

**Rethinking Conscientiousness:
Construction of Team Conscientiousness as Team Shared Values, Norms, and Identity**

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Abstract

This paper proposes that team conscientiousness exists as a team-level construct with four dimensions and three levels of manifestation. Team conscientiousness consists of orderliness with resources, dependability in commitments, diligence with tasks, and consistency in behaviors. It manifests itself in three levels in the team context as team shared values, norms, and identity. Shared conscientious values summarize team members' agreement on how things should be done within the team; conscientious norms denote what kinds of behaviors can be expected from team members; and a conscientious team identity ensures that members will follow team norms and exert themselves on behalf of the team. Team conscientiousness is theoretically constructed by specifying which dimensions of shared values, norms, and identity make a team a conscientious one. Methods to operationalize team conscientiousness and a sample measure are also proposed.

Keywords: Team, conscientiousness, values, norms, identity, measurement

Introduction

Growing interests in team research and applications have given rise to a number of team level constructs being developed over the past two decades. In order to understand how teams are effective and why some are more so than others, researchers from a wide variety of disciplines have tried to identify team characteristics that contribute to team performance (e.g. Edmondson, 1999; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Klimoski & Mohammed, 1994). This process, however, proves to be strenuous and difficult both conceptually and operationally. Individual characteristics, such as personality, values, and beliefs, have been well studied and documented, but when individuals are put together into a work team, it is unclear if there is any unique characteristic that can represent the team as a whole, not to mention defining what it is and how it can be measured.

At the individual level, conscientiousness has long been credited to be an important predictor of performance. Conscientiousness is associated with being careful, thorough, responsible, organized, hardworking, achievement-oriented, and persevering (Barrick & Mount, 1991; Mount & Barrick, 1995). On the one hand, it has been shown to have significant positive correlation with goal settings, goal commitment, sales, and supervisors' ratings for sales representatives (Barrick, Mount, & Strauss, 1993). Of the Big Five personality traits (openness to experience, conscientiousness, emotional stability, agreeableness, and extraversion), it is the single strongest and most consistent predictor of individual performance across all professions (Barrick & Mount, 1991). On the other hand, even though research on team composition has increasingly examined conscientiousness (Barrick & Mount, 2005; Harrison, Price, Gavin, & Florey, 2002), it has neither been

conceptualized nor operationalized as a team level characteristic. As an individual construct aggregated at the team level, conscientiousness' significant positive (Barrick et al., 1998), negative (LePine, Hollenbeck, Ilgen, & Hedlund, 1997), and null (Barry & Stewart, 1997) effects on team performance have all been reported.

This paper aims to be a theoretically driven construction of "team conscientiousness" as a team level construct that can be used to characterize a team. Looking at the current literature on conscientiousness, this paper will point out the gaps in both the conceptualization and operationalization of conscientiousness at the team level, and the need for and existence of team conscientiousness. The components of conscientiousness, which have remained ambiguous to this day, will also be clarified. Most importantly, this paper will construct team conscientiousness as embedded in team shared values, norms, and identity. Which aspects of values, norms, and identity could be identified as team conscientiousness will be specified; and a sample scale to measure team conscientiousness will be developed.

Existence of Team Conscientiousness

The Need for a Team Construct

As the most widely studied among the Big Five personality traits, at the individual level, conscientiousness has shown positive correlation with goal commitment and sales performance (Barrick, Mount, & Strauss, 1993; Barrick, Stewart, & Piotrowski, 2002), test performance (Biderman, Nguyen, & Sebren, 2007), goal intention (Conner & Abraham, 2001), motivation to learn (Colquitt & Simmering, 1998), and job satisfaction (Judge, Heller, & Mount, 2002). It was shown to moderate the relationship between behavioral intention and behavior (Ajzen, Czasch, & Flood, 2009; Conner, Rodgers, & Murray, 2007; Rhodes,

Courneya, & Jones, 2005); it also predicts involuntary turnover (Barrick, Mount, & Strauss, 1994), voluntary turnovers, and supervisory ratings of performance (Barrick & Mount, 1996). Dunn, Mount, Barrick, and Ones (1995) investigated eighty-four managers' hiring decisions and found that conscientiousness, along with general mental ability, were the two attributes most strongly related to job applicants' hirability. Two meta-analytic reviews done ten years apart by Barrick, Mount, and colleagues have concluded that, out of the Big Five, conscientiousness is the single most consistent predictor of individual job performance across all professions (Barrick & Mount, 1991; Barrick, Mount, & Judge, 2001).

