Validation of a Situational Judgment Test Measuring Teamwork Processes

by

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ABSTRACT

As teams have become ubiquitous in the workplace, researchers have sought to maximize their performance by examining the nature and actions of teams. Consideration has been given to the development of instruments designed for team selection and development. This study seeks to continue this aspect of team-research as it attempts to validate a situational judgment test (SJT) that measures teamwork processes.

Based upon Marks, Mathieu, and Zaccaro's (2001) taxonomy of teamwork processes, a SJT was developed by graduate students at Middle Tennessee State University. The present study gathered data from undergraduate students in order to establish the reliability and validity for the Teamwork Processes SJT. To establish reliability, data were gathered to measure the instrument's test-retest reliability and internal consistency. Results indicated that the Team work Processes SJT was a stable measure, with homogenous items. Validation attempts were done to establish both convergent and discriminant validity. The Teamwork Processes SJT converged well with another, well-established measure of teamwork. The discriminant validity results indicated that the SJT was not contaminated by measures of personality and general cognitive ability. Overall, the results from this study proved to be promising as the findings suggest that the instrument under scrutiny is a reliable measure of teamwork processes, which captures a construct above and beyond personality and cognitive ability.

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CHAPTER I

Literature Review

Today's organizations face incredible challenges that are brought about by myriad

factors, such as stiffened competition, the dynamic nature of technology, the need to

compete at an international level, and the need to consistently and efficiently meet the

relentless demands of the customer (Salas, DiazGranados, Klein, Burke, Stagl, Goodwin,

& Halpin, 2008; Salas, Stagl, Burke, & Goodwin, 2007). Whether an organization will

drown in the turbulent nature of the modern workplace or skillfully navigate those waters

to success is largely dependent upon its ability to adapt, solve complex problems, and

collaborate effectively (DeChurch & Mesmer-Magnus, 2010). To increase their abilities

of adaptation, problem-solving, and collaboration, organizations have frequently sought

to implement teams, often across all levels of their hierarchical structures (DeChurch &

Mesmer-Magnus, 2010). Due to their prevalent nature throughout many organizations,

teams have become an intense area of study, as researchers seek ways to maximize team-

effectiveness.

Because teams have been heavily studied for nearly 40 years-thanks in part to

Harold Leavitt's (1975) call "to take groups seriously" (p. 67) - there are various defining

characteristics of what exactly constitutes a team. According to these characteristics,

teams are not simply collections of individuals; they are much more than that. A team is a

collection of individuals who shares common goals (Devine & Philips, 2001; Salas et al.,

2008; Salas et al., 2007); who maintain task and/or objective interdependencies in

providing a product, decision, plan, or service (Cohen & Bailey, 1997; Devine, Clayton,

Philips, Dunford, & Melner, 1999; Devine & Philips, 2001; Hirschfeld, Jordan, Feild, Giles, & Armenakis, 2006; Salas et al., 2008; Salas et al., 2007); and who see themselves as integral parts of an entity that shares responsibilities for outcomes and is present within the framework of a larger organizational system (Campion, Papper, & Medsker, 1996; Cohen & Bailey, 1997; Hirschfeld et al., 2006; Salas et al., 2007). Indeed, a team is a collection of people who have been assembled to accomplish something as a group that could not be as easily accomplished with individuals doing the work on their own (Marks, Mathieu, & Zaccaro, 2001).

Knowing the characteristics by which teams are identified is an essential, albeit rudimentary, part of fully understanding teams and their capabilities. To build on the foundational knowledge of teams, the current study will discuss the history and evolution of teams in the workplace; team effectiveness and what it takes to assemble effective teams; the potential positive and negative outcomes of teams; and the processes utilized by team members in accomplishing their work. Once these topics have been established, various tests and measurements for team selection will be considered, leading up to a recently-conceived situational judgment test, whose efficacy and effectiveness this study seeks to validate.

History and Evolution of Teams in the Workplace

Briefly considering the history and evolution of teams in the workplace provides a fascinating insight into some of the basal attributes upon which modern teams were built. After World War II, Japanese manufactures were struggling to overcome perceptions of poor production quality. In the early 1950s, two management consultants

introduced concepts that had not been seen in such organizational arenas prior to this time. William Deming and Joseph Juran, working independently from one another, introduced the idea of giving front-line workers the opportunity to discuss workplace problems and potential solutions in group settings (Gustafson & Kleiner, 1994). These groups, which became known as quality circles, spread throughout the organizations of Japan and helped the Japanese economy find its feet and become a major player in the global market.

Though reluctantly at first, United States organizations in the 1970s slowly began to adopt the practice of quality circles. During this decade, Proctor and Gamble introduced teams that mirrored those found in the Japanese economy. After years of teams being a part of their organization, Proctor and Gamble revealed that the plants wherein teams were found were 30-40 percent more productive that were their non-team counterparts (Gustafson & Kleiner, 1994).

Other companies and organizations began to follow suit, and by the early 1990s, teams in the workplace moved from a nascent trend to an organizational staple. Consider the findings outlined by Devine et al. (1999). According to their research, 74% of organizations in 1987 used problem solving groups. In 1993, just six years later, 91% of those same organizations were using problem solving groups. A similar trend was found in organizational use of self-managed work teams. In 1987, 27% of organizations were utilizing self-managed work teams, compared to 68% in 1993. At the time of its publication in 1999, the Devine et al. publication found that the organizations that had implemented teams managed high amounts of revenue, had intricate organizational

structures, and had large staffs. More than a decade later, teams are still widely used by many organizations. Researchers argue that the use of teams in the workplace is not simply a fad that will eventually grow out of style, but that teams have clearly become permanent fixtures in the design of organizations around the globe (Hollenbeck, DeRue, & Guzzo, 2004; Jex & Britt, 2008; Salas et al., 2007).

The Many Models of Teamwork

As with many organizational trends, the use of teams preceded intensive research in basic and applied settings. In the 1980s and 1990s, however, research began to catch up with the practice, as many researchers began to give teams, teamwork, and team effectiveness the attention that they all deserved. During these years, many models of team effectiveness were developed and studied (Campion, Medsker, & Higgs, 1993; Salas et al., 2007 provides an integrative look at many of these models, focusing specifically on 11 more predominant frameworks). One of the common themes of many of the models of teamwork is found in the input-process-output (IPO) formatting by which they are framed (Marks et al., 2001). The theory behind an IPO model is that if outcomes are to be fully appreciated, manipulated, and predicted, the inputs and processes must first be considered. To gauge whether or not a team has been effective, many models suggested looking at *outputs* such as team satisfaction, performance, or effectiveness ratings. To understand these outputs, IPO models of team-effectiveness require an examination of pre-existing conditions, such as the characteristics of the individual, the team, and the workplace (Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000), acting as *inputs*. The *processes* in team-effectiveness models act as

mediators or moderators linking together the inputs and the outputs. Such processes in team-effectiveness models include communication, effort, and cooperation (Salas et al., 2007). The IPO framework helps to capture the intricacies of teamwork.

To illustrate an IPO model of team-effectiveness, the model introduced by Hackman (1987) is closely examined. In this model, organizational context and group design act as the inputs. Hackman's model emphasizes the importance of organizational factors, such as the reward system, the types of training available, and the accessibility of information. Other inputs in his model include the nature of the task that the team is asked to accomplish, the make-up of the group, and the norms adopted by the group that impact members' behaviors. The three processes that mediate the inputs and the outputs in this model include the effort level that the group brings to accomplish a task; the utilization of knowledge and skills of group members; and strategies employed by the team to accomplish the work.

