

Taken together, the direction and magnitude of contributors’ cognitive dissonances are consistent with that of valence change in the contributors’ emotions towards online communities. Positive cognitive dissonance leads to positive change (increase) in emotional valence, while negative dissonance leads to negative change (decrease) in emotional valence. The magnitude of cognitive dissonance determines the size of change in emotional valence.

Proposition 2. Contributors’ cognitive dissonances towards online communities (collective efficacy, common bond, common identity, community structure, and technology affordance) will positively influence changes in emotional valence.

Main Effect and Moderating Effect of Affective Dispositions

Dispositional effects have been thoroughly examined in organizational research (Davis-Blake & Pfeffer, 1989). Affective dispositions, as latent and stable individual traits or personalities in affect domain, have also been included in studies on job/consumer satisfaction. Among the widely examined affective dispositions are positive affectivity and negative affectivity (i.e., PA and NA in Watson et al., 1988). The effects of affective dispositions are of two types: main effect involves sources of emotional reactions, and moderating effect differentiates among the varying strengths of cognition-emotion relationships across individuals with different affective dispositions (Thoresen et al., 2003).

The effects of affective dispositions found in organizational research suggest the endogenous nature of individual differences in terms of triggering and moderating emotional reactions. When it comes to the context of online communities, contributors’ affective dispositions should have the same effect on their emotional changes because these traits are deeply ingrained in individual biology, irrespective of the environments with which they interact. For instance, a contributor high in the ‘Negative Affectivity’ trait is predisposed to react more strongly to negative cognitive dissonance via decreasing emotional valence to a greater extent and/or increasing emotional arousal to a greater
intensity. Hence, in online communities, we propose that affective dispositions have a main effect on emotional change, and a moderating effect on cognitive dissonance-emotional change relationships.

Proposition 3a. Contributors’ affective dispositions will positively influence their emotional change.

Proposition 3b. Contributors’ affective dispositions will positively moderate the relationships between emotional changes and their cognitive dissonances towards online communities.

**Moderating Effect of Sense-Making on Cognitive Dissonance-Emotional Change Relationships**

In the light of the theory of sense-making (Louis, 1980; Weick, 1995; Weick & Sutcliffe, 2001), individuals’ reactions to a detected “surprise” (i.e., cognitive dissonance) depend on the interpretations of the discrepancy between their expectations (both conscious and unconscious) and actual experiences regarding the job as well as themselves through the sense-making process in the workplace. The theory of sense-making states that “discrepant events, or surprises, trigger a need for explanation, or post-diction, and, correspondingly, for a process through which interpretations of discrepancies are developed” (Louis, 1980, p. 241). It is, in fact, the meaning assigned to surprises that eventually causes emotional and behavioral responses.

In the context of online communities, the theory of sense-making implies that not all cognitive dissonances will definitely affect emotional changes. Discrepancies between the experienced community and the expected community will not necessarily engender emotional changes if the disconfirmed beliefs make sense given the contributors’ own attributions and interpretations. Contributors’ emotional changes are followed by cognitive dissonances that make little sense and cannot be resolved or interpreted by contributors themselves. We thus posit that sense-making has a moderating effect on cognitive dissonance-emotional change relationships.

Proposition 4. Contributors’ sense-making of cognitive dissonances will negatively moderate the relationships between emotional changes and their cognitive dissonances towards online communities.

**Mediating Effects of Expectation Change and Attitude Change on Emotional Change-Contributor Withdrawal Relationships**

In accordance with the unique features of contribution activities in online communities (see Table 2), we have discussed the dual nature of contributor withdrawal as both affect-driven and judgment-driven behavior. The direct relationships between emotional change and contributor withdrawal have also been proposed when contributor withdrawal is affectively driven. In this section, we focus on the mediating effect of expectation change and attitude change on the emotional change-contributor withdrawal relationships.