Nevertheless, at the team level, empirical findings in the past couple of decades have been largely inconsistent. On the one hand, some studies have found conscientiousness to positively relate to team processes such as workload sharing and team communication (Afolabi & Ehigie, 2005), and team performance when team conscientiousness is aggregated as the mean (Barrick, Stewart, Neubert, & Mount, 1998). On the other hand, team conscientiousness operationalized as the minimum individual score was found to negatively correlate with team conflict (Barrick et al., 1998). At the same time, other studies have found mixed effects of conscientiousness at the team level (Harrison, Price, Gavin, & Florey, 2002). Newman, Wagner, and Christiansen (1999) found no relationship between mean level of team conscientiousness and team performance; and Barry and Stewart (1997) suggested that conscientiousness is unrelated to all team processes and outcomes.

A compelling reason explaining this equivocal state of literature is the method in which conscientiousness has been operationalized at the team level. Studies examining the effects of conscientiousness on team performance have typically collected data at the

individual level and then aggregated the individual data to generate a team level measurement (English, Griffith, & Steelman, 2004). This aggregation is often acquired by taking the mean of team members' individual scores, or by selecting one team member's score to represent the whole team, when the team member being selected is usually the team leader, or the one with highest or lowest individual conscientiousness score (Newman & Wright, 1999). Most notably, Barrick et. al (1998) noted that there were significant differences and implications among different aggregation methods. They operationalized team conscientiousness as team mean, variance, maximum, and minimum, and showed interesting results: team conscientiousness had significant positive correlations with team performance when measured as mean or minimum, but had a significant negative correlation with team performance when measured as variance. In other words, higher *level* of conscientiousness within a team contributed to higher performance, but higher *variance* in members' conscientiousness inhibited team performance. Team conscientiousness as maximum had no relationship with team performance. Drawing from these intriguing findings, Barrick and his colleagues thus suggested that researchers had to carefully consider how conscientiousness was conceptualized before deciding how it would be best operationalized.

Another reason that contributes to the mixed effects of conscientiousness at the team level is a conceptual problem. At the individual level, personality traits are conceptualized as neuropsychic structures that predispose behaviors (Allport, 1937); in other words, if someone is conscientious he will behave in a conscientious manner. At the team level, however, what does it mean for a team to be conscientious? What does it mean for a team to behave conscientiously? No answer to these questions has ever been given. Clearly, neither

the “average” behavior nor the variance in behavior of all team members contributes any meaning to behaviors of the team as a whole. In that regard, past research has failed to conceptualize conscientiousness as a team level construct, one that captures the characteristic of the team as a united entity and a unit of analysis.

In team settings, members are interdependent; that is, they always have to interact and cooperate in order to get the task done. It is this very interdependence among all team members that undermines the importance of individual traits and challenges aggregation methods. Even though the team is composed of many members, it operates as one united entity. I propose that conscientiousness as a team construct is more than just the aggregation of individual team member’s conscientiousness. It reflects a complicated and interactive dynamic, inherent within the context of the team, which occurs among team members and creates a characteristic of the team as a whole instead of a collection of individuals. While the construct itself is based on individual member’s perceptions, personalities, and behaviors, it is more than just the sum of such individual properties (English, Griffith, & Steelman, 2004). It is a team level phenomenon (Klimoski & Mohammed, 1994).

Proposition 1: In team contexts, conscientiousness should be conceptualized and operationalized as a team characteristic rather than as an aggregation of individual characteristics.

Conscientiousness Definition Clarified

Despite its significance in the literature, conscientiousness is the trait hardest to define among the Big Five because it includes so many different facets. Conscientiousness, by definition, consists of a lot of traits that are desirable for success in any job settings,

which is perhaps the precise reason why it so strongly predicts individual performance (Barrick & Mount, 1991). Indeed, any employer would want to hire someone who is careful, thorough, responsible, organized, and hardworking in his/her work. Digman's (1990) review pointed out that conscientiousness, "both as a scale in research and in its dictionary definition, is ambiguous" (p. 424), and surprisingly the ambiguity exists even until now.

Over the years, conscientiousness' variety of names include Conformity or Dependability (e.g. Fiske, 1949; Hogan, 1983), Will to Achieve or Will (e.g. Digman, 1989, 1990; Smith, 1967; Wiggins, Blackburn, & Hackman, 1969), and Work (e.g. Peabody & Goldberg, 1989). Facets of conscientiousness include being careful, dependable, thorough, responsible, organized, planful, hardworking, achievement-oriented, persevering, and persistent (Barrick & Mount, 1991; Barrick, Mount, & Strauss, 1993; Costa & McCrae, 1992). The most widely used scales to measure conscientiousness, the NEO-PI-R and its later revision, the NEO-PI-3 (Costa & McCrae, 1992; McCrae, Costa, & Martin, 2005) divide conscientiousness into six facets: competence (e.g. "I am efficient and effective at my work."), order (e.g. "I keep my belongings neat and clean."), dutifulness (e.g. "When I make a commitment, I can always be counted on to follow through."), achievement striving (e.g. "I strive to achieve all I can."), self-discipline (e.g. "I'm pretty good about pacing myself so as to get things done on time."), and deliberation (e.g. "I think things through before coming to a decision."). A detailed summary of conscientiousness is included in Table 1.