In his model, Hackman (1987) specifies three outputs that can result from the inputs and the processes. First, the success of a team is largely measured by how well the good or service it produced is evaluated by the customer, the supervising manager, or both. In Hackman's model (1987) this outcome is important because it means that the team performed their initial tasks effectively without incurring any deleterious effects on the team's integrity for future effectiveness. The second outcome is that the team members are able to continue functioning as a team in the future. The last outcome of team effectiveness as identified by Hackman (1987) is the ability for a team to fulfill, rather than frustrate, the individual needs of its members. If the process through which a

team goes to create its product drains the team members and leaves them feeling depleted and disappointed, the individual costs for the product are too high and not worth repeating.

In reviewing the literature regarding team-effectiveness, the present study will follow the general IPO framework. The characteristics of the individuals, the team, and the workplace will be considered as general inputs for assembling effective teams. Both negative and positive outcomes will be outlined as potential outputs generated by the work that the team does. The processes through which the team goes to get to the outcomes will be evaluated last.

How Can an Effective Team Be Assembled?

A great amount of research has been effected by those interested in determining the exact "ingredients" that go into the comprisal of an effective team. Unfortunately, this issue remains rather complex due in large part to the varying contexts in which teams were studied; what worked well for one team in a specific setting did not translate to the teams of another setting (Devine et al., 1999). For example, Salas et al. (2008) report a handful of studies that found that teams with more members were more effective than teams with fewer members. This contradicted other findings mentioned by Salas et al. (2008) which reported the exact opposite. It was concluded in this specific case that the benefits of larger teams are dependent upon the context within which the team operates. This example begins to illustrate the complexities and difficulties that scientists and practitioners face in attempting to provide surefire solutions to the issue of team-assembly.

Though difficulties abound, best-practices have still been found that should be considered in assembling teams. There are specific characteristics of the individuals who are selected to work in teams, such as personality and general mental ability. For the actual team unit, it is important to consider the shared mental models of team members and the interdependencies within the group. Characteristics of the workplace—such as the design of the job, the structure of the organization, and training that is implemented—are factors that should also be further considered. These best-practices, when carefully considered, have the potential to lead to maximized team effectiveness.

Characteristics of the individual. Though teams are often viewed as a singular unit, it is important to remember that it is a unit comprised of individuals; each with his or her own varying personality, preferences, knowledge, and so on. That is why individual characteristics should be considered when trying to assemble an effective team.

General mental ability (GMA) is one such individual indicator that has the potential to affect team performance. GMA has been one of the most studied individual characteristics in the realm of Industrial/Organizational Psychology. After having been examined through many years and after hundreds of studies, it has been shown to be one of the best predictors of job performance at the individual level (Devine & Philips, 2001). Given the cognitive nature of many tasks performed by teams, it would seem intuitive to conclude that individual GMA would be a good predictor of team performance as well. A meta-analysis performed by Devine and Philips (2001) gives backing to this matter of

intuition. Their meta-analysis revealed GMA to be a predictor of team performance across a wide array of job contexts.

Personality is an oft-studied characteristic of an individual in regards to team selection. As has been established, task and social interdependencies are fixtures of teams. With such interdependencies, it is inherently important for team members to be able to engage in behavior that would bolster the social and organizational environment in which the team works (Morgeson, Reider, & Campion, 2005). Certain personality factors have been linked to this type of behavior, known as contextual performance. Morgeson et al. (2005) found that four personality characteristics were linked to contextual performance and could be used in selecting individuals to work in teams: conscientiousness, extraversion, agreeableness, and emotional stability. In a team setting, conscientious individuals will work hard to accomplish team goals and will be more willing to assume any role the team needs filled. An extraverted individual is sociable and therefore able to perform the kind of communication required for effective teamwork. Workers who are agreeable will seek to collaborate, resolve conflict, and remain flexible to the demands faced by teams. Emotional stability allows individuals to be able to handle the type of stress that team members often face due to difficult and complex situations. Morgeson et al. (2005) found that these attributes offered incremental prediction of important team outcomes. While the researchers admitted that more work would be needed to further establish these claims, the results offer an interesting perspective into the kinds of personality factors to consider when assembling individuals to work in teams.

Characteristics of the entity. Though a team is a collection of multiple individuals, it can be viewed as a singular unit or entity, with its own characteristics to be considered for effective performance. Specifically, the shared mental models and interdependencies of the team are important to consider for proper team construction.

As has been previously alluded, a team could be viewed as a singular unit, working to accomplish its own goals and objectives. This singularity is difficult to achieve if individual team members are functioning on his or her own agenda. Team members may be working hard, yet pulling in contrasting directions. A team is effective when members are able to arrive at similar models with which they go about accomplishing the team's objectives.

A common fallacy is that teams function more efficiently if each team member brings to the table a unique view as to how best to accomplish tasks (Hollenbeck et al., 2004). Research has suggested that collective team cognition, in the form of shared mental models, plays an important role in explaining effective team performance (Cohen & Bailey, 1997; DeCurch & Mesmer-Magnus, 2010; Hollenbeck et al., 2004; Mathieu et al., 2000). When an individual develops a mental model, he or she is cognitively organizing explanations, predictions, and relationships of various factors that go into accomplishing a task. This organization allows individuals to understand the environment in which they work and create anticipatory patterns for dealing with events in the future. A team functions efficiently and adaptively when the mental models of its individual members are similar to, or otherwise fit well with, the mental models of an individual's teammates (Mathieu et al., 2000).

Another important characteristic of the actual unit itself is interdependence. In fact, interdependence is such an integral part of team effectiveness that many researchers have included it as part of their definition of "team" (Cohen & Bailey, 1997; Devine & Philips, 2001; Salas et al., 2008). A team that lacks interdependence is nothing more than a group of people, carrying out their own individual goals and tasks (Hollenbeck et al., 2004). Campion et al. (1993) identify three interdependencies found within teams: (1) task interdependence, or the dependence that team members have on their teammates to accomplish the work; (2) goal interdependence, which highlights the need for individual member goals to be connected to the overall goals of the group; and (3) feedback and reward interdependence, which emphasizes the fact that the rewards and feedback individuals receive should help to motivate team-centered behaviors. These researchers found that all three were tied to satisfaction, with feedback and reward interdependence showing the strongest relationship.

Characteristics of the workplace. For teams to be successful, the environment within which teams function must be cooperative and supportive of team purposes and processes. For teams to be successful, managerial support needs to be present within the organization. Managers can impact the types of resources groups are given as well as the overarching climate of the organization (Campion et al., 1993; Campion et al., 1996). When reward systems and organizational structures are put into place to support teams (Cohen & Bailey, 1997; Devine & Philips, 1999), they have a greater chance of flourishing.

One of the characteristics of which an organization has much control, thus leading to greater impact, is training. Salas et al. (2008) sought to learn if team training improves team performance in a recent meta-analysis. What they found was what might be expected when considering the outcomes of training: team-training does act as a feasible intervention to enhance team outcomes. The outcomes in which they specifically saw improvements were cognitive outcomes, affective outcomes, teamwork processes, and performance outcomes.

What are the Potential Outcomes of Teams?

There may be many different outcomes that result from the work done by teams. Generally, existing models of teams have outlined the outcomes, or outputs, of teams in terms of different categories of effectiveness. The degree to which a team was a success or a failure is dependent upon these categorical outputs. As has been mentioned previously, the potential for positive team outcomes is great, which has given organizations incentive to incorporate teams into their work-designs. However, if not done carefully, teams can produce outcomes detrimental to an organization. Both negative and positive outcomes are considered below.