Contributors’ emotional changes as reactions to cognitive dissonance imply that these discrepancies cannot be resolved by the contributors themselves. Based on attributed meanings derived from the sense-making process, contributors will update their understandings about online
communities and revise their expectations regarding future experiences. The extent of emotional change determines the extent to which future-oriented expectations shift from belief-oriented expectations, which in turn determines the extent to which contributors’ behavioral responses (i.e., retention or withdrawal) shift. That is, the relationships between affective change and contributor withdrawal are partially mediated by expectation change.

The mediating effect of attitudes on the relationship between affective reactions and judgment-driven behaviors has been proposed in AET. Given the judgment-driven nature of contributor withdrawal from online communities, the immediate consequences of contributors’ emotional changes would be changes in their attitudes towards online communities. Therefore, apart from the expectation change, emotional changes would also lead to a shift in contributors’ attitudes towards online participation, which in turn shifts consequent behavioral responses. Taken together, we propose the following two mediating effects in terms of changes in expectations and attitudes.

Proposition 5a. Contributors’ changes in expectations regarding future experiences in online communities will partially mediate the relationship between their emotional changes and withdrawal behaviors. Contributors’ emotional changes will positively influence their expectations, which in turn negatively influence their withdrawal behaviors.

Proposition 5b. Contributors’ changes in attitude towards online communities will partially mediate the relationships between their emotional changes and withdrawal behaviors. Contributors’ emotional changes will positively influence their attitude changes, which in turn negatively influence their withdrawal behaviors.

DISCUSSION

For the critical mass of online communities, participants who contribute to these have been recognized as the key success factor for community survival (Leimeister et al., 2006; Prasarnphanich & Wagner, 2011; Raban et al., 2010). While the explosion of online communities brings a surge of interest in drivers of online pro-social behaviors in prior studies, the maintenance and sustainability issues appear to be new challenges as these communities become mature and saturated. Furthermore, the increasing choices among alternative communities tend to thin out the existing contributor base. Compared with a shortfall of newcomers in the start-up stage, online communities are more concerned with experienced contributors’ withdrawal in the mature phase. Considering online communities as digital ecosystems, we focus on the dynamics underlying contributors’ withdrawal from online communities. In this paper, we propose the contributor withdrawal theory (CWT) to address the following two questions:

- How should contributor withdrawal and its associated behaviors be conceptualized in the context of online communities?
- What factors affect contributor withdrawal from online communities and how do these factors work to increase contributor withdrawal?

Conceptualizing contributors’ withdrawal from online communities as a change in behavioral
patterns, CWT proposes a cognitive-affective-behavioral model to explain the impacts of contributors' cognitive dissonances towards online communities on their reductions in, or even avoidance of, contribution effort through changes in emotions. This section discusses the theoretical and practical implications, as well as the limitations.

**Contributions to Research and Theory**

CWT is a theoretical framework to conceptualize and explain contributors' withdrawal from online communities. It makes contributions to research and theory in the following four aspects. First, CWT conceptualizes contributor withdrawal by identifying its behavioral families applicable to the online community context. Although contributor withdrawal inherits the conceptual meanings from employee withdrawal (Beehr & Gupta, 1978; Hanisch, 1995a; Hanisch, 1995b; Hanisch & Hulin, 1991), it is manifested by unique behavioral patterns due to the characteristics of online communities (see Table 2). In contrast to judgment-driven employee withdrawal, CWT recognizes contributor withdrawal’s dual nature as affect- and judgment-driven behavior.

Second, CWT holds onto a dynamic perspective by adding time as an important parameter for theory development. On the one hand, by deconstructing satisfaction into cognitive, affective, and behavioral components (Weiss, 2002), we sort out the temporal and logic orders among the three components. On the other hand, instead of examining cross-individual variances of contributors' final (or average) states, we focus on within-individual variances in cognitive, emotional, and behavioral responses to online communities. According to the dynamic nature of contributor withdrawal, the extent to which contributors shift behavioral patterns should be explained by the degree of their emotional fluctuations, which is caused by their cognitive dissonances between the experienced community and the expected community. It is the variances of change, rather than the variances of final (or average) state, that reveal the mechanisms of different withdrawal patterns in online communities.