 Insert Table 1 about here

Per the descriptions provided in Table 1, the main themes in various definitions of conscientiousness are responsibility, perseverance, dependability, diligence, order, well-organizedness, competence,¹ and achievement-orientation. I believe that competence, or the perceived ability to be effective, should be excluded from the facets of conscientiousness. Since conscientiousness predicts performance effectiveness, to include competence means that the ability to be effective predicts effectiveness, which is self-defined in and of itself. In this case, it would be more meaningful to include perceived competence as one of the many performance criteria (e.g. a dependent variable) than as a performance predictor (e.g. an independent variable).

Additionally, achievement-orientation should also be excluded, because it represents a motive. A motive, or a motivation drive, is a recurrent concern for goals (McClelland, 1971). It is not a trait, which is a relatively stable, generalized response to events (Boyatzis, 1982). Traits are thought to affect performance through motivational components (Barrick & Mount, 2005); therefore, a motive should not be considered as a part of a trait, but as a separate construct.²

With these two exceptions, in an effort to keep the themes in the existing definitions of conscientiousness, I propose that conscientiousness consists of four facets: orderliness, dependability, diligence, and behavioral consistency. These four facets more or less capture the main themes in Table 1, with minor reframing.

¹ Competence is not an outstanding theme in the table, but since it is included as one facet of conscientiousness in the most widely used personality scale, the NEO-PI-R, it deserves some attention and explanation.

² For a detailed explanation of how a motive differs from a trait, see Boyatzis (1982), p. 28-29.

Orderliness is synonymous with being well-organized, neat, and planful. It is meant to include good organization in terms of both physical objects (e.g. belongings) and non-physical resources (e.g. information, plan, schedule). For example, an orderly person would keep his belongings in order (neat), know where resources are located (well-organized), and have a clear sense of what his schedule looks like (planful). This facet is termed “orderliness” for the ease of nomenclature and avoiding creating nouns (well-organizedness) from adjectives (well-organized).

The second facet, dependability, is equivalent to components such as responsibility, reliability (in Table 1), self-discipline, and dutifulness (in the NEO-PI-R). Responsibility, reliability, and dutifulness all refer to the ability to be accountable for commitments; in other words, to be dependable. As for “self-discipline,” items measuring this facet in the NEO-PI-R include “I’m pretty good about pacing myself so as to get things done on time” and “Once I start a project, I almost always finish it” (McCrae, Costa, & Martins, 2005). It is clear from these items that while the label appears unrelated to dependability, this self-discipline facet actually measures the same thing; that is, the ability to fulfill obligations, hence dependability.

The third facet, diligence, includes the labels of deliberation, persistence, scrupulousness, and perseverance. The dictionary definition of “diligence” includes attentiveness, carefulness, earnest and persistent application to an undertaking, and steady effort (“diligence,” n.d.). This definition captures the facets of persistence, perseverance, which refer to a lasting tenacity, and scrupulousness, which refers to precise attention to details. Similarly, the deliberation facet also denotes careful and thorough consideration at work, reflected in questionnaire items such as “I think things through before coming to a

decision” and “I always consider the consequences before I take action” (McCrae, Costa, & Martins, 2005).

Lastly, the fourth facet, behavioral consistency, is an important but generally implied theme of conscientiousness. As demonstrated in Table 1, a theme that emerges in most of the definitions of conscientiousness is one of an individual’s reliability. The typical items have been grouped under what I call dependability, but some of them allude to the likelihood that a person will act in a consistent or similar way in various settings at various times. This seems to be different than their likelihood of keeping promises (i.e., being dependable). For example, a person may be perceived to be reliable because his behaviors are consistent. Therefore, his teammates can expect certain things from him, and not just because he fulfills his responsibilities. This distinction between consistency and dependability is further emphasized in the team setting due to its unique interdependent characteristic. The desire to capture conscientiousness as it appears in team calls for the need to address behavioral consistency across time, settings, and internally.

In this section I have clarified the definition of conscientiousness to include four facets: orderliness, dependability, diligence, and behavioral consistency. This definition will be used from here on throughout the paper.

What is Team Conscientiousness?

A team is described as a group of individuals working interdependently in order to achieve a common goal (Sundstrom, de Meuse, & Futrell, 1990).³ Over the years, there have

³ Even though there are researchers that distinguish the two concepts of work “group” and “team” (e.g. see Klimoski & Mohammed, 1994), in this paper the two terms are used interchangeably.

been a large number of models designed to study how teams work, but still little is learned about what teamwork really is (Lembke & Wilson, 1998). In a now-classic article, Donald Campbell (1958) developed criteria to evaluate the degree to which a team or a social group can be legitimately described as an entity, instead of just an aggregation of persons. He termed this characteristic “entitativity,” or “the degree of having the nature of an entity, of having real existence” (Campbell, 1958, p. 17). Recently, more researchers have attempted to develop team constructs such as team mental model (Klimoski & Mohammed, 1994), team psychological safety (Edmondson, 1999), and team identity (Eckel & Grossman, 2005), which are all focused on the team as the unit of analysis. These researchers unanimously agreed that team level phenomena need to capture the team as a whole and not as a number of individuals. When team members are gathered together, there seems to be more to the team than the combined knowledge, skills, and abilities (KSA’s) of individual members; there is a collective sense being developed that enhances (or hinders) the experience of each member of the team (Bion, 1959; Lembke & Wilson, 1998).