Negative Outcomes. Edward Lawler, after running a survey for The Center for Effective Organizations at the University of Southern California, submitted that "people are very naïve about how easy it is to create a team. [They] are the Ferraris of work design" (Dumaine, 1994, p. 86). The Italian car-company is renowned for making high-performance cars, originally designed for motorsport. They have since manufactured street-legal vehicles, and stand as a symbol of affluence. However, Ferraris come with

both a short- and long-term price. They are expensive upfront and expensive to maintain. The same can be said about teams in the workplace. Many see the high-performance in the processes and outcomes of teams, but fail to consider the short- and long-term expenses that go into forming, training, and maintaining teams.

Three potential negative outcomes of teams were given by Campion et al. (1993). First, teams could experience low productivity. In fact, many teams do initially see a dip in productivity at the onset of team implementation. This can be due in part to the complexities of handling a big change such as moving from working as an individual to having to work interdependently with team members. Second, teams could potentially make poor decisions. Teams that are cohesive run the risk of making decisions seeking the establishment of concurrence, rather than the establishment of the best course of action (Myers, 2008). Last, as with any situation where individuals are grouped together, there is the potential for conflict to arise. This conflict can negatively impact behavioral and affective outcomes of the team and its individual members.

Positive Outcomes. Despite the potential negative outcomes that exist when using teams in the workplace, research has shown again and again that the potential rewards can be worth the risk. Orsburn, Moran, Musselwhite, Zenger, and Perrin (1990) outline six potential benefits that organizations might experience if teams are effectively introduced and maintained. First, effective teams can help the organization experience an increase in productivity. Productivity is not only felt in increased outputs of the product or service being produced, but also in innovation (Leavitt, 1975). Team members are able

to think outside of the box to make creative alternatives to what is produced, how it is produced, and the best ways to distribute the goods and/or services.

Next, when an organization creates teams, it can lead to many work related functions becoming more streamlined (Orsburn et. al., 1990). Teams decrease the number of people that need to be individually supervised, thus assuming many of the functions once held by supervisors, mid-level managers, and others. Though this creates problems such as the attrition of those positions, it can also work to simplify tasks and functions once performed by many individuals.

Third, teams provide a possible solution to the challenge of having to keep up with ever-changing market demands. Teams allow companies as a whole to respond quickly to the demands of their global customers, as well as the ability to keep up with or create new technologies (Orsburn et al., 1990). This type of organizational flexibility is attributed to the nature of teams.

The fourth potential benefit identified by Orsburn et al. (1990) is improved quality of the product, service, plan or idea that the team was assembled to create. A great attribute of teams is their ability to find the quickest way to do things that still create the best work. The ability that teams have to self-regulate and address areas in their work processes that need improvement allows quality outcomes to be produced.

The next potential benefit is an enhanced commitment of team members to the goals of the organization as a whole (Orsburn et al., 1990). By introducing teams into the workplace, an organization is empowering its employees with certain duties and responsibilities. This increased individual accountability leads to enhanced commitment.

Giving team members more accountability helps them to feel a sort of ownership over what they do and what the company does, and this can lead behavioral outcomes such as decreased turnover and absenteeism (Cohen & Bailey, 1997).

The last of the six items mentioned by Orsburn et al. (1990) is customer satisfaction. This benefit seems to be a product of the sum of many other benefits. As functions become streamlined and as flexibility and quality increase, the goods or services that are produced will not only be of high standards, but will also be timely and specific to the needs of the customer. For an organization that produces a good or service, customer satisfaction is essential.

Team outcomes, whether positive or negative, are largely based on the outputs identified in many of the IPO models of team effectiveness. Cohen and Bailey (1997) identified three outputs: (1) the quantity and quality of what is produced by the team; (2) the attitudes of team members, such as commitment to the team and the organization; and (3) behavior of team members, such as turnover and safety. Other measure of team-effectiveness outcomes are productivity (Campion et al., 1993), satisfaction (Campion et al., 1993; Gladstein, 1984; Hackman, 1987) and the evaluation by an outsider to the team (Campion et al., 1993; Hackman, 1987). Whether cognitive, affective, process-related, or performance-related (Salas et al., 2008), the outcomes of teams are multi-dimensional and dependent upon the characteristics of the team and the processes they use to accomplish their work.

What are the Processes Teams Use?

Now that both the inputs and the outputs of teams have been considered, an examination is needed of the processes teams use. A broad view of processes in terms of the IPO models of team effectiveness describes them as the "mediating mechanism linking such variables as member, team, and organizational characteristics with such criteria as performance quality and quantity, as well as members' reactions" (Marks et al., 2001, p. 356). For example, the level of knowledge and skill that team members apply to their work is a process identified in Hackman's IPO model of team effectiveness (1987). With proper inputs such as a group of individuals who possess sufficient task- and interpersonal-knowledge and skills, a team is able to go through the process of applying that knowledge and those skills to the task of the group, which will then lead to the outputs produced by the team as being of high quality.

On the contrary, a team could be assembled with a very knowledgeable group of individuals who all possess skills to get the work done, but who do not go through the process of exerting the effort to accomplish the objectives of the team (Hackman, 1987). The output, therefore, would not meet the requisite quality, and the team would not have been as effective as the previous team. In this way, the process acted as a mediator between the inputs and the outputs of the team.

The construct of teamwork processes became the topic of research conducted by Marks et al. (2001). At the time of their research, there was little-to-no consensus regarding teamwork processes. They sought to conceptualize the construct of teamwork processes and to introduce a taxonomy of teamwork processes.

Marks et al. (2001) conceptualized teamwork processes as "interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed toward organizing taskwork to achieve collective goals" (p. 357). Teamwork processes are reflected in the way in which teams are able to harness resources such as the knowledge of individual team members, the resources of the organization, and other such factors to create quality outcomes. These processes are activities employed by the team as the team works towards its goals.

The ten processes that were identified by Marks et al. (2001) are divided into three process dimensions: transition processes, action processes, and interpersonal processes. Transition processes are (1) mission analysis, (2) goal specification, and (3) strategy formulation and planning. They occur during periods of time when teams are in between specific tasks or responsibilities. Action processes include (4) monitoring progress toward goals, (5) systems monitoring, (6) team monitoring and backup, and (7) coordination. They occur as teams are actively attempting to accomplish that which they set out to accomplish. Interpersonal processes involve (8) conflict management, (9) motivating and confidence building, and (10) affect management. These occur during both the transition and action phases. Table 1 contains the definitions of the processes, as well as the phase in which the process occurs.

In their model, Marks et al. (2001) observe that a team could face multiple tasks or assignments, each with its own timeframe. Therefore, one task may have a short transition phase and a long action phase, while another ongoing task has a short transition

phase, a short action phase, followed quickly by another transition phase. Thus, teams

must manage the processes both within each task and within a series of overlapping tasks.

Table 1
Definition and Dimension of Each Team Process

Process	Definition	Dimension
Mission Analysis	The examination of the team's objectives, environment, and resources needed for mission completion.	Transition
Goal Specification	The setting of goals and sub-goals to accomplish mission.	Transition
Strategy Formulation and Planning	Exploring alternative ways to accomplish objectives.	Transition
Monitoring Progress Towards Goals	Keeping track of team efforts to accomplish goals and conveying that progress to team.	Action
Systems Monitoring	Auditing team resources and environment in relation to mission accomplishment.	Action
Team Monitoring and Backup Responses	Assisting team members' efforts in goal accomplishment.	Action
Coordination Activities	Managing the sequencing of interdependent tasks and actions.	Action
Conflict Management	Preemptive actions to prevent conflict or reactive management of conflicts as they arise.	Interpersonal
Motivating/Confidence Building	Establishing and maintaining a climate of support, motivation, and cohesion.	Interpersonal
Affect Management	The regulation of stress, excitement, frustration, and other emotions.	Interpersonal

Note. Adapted from "A Temporally Based Framework and Taxonomy of Team Processes," by M.A. Marks, J.E. Mathieu, and S.J. Zaccaro, 2001, *Academy of Management Review*, *26*, p. 356-376.