Third, CWT directs research attention from the inception stage to the maintenance stage of online communities. To explain why people participate and help others in the virtual world, prior studies have thoroughly concentrated on the motivations for contributing to online communities (Cheung & Lee, 2007; Chiu et al., 2006; Chu, 2009; He & Wei, 2009; Kang et al., 2007; Kankanhalli et al., 2005; Wang & Lai, 2006; Wasko & Faraj, 2000; Wasko & Faraj, 2005). As online communities expand exponentially, they go through rapid growth and gradually evolve into a constant maturity. Such a transition, however, has not yet received adequate attention from researchers, especially when communities are threatened by the tendency of decline (Gibbons et al., 2012; O'Grady, 2010). Concerned with the pressing challenge to keep online communities self-sustained, this research responds as a call for more attention to the dynamics of contributors’ behaviors as online communities mature.
Finally, CWT fills in the cognitive-affective-behavioral framework with comprehensive factors pertinent for online communities. Besides the behavioral families of contributor withdrawal, the proposed taxonomy of cognitive dissonances towards online communities and the structure of emotional change offer a coherent understanding of contributors’ cognitive and emotional reactions to online communities. They break through the dominance of constructs in TAM (e.g., perceived usefulness, perceived ease of use) and IS success model (e.g., information quality, system quality) (Davis, 1989; Davis, 1993; DeLone & McLean, 1992; DeLone & McLean, 2003). While these constructs have been well-established in IS adoption research in utilitarian settings (e.g., the workplace), they cannot sufficiently capture web-enabled human-computer and human-human interactions in cyberspace. CWT makes an attempt to depict online communities as virtual organizations consisting of task, people, structure, and technology. For each of the four dimensions, we also identify corresponding factors applicable to the context of online communities.

**Contributions to Practice**

In addition to contributions to research and theory, CWT has strong practical implications for sustainability of online communities by clarifying how communities can diminish contributor withdrawal. First, CWT highlights the challenge of online communities shifting from recruiting new contributors to preventing the loss of existing contributors in the maturity stage. Once participants overcome motivational, social and technological barriers to begin contributing to online communities, whether they put effort into those communities sustainably should arouse serious concern among community managers. Instead of replacing an outflow of contributors with an injection of new members, community managers are advised to pay close attention to cultivating sustained contributions given the existing user base.

Second, the proposed behavioral families of contributor withdrawal provide indicators for community managers to monitor withdrawal behaviors systematically. Traditional methods of tracing membership and attendance in the workplace are no longer accurate and adequate to discern contributor withdrawal from online communities. Without explicit contractual membership maintained periodically, contributors have no responsibilities for their memberships in online communities; thus, the status of their user account (e.g., registered or deactivated) is no longer the cue of contributor withdrawal. Instead, contributors’ changes in their actual behaviors become the manifestations of withdrawal (see Table 2). Since online communities maintain records of contributors’ activities in real time, it is feasible to identify different types of withdrawal behaviors by detecting a decline in contributions.

Furthermore, the extent to which withdrawal behaviors prevail among contributors also signals community managers that there are probably latent problems driving contributors away from the community. CWT identifies five sources of cognitive dissonance (i.e., collective efficacy, common
bond, common identity, community structure, and technology affordance) as causes of contributor withdrawal. For communities threatened by large-scale contributor withdrawal, these potential causes can be used as a check list for community’s self-examination. Community managers can then take measures according to the problems diagnosed.