As individual conscientiousness is a neuropsychic structure that predisposes individual conscientious behavior (Allport, 1937), team conscientiousness would be a team characteristic that guides team behavior to be conscientious. Therefore, it should be a part of the team design that contributes to conscientious behavior, and ultimately, enhances team performance. Hackman (1987) provided a normative model of team effectiveness in which appropriate structure, composition, and norms were highlighted. On the same note, Lembke & Wilson (1998) recommended that effective teamwork requires team members to recognize the team as a united entity with common goals, values, and norms, and team members have

to identify with the team. Following these suggestions, I propose that team conscientiousness manifests itself at three levels of team characteristics that guide team behavior: team shared values, norms, and identity. The explanation is made in details in the following section.

Proposition 2a: Conscientiousness is a team characteristic that manifests itself as a part of team shared values, norms, and identity.

Conceptualization of Team Conscientiousness

As Team Shared Values

“Values” is a core concept at the heart of social behaviors. Rokeach (1973) defined values as relatively stable standards that influenced conducts by evaluating and justifying other beliefs, attitudes, and behaviors. They are internalized beliefs that direct an individual’s manners and thus can be used to describe, explain, and predict an individual’s actions in certain settings (Caldwell & O’Reilly, 1990). Bell (2007) again confirmed that values are potentially useful predictors of individual and team performance in work contexts. Schwartz (1994) summarized values as “guiding principles in the life of a person or other social entity” (p. 21), thus broadened the scope of values from the individual level to upper levels, such as team and organizational.

Cultural anthropologists have long emphasized the importance of values in shared social settings through what they call the “value orientation profile” that exists in and is unique to each and every social group. They argue that a group’s value orientation profile, or the salient beliefs in that group, is not the matter of individual values or personalities, but the

shared values formed by group culture that are generalizable across the group (Kluckhohn, 1953). Broadly speaking, this common profile is created when a society or a human group make selections among many value orientations available, resulting in some orientations being dominant and some deviant (Kluckhohn, 1953). Values are products of the culture of the group, and consequently influence the norms, or rules of behavior, in that culture (Bateson, 1944).

In team settings, shared values are defined as expressed organizational choices that are reinforced within organizational context (O'Reilly, Chatman, & Caldwell, 1991). They are agreements on individual preferences of behaviors and outcomes that should exist and should be expected in the team-work setting (Glew, 2009). Having clear, explicit shared values help unite the team as a whole entity with congruent perceptions, interpretations, and expectations about tasks and environments (Cannon-Bowers & Salas, 2001), and make the team the focal unit of analysis. Shared values are crucial to any work team, even if they are not explicitly communicated, and some shared values are more salient in team contexts than others (Dose, 1999).

For a team to be considered conscientious, its shared values certainly need to reflect the qualities of conscientiousness: orderliness, dependability, diligence, and behavioral consistency. Team members agree among themselves that these are the ways tasks should be done. These shared values could be developed through the strong interdependence embedded in the team context, in which conscientious values appear salient to team members and make it likely for team members to behave congruently and conscientiously (Triandis, 1998). As internalized beliefs, these conscientious values are shown as either

implicit or explicit agreements within the team that can be observed through externalized behaviors.

Specifically, a conscientious team values orderliness with regards to resources, whether they are physical belongings or information and schedules. This value can be seen through examples such as members are organized with their personal belongings, and systematic in information processing. Additionally, a conscientious team highly values dependability. The team is clear in designating individual responsibilities and expects them to be fulfilled. Within the team, team members agree to be accountable for their individual designated tasks, meet their goals, follow through with commitments, and deliver on promises. A conscientious team also values diligence, which implies that team members are willing to work as hard as they can to accomplish their tasks. They appreciate hard work, carefulness, and thoroughness, and good efforts. They also value consistency in behaviors so as to make sure each member's area of responsibility is accounted for. Since values inherently imply consistency in behaviors (Rokeach, 1973), we can expect not only dependable individual conducts, but also a high degree of conformity regarding these aforementioned qualities across a conscientious team.

Proposition 2b: Team conscientiousness appears as team shared values that reflect orderliness, dependability, diligence, and behavioral consistency.