Development of Tests for Team Selection

An important development coming out of team-effectiveness research is found in the types of tests that have been developed to help organizations in the team-selection process or to predict productivity, satisfaction, and positive managerial perceptions. Tests have been developed based on team-knowledge, skills, and abilities (McClough & Rogelberg, 2003; Stevens & Campion, 1994; Stevens & Campion, 1999); based on the knowledge individuals have on team roles (Mumford, Van Iddekinge, Morgeson, & Campion, 2008); or based on an aggregation of team-effectiveness models (Campion et al., 1993; Campion et al., 1996). Of the tests that have been developed for team selection, one of the most widely-used is Stevens and Campion's knowledge, skills, and abilities test (Teamwork KSA; Stevens & Campion, 1999).

In developing the Teamwork KSA Test, the focus of Stevens and Campion was threefold: first, they sought to focus on KSAs rather than personality; second, the KSAs included were team-relevant, rather than task-relevant; and third, analysis came at the team, rather than individual, level (Stevens & Campion, 1994). To identify relevant KSAs, Stevens and Campion reviewed a vast amount of literature regarding systems theory, organizational behavior, industrial engineering, and social psychology. From their review, they were able to synthesize two major categories of KSAs: interpersonal and self-management. The interpersonal KSA category captures KSAs related to the maintenance of healthy relationships amongst team members. It contains the three subcategories of conflict resolutions, collaborative problem solving, and communication. There are 10 specific KSAs within the three subcategories of interpersonal KSA. The

self-management category has two subcategories, goal setting and performance

management and planning and task coordination, and four specific KSAs. The KSAs in

this category relate to an individual's ability to perform certain activities relevant to team

management. A paper-and-pencil selection test was then developed by Stevens and

Campion (1999) based upon the 14 specific KSAs synthesized from their review of the

literature. After piloting an initial test of 46 questions, 11 items were eliminated due to

difficulty, undesired discriminability, and low item-total correlations. An individual

taking the test receives one point for correctly answering a single question, with the

overall being a sum of all correct responses. Thus, a test score for the Teamwork KSA

Test ranges on a scale from 0-35 (Stevens & Campion, 1999). The following is an

example item from the Teamwork KSA Test:

> 1. When you set work goals for yourself or your work team, what are the best
> goals to set?
>> A. Set goals to "do your best."
>> B. Set general and broad goals.
>> C. Set specific and detailed goals.
>> D. Set easy and simple goals.

Some research suggests that the Teamwork KSA Test is not without weakness.

O'Neill, Goffin, and Gellatly (2012) found issues with the Teamwork KSA Test's

reliability, with its sub-scaled reliability not exceeding .50. Stevens and Campion (1999)

themselves found poor discriminant validity between their test and measures of general

cognitive ability ($r = .81$ with measures of vocabulary; $r = .63$ math problem solving; and

$r = .81$ with aptitude). Other attempts at validation, however, have shown more promising

outcomes. Initial validation attempts of the Teamwork KSA Test were made by Stevens

and Campion (1999) in two different applied settings. In these studies, the Teamwork

KSA Test correlated with teamwork performance (Study 1: $r = .44$; Study 2: $r = .21$),

taskwork performance (Study 1: $r = .56$; Study 2: $r = .25$), and with overall job

performance (Study 1: $r = .52$; Study 2: $r = .23$). In the first study only, the Teamwork

KSA Test showed incremental validity above the employment aptitude tests for

teamwork performance ($R^2 = .08$) and for overall job performance ($R^2 = .06$). The test's

internal consistency reliability was .80 for the first study, and .81 for the second. Other

studies have shown that the Teamwork KSA Test is a significant predictor of individual

effectiveness within a team, though with slightly lower reliability (alpha = .59;

McClough & Rogelberg, 2003).

Though it may have some weaknesses, the Teamwork KSA Test is a respectable

and widely-used measure of team effectiveness. However, this does not come without a

cost. The Teamwork KSA Test is a commercialized measure, used by organizations for a

fee. In this regard, one of the purposes of the present study is to validate a test that could

potentially serve as an alternative to the Teamwork KSA Test. Providing an alternative

test would not only help organizations save money, but would offer a different option for

measuring a construct related to the processes inherent in teamwork. In addition, this

study seeks to show that the measure being examined does not overlap with cognitive

ability as does the Teamwork KSA Test (O'Neill et al., 2011; Stevens & Campion, 1999).

Situational judgment tests. Selection measurements come in many different

forms. A popular form that is often used in employment contexts is the situational

judgment test. A situational judgment test (SJT) is an exam in which the individual taking

the test is given a hypothetical situation representative of the kind of situation that

individual might face if hired onto the job (Weekley & Jones, 1999). The individual is asked to read the situation and then respond to various actions that the individual might take. The examinee is given questions regarding what they should do or what they would do given that situation as the measure seeks to predict future performance by tapping into the past behaviors or attitudes of the examinee (Ployhart & Ehrhart, 2003).

SJTs are said to test unique constructs beyond those that are typically examined (Weekley & Jones, 1999). For example, traditional selection measures test for general mental ability or personality. However, there may be a particular applicant pool with a restricted range of either of these constructs, thus providing no means of differential. A carefully constructed SJT could test an additional attribute sought by an organizations, such as teamwork knowledge or team role knowledge (Mumford et al., 2008). If this SJT is valid and reliable, it would provide a differentiating attribute by which a selection decision might more easily be made by providing incremental validity above personality or general cognitive ability.

Purpose of the Present Study

The purpose of this study was to validate a SJT designed to assess an individual's judgment of effective teamwork processes, based upon the ten dimensions of Marks et al. (2001). The SJT was developed by a group of graduate students in the Industrial/Organizational Psychology program at Middle Tennessee State University (Adams, Hewgley, Kluesner, Murray, Robertson, Au, Kashem, Lillard, & Rippy, 2012). If validated, the SJT would be a valuable means of assessing individuals' readiness to work in a team. Its utility would benefit both the selection and developmental processes

of organizations. It would also serve as an inexpensive alternate to other such tests, whose accessibility is limited due to copyright laws (Stevens & Campion, 1994).

Test Validation. As with any test validation study, the issues of truly measuring a construct present certain obstacles which must be overcome (John & Benet-Martinez, 2000). Due to the conceptual nature of the *team processes* construct (Marks et al., 2001), an exact measurement of team processes can only be estimated. To form this estimation, we begin first by reiterating the definition of the construct. Marks et al. (2001) define team processes as "…as members' interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioral activities directed toward organizing taskwork to achieve collective goals" (p. 357).This definition also includes ten specific processes, as identified by Marks et al., 2001. Refer again to Table 1 for the ten dimensions, their definitions, and the time period of the project in which they occur.

With a clear definition of the *team processes* construct, validation attempts must then move to establishing the reliability and validity of the SJT. For reliability, we looked at the test-retest reliability and internal consistency, two concepts discussed by John and Benet-Martinez (2001). According to them, test-retest reliability establishes the degree to which the test is stable, across time and situation. If the SJT is a true measure of team processes, time and situation should not change its outcomes. Similarly, internal consistency is used to remove error that may exist amongst the questions of the SJT. The goal is to have items that are relatively homogenous in nature, all measuring the teamwork processes construct.

For establishing the validity, we were interested in looking at how well the SJT related to similar measures (i.e., convergent validity) and how well it singularly captures the teamwork processes construct (i.e., discriminant validity), without overlapping too much with measures of constructs such as personality or general mental ability. To establish convergent validity, we assessed the correlation between our SJT and the Stevens and Campion (1994) Team KSA Scale. To establish discriminant validity, we sought to demonstrate the low correlation between the SJT and measures of personality and general mental ability.