**Addressing Theoretical Limitations and Future Research**

CWT has several limitations. First, the proposed behavioral families of contributor withdrawal remain at the conceptual level; therefore, further research is necessary that connects these to actual contribution behaviors. Contributors’ behaviors in online communities are characterized by the type, duration, frequency, and intensity of their activities. Different kinds of contributor withdrawal behaviors might take on changes in different behavioral features. For example, *lurking* is reflected by a change in the type of activity from contributing to purely reading, whereas *withholding effort* could refer to a reduction in duration, frequency, or intensity of contribution activities. The operationalization of contributor withdrawal from online communities is to be addressed in future research.

Second, we limit our discussion of emotional change to two dimensions – emotion valence and emotion arousal, without unfolding content-related attributes of emotion. Actually, affective response to online communities could be far more complicated than what we structure in CWT. Zhang (2013) proposes the affective response model to classify affective concepts in the information and communication technology (ICT) context from five dimensions – the residing, the temporal, the particular/general stimulus, the object/behavior stimulus, and the process/outcome dimensions. When we take a closer look at the object/behavior stimulus and the process/outcome dimensions in Zhang (2013) affective response model, it is possible to match the sources of cognitive dissonance (i.e., collective efficacy, common bond, common identity, community structure, and technology affordance) with the changes in different types of emotion (e.g., process-based emotion toward a particular object, outcome-based emotion toward behaviors on a particular object). A similar limitation involves the emotional change-contributor withdrawal relationship. We mainly focus on the effects of change in emotional valence and in emotional arousal on contributor withdrawal as a whole. Given the three typical behavioral representations of contributor withdrawal, we suggest that future research conducts an in-depth examination of relationships between different types of emotional change and different types of contributor withdrawal behavior.

Finally, when it comes to testing the proposed theoretical model empirically, we further discuss the research design and measurement issue. The core of CWT is the dynamic perspective to investigate changes in contributors’ cognitions, emotions, and behaviors. Such within-individual variances can be studied by both the quantitative approach (e.g., survey) and the qualitative approach (e.g., case study). Regardless of the research approach used, the shift of behavioral patterns is the key phenomenon to capture. Given the time-dependent nature of CWT’s three components (i.e.,
cognitive dissonance, emotional change, and contributor withdrawal), longitudinal observations would be more appropriate than cross-sectional retrospections. The dynamic perspective also implies that the operationalization of the focal construct should reflect its changes or differences across different time periods. A prevalent way to measure such dynamics is to use difference scores directly from respondent’s mental difference calculations or indirectly from algebraic calculations between two separately-measured scores (Lee & Gallivan, 2011; Parasuraman et al., 1994). We suggest that changes in contributors’ cognitions, emotions, and behaviors be measured by multi-wave quantitative observations in longitudinal studies or contributors’ explicit qualitative responses indicating such changes. There are also approaches to operationalizing change in the extant literature, such as the latent growth modeling (Lance et al., 2000; Rogosa et al., 1982).

**CONCLUSION**

We have developed CWT to explain contributors’ removing themselves from online communities. In line with employee withdrawal from the workplace, we conceptualize contributor withdrawal from online communities by distinguishing the similarity and difference of individual withdrawal behaviors between these two contexts. Drawing upon AET, we delve into cognitive, affective and behavioral components revolving around contributor withdrawal from online communities. Underlining the dynamic nature of withdrawal behavior, we propose that changes in, rather than final (or average) states of, contributors’ cognition and emotion are the distal and proximal antecedents of contributor withdrawal. We also provide a typology of cognitive dissonance towards online communities to examine change in contributor’s cognitions, and a structure of emotional change to capture contributors’ emotional fluctuations. Although the proposed cognitive dissonance typology and emotional change structure are not the only approach to study changes in contributors’ cognitions and emotions, we hope that this study initiates a call for more attention to the sustainability of online communities from a dynamic perspective. We further discuss CWT’s theoretical contributions and practical implications, as well as its limitations. Future research is expected to empirically test the theory and to advance the methods required to test it.

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