As Team Norms

Early social researchers usually defined norms broadly in terms of social norms, meaning "customs, traditions, standards, rules, values, fashions, and all other criteria of

conduct which are standardized as a consequence of the contact of individuals" (Sherif, 1936, p. 3). Jackson (1965) defined team norms as structural features of a team that reflected team members' consensus on whether or not certain behaviors were appropriate. Similarly, Raven and Rubin (1976) defined norms as "standards against which the person can evaluate the appropriateness of behavior... providing order and meaning to what otherwise might be seen as an ambiguous, uncertain, or perhaps threatening situation" (p. 314). In their classic study on the emergence of norms in competitive decision-making teams, Bettenhausen and Murnighan (1985) considered norms to be "the emergence of a generally held, group-based understanding of expected and accepted behavior" (p. 354).

The importance of norms and how norms surface in social groups have also been discussed in terms of group values and group culture. Bateson (1944) argued that all individuals in a social group would have similar experience with regards to the group culture, and thus there would be certain psychological resemblances among them in terms of this common experience. The so-called norms of these groups "are only understandable if we suppose that [certain trends in behaviors] are either present in all individuals [in the group] or in so many individuals that the trends appear as the normal stuff of social life" (Bateson, 1944, p. 721). Together with Rokeach's value definition, this suggestion implies that core values shared by group members are usually elevated into norms that guide members towards uniformity in behavior.

In short, as shared rules of behaviors, norms help simplify team processes because through norms team members learn of which kind of behaviors they should expect and which they should not (Hackman, 1987). As part of his framework on group design,

Hackman (1987) argued that norms were a crucial part of design in the sense that they could improve group effectiveness by encouraging the use of task-appropriate performance strategies. For a team to expect to perform well, team norms need to support explicit assessment of the situation and active experimentation to consider alternative ways to perform, to develop good strategies, and to execute them well. In other words, clear and conscientious norms can be expected to lead to better team performance through enhanced team interaction processes.

When the individual facet of being organized is generalized to the team level and turns into a shared rule of behavior, a team high in conscientiousness would be organized with its schedule, its physical space, its information, and all other resources. By at least having all members being coherent and organized, the team will have an easier time of assessing current situations regarding the task, clear communication, and could come up with good performance strategies or alternatives. A conscientious team is also diligent with its task. Its members work hard and strive to achieve all they can. The team evaluates different situations and options carefully, actively assesses demands and opportunities, and thus supports situation scanning and strategy planning.

A conscientious team would also be consistent in its behavior, and thus dependable. It lives up to its values, delivers on promises, and always follows through with whatever it starts. This is not just the impression that the team gives an outside observer, but having a norm of being consistent and dependable also means that every member of the team is responsible to fulfill his/her part of the obligation. It means there is a consensus within the team that everyone works hard, takes a fair share of the work, and completes it with quality

and promptness. These norms help increase team effectiveness by having all pieces of the task accounted for, thus team members can engage in planning conversation and focus on opportunities, while carrying the team's strategies forward. To sum up, having norms of being organized, dependable, diligent, and consistent is what characterizes a conscientious team.

Proposition 2c: Team conscientiousness appears as team norms such as being well-organized with resources, dependable in commitments, diligent with tasks, and consistent in behaviors.

As Team Identity

At the individual level, social identity and the identification process have been widely studied, most famously in the work of Tajfel and Turner (1979, 1986). When applied in the team setting, this process is called "team identification," defined as a personal, emotional, cognitive, and behavioral bond created between an individual member of the team and the team itself (Henry, Arrow, Carini, 1999). This construct signifies the need of the individual to define oneself and to create a sense of meaning and belonging within the team (Turner, 1985; van Knippenberg & van Schie, 2000). In other words, team identification is an individual level construct that represents the extent to which a team member perceives a sense of "oneness" with the team, or identifies with the team (Gundlach, Zivnuska, & Stoner 2006; Somech, Desivilya, & Lidogoster, 2009).

Bion (1959) has long suggested that this sense of "oneness" in a team makes it something above and beyond the collectives of individuals. Lembke and Wilson (1998) followed that suggestion and built on social identity theory to create a team-level construct

called “team identity,” representing the collective level of identification across the team. Members are said to have a team identity when they cognitively believe they belong to the team, affectively like being in the team, and behaviorally act as a team, a united entity (Henry, Arrow, & Carini, 1999). When members identify themselves with the team, they feel an increasing sense of belonging or “oneness” with the team; they share the values important to the team, want to behave in accordance with the norms of the team, and are more likely to perceive the fate of the team as their own (Ashforth and Mael, 1989).