Hypotheses

All hypotheses are related to the reliability and validity research questions of the present study.

Hypothesis 1: The test-retest reliability for the SJT will be high.

Hypothesis 2: The items of the SJT will be internally consistent in capturing the construct in question.

Hypothesis 3: The SJT will be positively related to Stevens and Campion's (2001) Team KSA Scale.

Hypothesis 4: The SJT will discriminate between teamwork processes and general mental ability, and teamwork processes and personality.

CHAPTER II

Method

To thoroughly examine the previously mentioned hypotheses, data were gathered using three distinct studies. The first study sought to establish the test-retest reliability of the Teamwork Processes SJT. The second study looked to establish how well the Teamwork Processes SJT converged with another measure of teamwork. The third study was used to establish the discriminant validity between the SJT and measures of intelligence and personality. All studies were used to establish the internal consistency reliability of the Teamwork Processes SJT. Participants in all studies were undergraduate students from Middle Tennessee State University (MTSU).

Study One: Test-Retest Reliability

Participants and method. Participants for this study came from a sophomore-level psychology course at MTSU, across two semesters. Subjects received course credit for participation. The Teamwork Processes SJT was made available via the online survey platform Qualtrics. The survey was distributed to class and remained opened for a week. After a three week interval, the survey was distributed again, remaining open for another week. A total of 99 students participated in the test portion, while 125 did so in the retest. Attrition proved to be an issue in this study, as only 59 total cases were able to be paired and used for analysis.

Measures. As previously mentioned, the SJT measuring team process understanding was developed based upon the ten teamwork processes identified by Marks et al. (2001): mission analysis, goal specification, strategy formulation, monitoring

progress towards goals, systems monitoring, team monitoring and backup behavior,

coordination, conflict management, motivation and confidence building, and affect

management. As outlined by Adams et al. (2012), a scenario was created for each of the

ten individual processes. Each scenario is accompanied by six behavioral responses,

measured on a Likert scale ranging from 1 (Very Unlikely) to 7 (Very Likely).

Respondents were asked to review each scenario and then rate how likely they would be

to take the proposed actions. The following is the sample scenario, and its subsequent

behavioral responses, for the team process of *strategy formulation and planning* (see

Appendix A for the entire SJT, including each item's corresponding process):

> Scenario 3
> You are part of a team that has been working on a project for six months.
> It has become apparent to the team that the original strategy set for
> completing the project is not working out. The team is unsure of how to
> proceed.
> *Please rate **each** response choice on how likely **you** would be to take the
> action(s)*:
> 1. Suggest that a new strategy should be created and implemented in order
> to better complete the team's task.
> 2. Continue with the current strategy but try to fix areas of the plan that
> need improving.
> 3. Use the experience to highlight the importance of having alternative
> strategies for when problems arise.
> 4. Criticize the current strategy and the lack of group productivity on the
> team task.
> 5. Develop an alternative strategy for the team and present it at the next
> meeting for discussion.
> 6. In front of the team's external supervisor, place the responsibility of the
> failed strategy on the other team members.

Of the six actions presented, two reflected effective behavior (responses 1 and 5

from above), two moderate behavior (responses 2 and 3), and two actions represented

ineffective behavior (responses 4 and 6). In scoring one item of the SJT, the sum of the

two ineffective responses is subtracted from the sum of the two effective responses (moderate choices are not scored). To following formula represents the scoring of one item of the SJT: (Effective Answer Rating + Effective Answer Rating) − (Ineffective Answer Rating + Ineffective Answer Rating). The best possible score for a single item is a 12. The total score is a composite of the scores on each of the ten items. Thus, the highest possible score for this SJT is 120. A scoring guide can be found in Appendix A.

Study Two: Convergent Validity

   Participants and method. For this portion of the study, a total of 126 subjects were administered the Teamwork Processes SJT and another measure of teamwork effectiveness (the Teamwork KSA, Stevens & Campion, 1994) via Qualtrics. These subjects were drawn from the general psychology subject pool at MTSU, each receiving credit for their participation. Data for 12 participants were unfit for analysis, bringing the total for this study to 114.

   Measures. The purpose of the SJT in question is to measure an individual's judgments of team effectiveness and functioning (Adams et al., 2012). Therefore, it is expected that the SJT would correlate highly with some other test measuring teamwork knowledge. Thus, along with the Teamwork Processes SJT, Stevens and Campion's Teamwork Knowledge, Skill, and Ability Test (Teamwork KSA; 1994) was used.

Study Three: Discriminant Validity

   Participants and Method. In the third study, the Teamwork Processes SJT was compared to two measures of cognitive ability and one measure of personality. For this portion, data were gathered on a total of 154 participants from the general subject pool at

MTSU. Participants received course credit for their participation. The survey was administered via Qualtrics. Each participant in this study was administered online versions of the Teamwork Processes SJT and the Big Five Inventory (BFI). After completion of these portions, participants were redirected to a Wonderlic-controlled site where they were asked to complete a shortened version of the Wonderlic Cognitive Ability Test. Additionally, participants were asked for permission to access their ACT scores. As data were being pulled from multiple locations, attrition again proved to be a problem. Of the initial 154 participants, data from *all* sources were only available for 74. To improve this, we looked at the comparisons of the SJT to each individual measure, rather than pooling them all. Thus, we looked at the SJT and the BFI ($N = 103$), the SJT and the Wonderlic ($N = 84$), and the SJT and ACT scores ($N = 88$).

Measures. *General cognitive ability.* The SJT in question was not designed to measure general cognitive ability, but rather teamwork knowledge. Therefore, it should not correlate strongly with a measure of cognitive ability. To assess general cognitive ability, we used two measures: the American College Testing (ACT) and the Wonderlic Cognitive Ability Test.

The ACT has long been used by colleges and universities as a benchmark by which potential students are evaluated. The ACT has Mathematics, Reading, and English sections (Koenig, Frey, & Detterman, 2008). Though the organization that administers the ACT claims that it is a curriculum-based test, rather than one of cognitive ability or aptitude, researchers have sought to establish correlations between the ACT and cognition (Koenig et al., 2008). In one such study, Koenig et al. (2008) were able to

establish a high correlation between g (general intelligence) as measured by the Armed

Services Vocational Aptitude Battery and ACT scores ($r = .77$). These same researchers

compared the ACT to the Raven's Advanced Progressive Matrices (APM) and, after

making a correction for a restriction of range, found the Raven's APM to correlate

strongly with the ACT composite score, $r = .75$ (Koenig et al., 2008). Using participants'

ACT scores is useful in the present study as it provides a way to measure intelligence that

is not expensive or time-consuming.

Along with ACT scores, general cognitive ability was measured by receiving

permission to use a version of the Wonderlic Cognitive Ability Test. The version used for

this study, the Wonderlic Cognitive Ability Pretest (WPT-Q), contains 30 questions that

are to be answered within an eight minute interval. As with other Wonderlic Cognitive

Ability tests, the WPT-Q measures an individual's ability to learn, solve problems, and

understand instruction. As it is a relatively new form of the Wonderlic, psychometric

information is not readily available for the WPT-Q. However, other forms of the

Wonderlic have been researched heavily, with results indicating it as a reliable measure

of cognitive ability. The Mental Measurements Yearbook reports the Wonderlic having

an internal consistency of .88, a parallel forms reliability ranging from .73 to .95, and a

test-retest reliability of .82 (Geisinger, 2001). Additional research has found the

Wonderlic's test-retest reliability to be as high as .94 (Dodrill, 1983). As a long-standing

measure of cognitive ability, we felt it would be a useful instrument to include for our

study.