This concept of team identity is crucial to the conceptualization of team conscientiousness as a team level construct. A conscientious team identity being adopted by its members implies that the team and its members see themselves as a well-organized, dependable, diligent, and behaviorally consistent unit. Cognitively, they believe in and appreciate these values; they keep themselves in line with the conscientious identity of the team; and they do not let their personal level of conscientiousness interfere with the group. Emotionally, they feel the need to be perceived conscientiously and pride themselves in being a part of the group that works orderly, responsibly, diligently, and consistently. They feel obligated to maintain the team image as a whole while at the same time maintaining their individual images so that they can feel they belong to the team. Behaviorally, team members hold each other accountable to carry out team values and follow team norms. Each of them has a strong sense to behave conscientiously since each individual member is a part of the team, each member is representative of the team, and an individual failure is the team’s failure. The team becomes the focal unit of analysis, and all contextual factors as well as processes are interpreted with regard to the team, not to any individual member (Hogg &

Abrams, 1988). Team identity is the final piece that glues individual members, common values, and norms together, making the team a whole, united conscientious entity.

Proposition 2d Team conscientiousness appears as a well-organized, dependable, diligent, and behaviorally consistent team identity.

Summary

In this section I have specified the three levels of manifestations of team conscientiousness as team shared values, norms, and identity. Shared conscientious values summarize team members' agreement on the belief that things should be done conscientiously within the team; conscientious norms indicate that team members expects conscientious behaviors from one another; and a conscientious team identity ensures that members will follow team norms conscientiously and exert themselves on behalf of the team (e.g. Haslam, 2001; Wegge & Haslam, 2003). It is with this conscientious identity that the team presents itself to and interacts with the external environments and contexts. The more team members identify with the team, "the more likely they are to believe they hold similar goals, values, and norms, and the more willing they will be to cooperate and work together" (Eckel & Grossman, 2005, p. 373). These three levels of values, norms, and identity support and reinforce one another, creating a team characteristic that guides team processes and behaviors. A summary of three levels and four dimensions of team conscientiousness can be found in Table 2; a visual representation of team conscientiousness is also presented in Figure 1.

Insert Table 2 and Figure 1 about here

Operationalization of Team Conscientiousness

If team conscientiousness is a team characteristic, it should be measured via a rigorous psychometric scale. Similar to individual personality traits, team conscientiousness could be high in some teams and low in others; similar to how a conscientiousness trait is used to characterize a person, team conscientiousness is a distinctive attribute that can be used to characterize a team. Furthermore, team conscientiousness is a team-level construct rooted from individual perceptions, beliefs, and behaviors, the measure for team conscientiousness should be a team-referent measure that reflects shared perceptions of team members (English, Griffith, & Steelman, 2004; Klimoski & Mohammed, 1994). The strength of team conscientiousness, then, is a function of the pervasiveness in which team conscientiousness manifests itself across team values, norms, and identity; in other words, the degree to which team values, norms, and identity reflect the qualities of conscientiousness.

In developing psychometric scales, there are generally two different approaches: the theory-driven approach (construct-oriented) and the empirical approach (criterion-referenced) (Nunnally & Bernstein, 1994). The main difference between the two approaches is whether the construct being measured is specified before (theory-driven approach) or after (empirical approach) the scale is developed (Hanges & Dickson, 2004). Even though many personality inventories have been developed using the latter (e.g. the NEO-PI-R, Costa &

McCrae, 1992), this paper aims to be a theory-driven construction of team conscientiousness, thus the former will be adopted.

With the theory-driven (construct-oriented) approach, the target construct is specified before any items are written (Hanges & Dickson, 2004). First, the scale developer needs to specify the nature of the construct, its boundary conditions, target population, and any potential biases that could affect the scale; then statistical analyses, such as confirmatory factor analysis, reliability and generalizability analysis, will be performed to confirm the theoretical structure of the scale (Nunnally & Bernstein, 1994). Because of the a priori nature of this operationalization section, I will only denote the nature of team conscientiousness and the item generation process. A study to validate this team conscientiousness scale will be conducted and discussed in a later paper.

Proposition 3a: Team conscientiousness can be measured by a psychometric scale that reflects shared perceptions of team members.

Proposition 3b: The strength of team conscientiousness is a function of the pervasiveness of team conscientiousness across team values, norms, and identity.

Construct Specification

I propose that team conscientiousness is a team-referent construct, and what multilevel researchers call convergent-emergent construct (Kozlowski & Klein, 2000). It is convergent because responses from different members of the same team should all refer to and center on a common value, that of a team characteristic (conscientiousness). Research has shown that convergence usually occurs when respondents are asked to describe aspects

common to all, such as organizational culture or climate (James & Jones, 1974). At the same time, team conscientiousness is also an emergent construct because it is a phenomenon that exists at a higher level of analysis (team) but not a lower level of analysis (individual) (Kozlowski & Klein, 2000). Generally, emergent phenomena root in the “cognition, affect, behavior, or other characteristics of individuals” (Kozlowski & Klein, 2000, p. 55), but are transformed into higher level phenomena (e.g. team potency and organizational culture) through team processes such as communication and emotional exchange (Hanges & Dickson, 2006). Specifically, even though team conscientiousness is based on individual members’ perceptions, personalities, and behaviors, it reflects a unique set of team values, norms, and identity that is beyond any individual contribution and focuses on the team as the unit of analysis.

Conceptualizing team conscientiousness as a convergent-emergent construct has several implications on its operationalization. Because of team conscientiousness’ convergent nature, it will be operationalized by taking the weighted average of team members’ responses, with the weight being the in-degree centrality of each member in the team. By using centrality as the weight, I am suggesting that members with different degrees of centrality have different influence on, and thus different perception of, how pervasive conscientiousness is reflected in the team’s values, norms, and identity. While variance in individual scores is also a meaningful measurement, it reflects the variation in individual perspectives about the team, rather than the degree to which conscientiousness is reflected throughout team values, norms, and identity. For example, suppose there are two teams with the same weighted average score in team conscientiousness, but the variance in individual

scores in team A is larger than team B. In this case, team A and team B both have the same level of team conscientiousness (“trait”), even though there is higher degree of member agreement in team B than in team A. This variance in member agreement may be explained by something else, for instance, team B might have higher entitativity than team A, or the values and norms in team B might be more explicitly stated.

Item Generation

A total of 117 team conscientiousness items were originally written, adopted from well-known psychometric scales: the NEO-PI-3 (McCrae, Costa, & Martins, 2005), the International Personality Item Pool (Goldberg, 1999), and the Behavioral Integrity scale (Simons, Friedman, Liu, & Parks, 2007). First, items were transformed from individual level statements into team level statements. In this first step, the main changes were subjects of the items, and most items were rewritten in two forms: one using “the team” as the subject, and other using “team members.” An example of such transformation follows: The item “Sometimes I’m not as dependable or reliable as I should be ^R” in the NEO-PI-3 was rewritten into two different items: “Sometimes the team is not as reliable as it should be ^R” and “Sometimes team members are not as reliable as they should be ^R.” Since team conscientiousness is intended to be constructed with the team as the focal unit of analysis, it is crucial that respondents think about the team as a whole entity instead of a collection of individuals. As a result, items with “the team” as subjects were kept, and most items with “team members” as subjects were preliminarily eliminated.

The second round of elimination began with excluding all items from the “competence” and “achievement-striving” subscales of conscientiousness. In accordance

with the rationale specified earlier in this paper, the remaining items were then reorganized under the four dimensions of team conscientiousness—orderliness, dependability, diligence, and behavioral consistency. Repetitive items, such as “The team is committed to its values” in the NEO-PI-3 and “The team is committed to its norms and shared values” in the Behavioral Integrity scale, are merged into one item. Items with bad wordings, such as “the team ignores a lot of silly little rules ^R,” rewritten from the NEO-PI-3’s “I ignore a lot of silly little rules ^R,” are deleted. In this process, the author also added three items to capture the agenda and schedule aspect of conscientiousness. The rationale for this addition was that the agenda or team meetings are shared schedule for the team as a whole, and that sticking to its agenda is an important behavioral indication of team conscientiousness, which does not necessarily show at the individual level. An example of such items is “Team meetings start at the scheduled time.” In the end, 48 unpolished items under four subscales are left, as illustrated in Table 3.

Insert Table 3 about here

Limitations and Future Research Directions

This paper is a first step in establishing team conscientiousness as a construct; thus it inevitably has many limitations. First, this paper adopts trait theory and conceptualizes team conscientiousness as a team characteristic, the team level equivalence of a personality trait. Therefore, it exposes itself to criticism from critics of trait theory (e.g. Mischel & Shoda, 1995). Second, the measurement items proposed in this paper are still unrefined and have yet

to be tested with any kind of empirical test. These sample items are presented here for illustration only. Third, despite this paper being a theoretically driven construction of conscientiousness, the approach it took (via manifestations in team values, norms, and identity) is only one way to tackle the problem. There are many other approaches that can be taken, for example, conceptualizing team conscientiousness as a dynamic system or as a mental model, thus additional conceptual and empirical work needs to be done in order to refine and extend the construct before any actual conclusions can be drawn about team conscientiousness.

It is my intention to conduct further experiments and quasi-experimental studies in the future to refine and validate the team conscientiousness scale proposed in this paper. The validation of the construct will be more robust if coupled with significant correlations with other team processes (e.g. team communication, team cohesion) and team performance (e.g. team effectiveness, team efficiency). Furthermore, an alternative approach to develop team conscientiousness items, writing the items from components of shared values, norms, & identity, will be tested out.

Conclusion

The problem of operationalizing individual level constructs at team or higher levels of analysis holds true for not only conscientiousness but also many other constructs. Even though multilevel theories and methods have been developed vigorously in terms of both quantity and quality, it is about time we move on from such compromises. This paper presented “team conscientiousness” as a team level construct with four components and three levels of manifestation. Though it is only one way to construct a team measurement

through theoretically driven conceptualization and operationalization method, it is the first step towards a new venue that will become increasingly relevant and important for team research and management practice alike.