Personality. To measure personality, the Big Five Inventory (BFI) was used. The BFI is based on the Big Five Personality Factor, and thus contains items related to openness, conscientiousness, extraversion, agreeableness, and neuroticism. The measure contains 44 total items. Respondents are asked to rate how much they agree with a statement describing one of the five personality traits, using a five-point Likert scale. For instance, one question reads, "I am someone who is talkative." Respondents report how much they agree or disagree with this statement. The BFI is found in its entirety in Appendix A.

The BFI was specifically designed as a shortened instrument that could be administered quickly and efficiently in order to avoid test fatigue and boredom (John, Donahue, & Kentle, 1991). Though brief, the BFI has been found to be a reliable and valid measure of the Big Five Personality Factors (John & Srivastava, 1999). The average alpha reliabilities for the BFI were found to be .80, with the average test-retest reliabilities being .85 (John & Srivastava, 1999). In addition to its positive psychometric properties, the BFI is available free online for non-commercial research purposes, making it the perfect instrument for our uses in this study.

CHAPTER III

Results

Hypothesis 1: Test-Retest Reliability

Study 1 examined test-retest reliability. Utilizing SPSS version 22 (on this and all analyses), the Pearson's product moment correlation coefficient was calculated between the total Teamwork Processes SJT scores from the first administration and the second. The mean score for the first administration was 69.93 ($SD = 15.72$), while the mean score for the second administration was 66.01 ($SD = 66.01$). Though separated by an interval of three weeks, the scores remained consistent over time and correlated significantly, $r = .792$. This finding indicates that the Teamwork Processes SJT is a stable measure over time.

Hypothesis 2: Internal Consistency Reliability

Internal consistency was calculated for the Teamwork Processes SJT across all studies. Using Cronbach's alpha, reliability statistics were calculated for the SJT as a whole, as well as for each of the three teamwork process dimensions (refer to Table 2). The reliability of the total SJT scores ranged somewhat across the three studies, improving as sample sizes increased. Table 2 contains the internal consistency information for each of the three studies. The results presented in the table indicate that, for the most part, the items of the Teamwork Processes SJT are homogenous in the construct that they measure. The only indication of low reliability came on the Interpersonal Dimension items. We feel that this low alpha level is not a true indication of the internal consistency of this sub-scale, but may have been due to exogenous factors.

In each of the studies, the internal consistency showed a very slight increase with the

deletion of the item regarding conflict management. These increases, however, were very

small and would not justify the removal of the item.

Table 2
Cronbach's Alpha for Total SJT and Process Dimensions

Dimension	Study 1 ($N = 59$)	Study 2 ($N = 103$)	Study 3 ($N = 114$)
Total SJT	.743	.843	.891
Transition Items	.644	.666	.756
Action Items	.626	.717	.810
Interpersonal Items	.250	.590	.648

Hypothesis 3: Convergent Validity

To test for convergent validity, participants in study 2 were administered the

Teamwork Processes SJT and the Teamwork KSA Scale. The scores from the Teamwork

Processes SJT and the Teamwork KSA Test were then correlated, producing a significant

relationship, $r(112) = .550$, $p = .012$. This relationship implies that the Teamwork

Processes SJT converges significantly with another, well established test of teamwork

knowledge, thus laying an essential foundation for its construct validity.

Hypothesis 4: Discriminant Validity

Study 3 examined discriminant validity. To see how well the Teamwork

Processes SJT discriminated from measures of personality and intelligence, the

Teamwork Processes SJT was compared against scores from the ACT, the WPT-Q, and

the BFI. As previously mentioned, attrition was an issue in analysis as not all participants

completed every measure as was hoped in the original design of this study. Analysis was

therefore done as to maximize sample sizes for each comparison of discriminant validity.

Had only the subjects been used for whom we were able to gather all data, the resulting

sample size would have been $N = 74$. However, parsing each comparison into three

groups—SJT to ACT, SJT to WPT-Q, and SJT to BFI—improved sample sizes to $N =$

88, 84, and 103, respectively.

Results indicate that the Teamwork Processes SJT discriminates well from the

measures of intelligence that were included in this study. The Pearson's product moment

correlation coefficients between the Teamwork Processes SJT and the ACT (Composite,

English, Math, and Reading) and Wonderlic scores, though statistically significant, are

relatively low. Results for discriminant validity related to cognitive ability are found in

Table 3.

Table 3
Correlation Matrix for Discriminant Validity Regarding Cognitive Ability

Variable	1	2	3	4	5
1. ACT Composite					
2. ACT English	.910**				
3. ACT Math	.724**	.521**			
4. ACT Reading	.887**	.818**	.420**		
5. Wonderlic	.660**	.640**	.444**	.627**	
6. SJT Total	.262*	.274**	.065	.332**	.252*

Note: *p < .05, **p < .001

Findings from this study also indicate that the Teamwork Processes SJT

discriminate well from personality, as measured using the BFI. After both measures were

scored, Pearson's correlation coefficient was used to analyze the relationship between the

SJT and each of the Big Five Personality Factors. Results for these correlations are presented in Table 4. Although the Teamwork Processes SJT was significantly related to openness (r = .327), all correlations were low indicating adequate discriminant validity.

Table 4

Correlation Matrix for Discriminant Validity Regarding Personality

Variable	1	2	3	4	5
1. Extraversion					
2. Agreeableness	.039				
3. Conscientiousness	.148	.245*			
4. Neuroticism	-.115	-.219*	-.325**		
5. Openness	-.058	.108	.091	-.198*	
6. SJT Total	.086	.113	.166	.016	.327**

Note: *p < .05, **p < .001

CHAPTER IV

Discussion

As more and more organizations shift to team-based structures, it will become increasingly more important for human resource departments to select individuals more likely to succeed in such environments. Further, organizations will not only need to be concerned with selecting the right individuals, but also developing current employees to work productively in teams. The over-arching goal of this study was to create a means by which organizations could capitalize on all that teams have to offer through the validation of an instrument designed to assess how individuals would behave in a team environment. Graduate student researchers (Adams et al., 2012) created such an instrument in the form of a situational judgment test assessing the ten teamwork processes identified by Marks et al. (2001). In their initial study, Marks et al. (2001) enjoined researchers to "consider…creative methods of capturing teamwork processes" (p. 371). Additionally, researchers have identified the importance of the development of tools to maximize team performance and outcomes (Marks et al., 2001; Stevens & Campion, 1994). Based on the findings from this study, it is concluded that the Teamwork Processes SJT is a valid and reliable instrument, accomplishing both of these goals.

Reliability

The findings from this study indicate that the Teamwork Processes SJT is a reliable measure. Participants that were administered the instrument twice, with a time interval separating administrations, performed similarly both times. This supports

Hypothesis 1, that the Teamwork Processes SJT would have high test-retest reliability. This is an important factor to consider for test reliability, as it helps to establish the instrument as one that is stable and repeatable over time. The time interval separating administrations was only three weeks, which may have been too short, thus leading to a testing effect. This limitation notwithstanding, we conclude that this instrument is stable over time.

Across all studies, the internal consistency reliability for the Teamwork Processes SJT was analyzed. Four different alphas were calculated. The first alpha consisted of all ten items on the SJT. The other three were items related to each dimension as identified by Marks et al. (2001): Transition Items (items 1-3); Action Items (items 4-7); and Interpersonal Items (items 8-10). Study 1's alphas were the lowest, though all but the Interpersonal Dimension Items were indicative of internally consistent items. In this study, alphas increased as sample sizes increased across the three studies. In each of the studies, the internal consistency is *slightly* increased with the deletion of the item regarding the teamwork process of conflict management. However, the increase in all three instances is inconsequential and would not justify the deletion of this item from the instrument. These findings support Hypothesis 2. The items on the Teamwork Processes SJT are homogenous in the construct that they purport to measure.

Validity

As with the reliability of the Teamwork Processes SJT, the results found regarding its validity bode well for the test. Hypothesis 3 was support as the Teamwork Processes SJT converged well with Stevens and Campion's (1994) Teamwork KSA

Scale. At .550, the correlation between these two measures was precisely where we had hoped it would be. This level was high enough to indicate that the Teamwork Processes SJT does converge significantly with another, widely-used measure of teamwork. It is also low enough to indicate that the Teamwork Processes SJT is not just a replication of the Teamwork KSA Scale, supporting the conclusion that the SJT measures the construct of teamwork processes, as we had hoped it would.

While being supported statistically, this finding also makes sense intuitively. The instrument designed by Stevens and Campion (1994) measures teamwork knowledge, while the SJT of this study measures behavioral responses in the context of teamwork processes. While these two instruments do both relate to team effectiveness, they differ enough substantively to be viewed as two distinct measures of varying sub-constructs.

An inherent risk of test-development is that the test in question will simply act as a proxy assessment for another construct such as personality or cognitive ability. For instance, the Teamwork KSA Scale correlated strongly with measures of vocabulary ($r = .81$), math problem solving ($r = .63$), and aptitude ($r = .81$; Stevens & Campion, 1999). For this study, it was hypothesized that the Teamwork Processes SJT would discriminate from measures of intelligence and personality. The findings from our analyses indicate that this hypothesis was supported. The correlations between the components of the ACT and with the Wonderlic were all relatively low, with the highest being between the SJT and the ACT Reading portion ($r = .332$). These findings suggest that the Teamwork Processes SJT may be a more useful measure when compared to the Teamwork KSA Test, as it could potentially provide greater incremental validity above cognitive ability.

The findings for the SJT discriminating from personality were similar. The correlations between the SJT and each personality factor were low (see Table 4), with the highest being between the SJT and the personality dimension of openness ($r = .327$). Initially, this correlation was somewhat surprising. However, the items on the BFI related to openness could potentially be seen as attributes that would help an individual through some of the teamwork processes. For example, one openness item on the BFI asks respondents to rate if they are someone who "is original, comes up with new ideas" (John et al., 1991). The teamwork process of Strategy Formulation and Planning can include exploring alternative ways to accomplish objectives (Marks et al., 2001). Indeed, some aspects of that personality trait as measured by the BFI seem to parallel with certain teamwork processes. In general, however, the Teamwork Processes SJT provides measures a construct other than the measures of cognitive ability and personality that were used in this study, thus supporting Hypothesis 4.

Limitations and Future Considerations

While we are encouraged by the findings of this study, it is not without limitations. To gather data that were needed for this study, we had many working pieces going at once. Breaking the study into three different studies had us using various subject pools for data collection. It would have been better had we been able to gather data from fewer pools, keeping findings more consistent and manageable. One of the reasons multiple subject pools were used was because of the length of the original study. This length could have led to participant fatigue. Additionally, this study was done all online using an unsupervised, third party data collection site. This many have led to some

respondents not taking the study seriously enough, diminishing the usefulness of their results. As with most studies that draw subject pools from undergraduate populations, the generalizability of these findings may be somewhat limited.

Thus, future research should seek to be done in an applied setting. This would not only help with issues related to the generalizability of the findings, but would also pave the way for additional validation attempts to be done. For instance, future research should seek to establish the predictive validity of the Teamwork Processes SJT as it relates to criteria such as ratings of team performance, job effectiveness, satisfaction, etc. Other validation attempts should be made, either by replicating ones done in this study, or through additional studies.

A further consideration would be to perform factor analytic studies on the Teamwork Processes SJT. Marks et al.'s (2001) two-tiered organization of the processes has each grouped into one of three dimensions: transition, action, and interpersonal. It would be interesting to see if, using the Teamwork Processes SJT, the processes actually load into those proposed dimensions. Doing so would not only help to validate the Teamwork Processes SJT, but it would also add to the understanding of teamwork processes as a whole.

Conclusion

Based on the findings from this study, it is concluded that the Teamwork Processes SJT is both a reliable and valid instrument. As further validation attempts are made with similar findings, the Teamwork Processes SJT could potentially be used as a selection or development device. Because it discriminates well from cognitive ability and

personality, the Teamwork Processes SJT would allow for team-based organizations to identify those whose behaviors would be effective in handling the processes commonly used by teams.

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APPENDICES

Appendix A: Measures

Part 1: Teamwork Processes Situational Judgment Test

Note: All responses are in the following format:

○ Very Unlikely
○ Unlikely
○ Somewhat Unlikely
○ Neither Likely nor Unlikely
○ Somewhat Likely
○ Likely
○ Very Likely

Scenario 1 – Mission Anaysis

The CEO of a high-end restaurant chain comes into your office and says that she has a disturbing finding. The service quality waiters and waitresses (servers) is at a two year low, and customers that usually frequent your restaurant are going to other places to eat instead. As the Vice President of Human Resources, you are tasked with analyzing the situation and coming up with a solution to improve the server performance. You have decided that the first step to tackle the problem is to create a team of individuals from corporate Human Resources and local managers in the organization that may be useful in solving this issue. Right after forming the team, you are trying to decide what should be your next immediate step in trying to solve this problem.

Please rate each response choice on how likely you would be to take the action(s):

1. Have a team meeting to discuss the possible nature of the problem and potential steps that can be taken to improve server performance.

2. Have your team research industry trends to see if they can find any useful information that could be used to identify common problems with server performance.

3. Immediately start to work on the task, leaving everyone to figure out how to accomplish the CEO's goal for themselves.

4. Have your team call managers in various restaurant locations to find out if they understand the nature of the problems in server performance.

5. Have a meeting with your team to discuss relevant tasks, challenges, and resources needed to analyze the problem.

6. Fire your old service staff and put your team in charge of hiring new service staff.

Scenario 2 – Goal Setting

You are on a team that has goals set to meet specific organizational standards. You have noticed that deadlines for team tasks are not being met. It has come to your attention that the goals being set are too general and members are becoming unsure of the standards they should meet. The timelines for meeting goals are too vague, which has resulted in a lack of consensus among group members of how the goals should be prioritized. The group's productivity is declining.

Please rate each response choice on how likely you would be to take the action(s):

1. Exclude the goals that are set by the organization and focus on prioritizing group goals.

2. Suggest to the group that fewer goals should be set.

3. Consult with the group for more specific and attainable goals.

4. Criticize group members for the goals not being met.

5. Take responsibility for establishing new individual goals for other team members.

6. Suggest to the group that new timelines should be set to clarify which tasks are the be prioritized.

Scenario 3 – Strategic Formulation and Planning

You are a part of a team that has been working on a project for six months. It has become apparent to the team that the original strategy set for completing the project is not working out. The team is unsure of how to proceed.

Please rate each response choice on how likely you would be to take the action(s):

1. Suggest that a new strategy should be created and implemented in order to better complete the team's task.

2. Continue with the current strategy but try to fix the areas of the plan that need improving.

3. Use the experience to highlight the importance of having alternative strategies for when problems arise.

4. Criticize the current strategy and the lack of group productivity on the team task.

5. Develop an alternative strategy for the team and present it at the next meeting for discussion.

6. In front of the team's external supervisor, place the responsibility of the failed strategy on the other team members.

Scenario 4 – Monitoring Progress Towards Goals

You work for a home construction team that was recently subcontracted to develop the frame for a two-story home. The framing contract has a firm timeline of three weeks because a roofing team from another construction company has been subcontracted to being roofing detail the day after your timeline closes. Your team developed a three-week outline with established goals for frame development. One week from the deadline, the lumber company delivering your last shipment of wood tells you that the shipment is going to be two to three days late. Seeking out an alternative wood provider would take longer than the two to three day delay.