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Table 1

Names and Components of Conscientiousness

Author(s)	Name	Components
Barrick & Mount (1993)	Conscientiousness	Responsible, dependable, persistent, achievement-oriented
Costa & McCrae (1992)	Conscientiousness	Scrupulous, well-organized, diligent, competent
Digman (1989)	Will	Neat, orderly, planful, persistent, responsible, careful
Fiske (1949)	Conscientiousness ^a	Careful, motivated, upright
Gough (1957, 2000)	Responsibility	Dependability, conscientiousness, reliability
Norman (1963)	Conscientiousness	Fussy, responsible, scrupulous, persevering
Peabody & Goldberg (1989)	Conscientiousness	Achievement, practicalness, order, and deliberation
Simons (2007)	Behavioral integrity ^b	Consistency, alignment between value and behavior
Tupes & Christal (1961)	Dependability ^c	Orderliness, responsibility, conscientiousness, perseverance, conventionality

^a Conscientiousness did not load as a recurrent factor in this study, but as a facet of what Fiske called “Conformity.” In a later re-analysis by Digman & Takemoto-Chock (1981), however, it was shown to be a separate recurrent factor and named “Will to achieve” (Digman, 1990).

^b For reasons explained below, Tony Simons’ behavioral integrity measure is included to assess a facet of conscientiousness.

^c Tupes and Christal (1961) noted that this factor was similar to what Fiske (1949) labeled “Conformity,” which included conscientiousness, readiness to cooperate, seriousness, and trustfulness.

Table 2

Three Levels & Four Dimensions of Team Conscientiousness

Team Conscientiousness	
Three Levels	Four Dimensions
<ul style="list-style-type: none"> • Team Shared Values (internalized beliefs and agreements that things should be done conscientiously) • Team Norms (rules of conscientious behaviors within the team) • Team Identity (pride in belonging to a conscientious team and obligation to maintain the team's conscientious identity) 	<ul style="list-style-type: none"> • Orderliness with resources • Dependability in commitments • Diligence with tasks • Consistency in behaviors



Figure 1. Team conscientiousness with its three levels and four dimensions.

Table 3

Sample Team Conscientiousness Items

Orderliness
1. <u>Team meetings have a clear agenda.</u>
2. The team is often disorganized. (R)
3. The team is well-organized.
4. The team makes an effort to clean its shared space.
5. The team typically carries out its task in an orderly manner.
6. The team's shared physical space is messy. (R)
7. The team's shared physical space is orderly.
8. There is a clear distinction among each team member's work area or personal space.
Dependability
9. Once the team starts a project, it finishes it.
10. Sometimes the team is not as reliable as it should be. (R)
11. <u>Team meetings start at the scheduled time.</u>
12. Team members can be counted on to fulfill commitments.
13. <i>Team members do what they say they will do.</i>
14. <u>Team members show up on time for meetings.</u>
15. The team always gets the job done.
16. <i>The team delivers on promises.</i>
17. The team finds it difficult to get down to work. (R)

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18. **The team finishes what it starts.**
 19. **The team follows through with its plans.**
 20. The team fulfills its commitments responsibly.
 21. **The team fulfills its duties.**
 22. The team is good at dividing the work so as to get things done on time.
 23. The team is good at pacing itself.
 24. **The team leaves things unfinished. (R)**
 25. **The team makes plans and sticks to them.**
 26. The team tries to perform all of its tasks reliably.
 27. The team tries to perform all of its tasks responsibly.
 28. The team wastes a lot of time before settling down to work. (R)
 29. **The team wastes its time. (R)**
 30. *When the team commits to a goal, it achieves it.*
 31. When the team makes a commitment, it can be counted on to follow through.

Diligence

32. Occasionally the team acts first and discusses it later. (R)
 33. The team always considers the consequences before taking action.
 34. **The team does not pay attention to the task at hand. (R)**
 35. The team evaluates things carefully before making a decision.
 36. **The team is always prepared.**
 37. **The team needs a push to get started. (R)**
-

38. The team pays close attention to details.

39. The team rarely makes hasty decisions.

40. The team tries to do jobs carefully.

Behavioral Consistency

41. *The team is committed to its norms and shared values.*

42. The team is very specific about how jobs should be done.

43. *The team lives its values.*

44. The team reacts negatively when anyone violates its norms.

45. The team strictly follows its norms and values.

46. The team tries to perform all of its tasks consistently.

47. *The team's priorities are consistent with its values.*

48. *The team's words and actions are consistent.*

Legends:

- NEO-PI-3 (McCrae, Costa, & Martin, 2004)
- *Behavioral Integrity Scale (Simons, 2000)*
- **IPIP (Goldberg, 1982)**
- New items written by the author