Please rate each response choice on how likely you would be to take the action(s):

1. Discuss the delivery delay with one or two team members without notifying the contractor, completer a minor amount of the work with the available supplies, and allow team members to rest until the new delivery day even if achievable goals are not yet complete.

2. Identify the exact percentage of completed framing through team member meetings, communicate production progress and sub-goal completion to your team and the contractor, and redevelop goals into a compressed timeline.

3. Notify the contractor and your team members that a delivery delay has temporarily stalled production and demand that the contractor extend the deadline so your team can establish new goals for the project.

4. With the help of team members, estimate how much framing has been completed and the amount of time that will be required to complete the project after the delay and request a deadline extension from the contractor based on your team's estimations.

5. Accept the fact that the delivery will be delayed and that the deadline cannot be reached, completely stall production without notifying the contractor, and give team members two days off until the supplies arrive.

6. Complete the goals that were established until the point of the delivery delay and hope that the delivery will actually arrive earlier than the two to three day delay.

Scenario 5 – Systems Monitoring

You are the resource and systems monitor to the logistics team at We Deliver Packages, Inc. who is in charge of making sure WDP delivery trucks have the resources and information they need to make their deliveries on time in the greater metropolitan area of a major city in the USA. During the middle of the night, a storm hit your metropolitan area. As a result, major roadways are close and electricity is out around town, which makes the refueling of your delivery trucks a problem. You need to collect information about your team's delivery system and resources and provide the relevant information to each driver so that he or she can deliver all of the packages today.

Please rate each response choice on how likely you would be to take the action(s):

1. Tell your drivers about major road closings and to keep an eye out for working gas stations.

2. Tell your drivers about major road closings and to radio in when they are low on gas to find out where working has stations are located.

3. Tell your drivers to do the best they can and to return to base when they are low on gas.

4. Tell your drivers about the road closings, detours, and working gas stations on their routes.

5. Tell your drivers to keep an eye out for working gas stations and give them a map of the area.

6. Remove some of today's deliveries from the trucks so the drivers will not need to refuel.

Scenario 6 – Team Monitoring and Backup Responses

You are in a team with several team members that report to a team leader. The assigned proposal requires team members to work interdependently with common knowledge. The due date of the proposal is in three days and one of your team members in the same office is away on sick leave. Reading through the proposal, you notice that your team member's assigned section is in such disarray that it is difficult to understand and follow.

Please rate each response choice on how likely you would be to take the action(s):

1. Assume the team leader probably has it all under control and will deal with the situation soon.

2. Inform the team leader that attention is needed for the sick member's section and offer your assistance.

3. Finish your own assigned section first and then decide whether or not to tell the other team members about the situation of the sick member's section.

4. Report the situation to the team leader and ask whether you can spare some time to improve your sick member's section.

5. Inform your sick team member immediately that his/her assigned section requires attention.

6. Consult with other team members immediately and let them decide what to do.

Scenario 7 – Coordination Activities

You are the leader of a team that has been assigned various complex tasks that must be completed in a very short period of time. These tasks require that the team work together interdependently to accomplish them successfully. Your team members all have very different schedules. Because of this, it is difficult to coordinate one specific meeting time for all members and to compile each person's work efforts into one product. As the team leader, it is your responsibility to make sure the overall tasks are completed successfully in a timely manner.

Please rate each response choice on how likely you would be to take the action(s):

1. See about pushing the deadline back until all members are able to meet together to complete the tasks.

2. Thoroughly examine all members' individual schedules and set a weekly meeting time that works for everyone, even if that time is not ideal (e.g., late at night, on the weekend, etc.).

3. Decide as the team leader how the tasks can be split up and assign each team member a specific task to complete on their own. Then, have one meeting where all completed individual work will be compiled into one cohesive product.

4. Convince the team members to ignore their other obligations at this time in order to meet this deadline.

5. Accept that the tasks cannot be done in the time allotted and step down as team leader.

6. Add more members to the team in hopes that their schedules will better coordinate.

Scenario 8 – Conflict Management

You are a member of a team that has been assigned a new project to complete. During the initial team meeting to discuss the project and its details, you notice that conflict is arising between the team members. The team met to discuss roles during the project and to assign tasks to each individual. There is conflict among the team members who will be responsible for each part of the project. The team has a very tight deadline and cannot afford to waste any time.

Please rate each response choice on how likely you would be to take the action(s)

1. Try to identify each team members' strengths and weaknesses and match tasks according to individual strengths.

2. Go to your supervisor and explain the situation in hopes that he or she will be able to resolve the problem.

3. Suggest that tasks be randomly assigned to each team member so the project can move forward.

4. Ask the group leader to assign roles to each individual based on whom they believe will do the best job.

5. Ask the group leader to assign roles without any input from others.

6. Propose that everyone identify which tasks they would like and have them provide an explanation as to why they feel they would be the best one for the task.

Scenario 9 – Motivating/Confidence Building

You are part of a team and you have an important project that needs to be completed in three months. Your team has been working well for the past month. Recently, you have come to notice that some of your team members have started to slow the pace of their work and are not working on the project as much as they had been previously. Also, you have found that a few of your team members do not interact much with the team. If these circumstances continue, it will be impossible for your team to complete the project in the next two months.

Please rate each response choice on how likely you would be to take the action(s)

1. Inform the team there will be a party after the successful completion of the project.

2. Propose that the manager reward the team member who shows the best performance on the project.

3. Inspire your team members by telling them that it is their collective responsibility to complete the project by the due date, and that the successful completion of this important project depends on each of their efforts.

4. Remind the team members about their past successes and how hard they have worked towards achieving the team's goals.

5. Hold a team meeting and focus on the lack of work that has been completed thus far.

6. Remove all the assigned deadlines for each of the team member's work.

Scenario 10 – Affect Management

You are the leader of a team that has been working on a project for several months now. The project is almost finished, but there is still a lot of work to be completed and the deadline is quickly approaching. While the team members have consistently worked well together throughout the duration of the project, the urgency of the project's deadline is causing stress among members. You sense that tension is rising among your members as the deadline approaches and you believe this may lead to the project not getting finished on time.

Please rate each response choice on how likely you would be to take the action(s)

1. Suggest to your team to use the stress they are experiencing as a motivator and to keep pushing forward until the project is complete.

2. Plan a celebration upon completion of the project to which team members can look forward, while reminding them that success depends on all of their combined efforts.

3. Emphasize the importance of the approaching deadline to your members, and remind them that there is not time for conflict or for anyone to get emotional.

4. Realizing the urgency of the deadline, require team members to work longer hours and turn in a daily progress report of the work they have completed.

5. Ignore the tension between team members and hope it does not escalate.

6. Encourage team members to maintain positive attitudes and to not let the pressure cause conflict among themselves.

Part 2: Teamwork Processes SJT Scoring Guide

Scenario 1: Mission Analysis
Item 1 + Item 5 – Item 3 – Item 6 = Total

Scenario 2: Goal Specification
Item 3 + Item 6 – Item 1 – Item 4 = Total

Scenario 3: Mission Analysis
Item 1 + Item 5 – Item 4 – Item 6 = Total

Scenario 4: Mission Analysis
Item 2 + Item 4 – Item 1 – Item 5 = Total

Scenario 5: Mission Analysis
Item 2 + Item 4 – Item 3 – Item 6 = Total

Scenario 6: Mission Analysis
Item 2 + Item 4 – Item 1 – Item 3 = Total

Scenario 7: Mission Analysis
Item 2 + Item 3 – Item 4 – Item 5 = Total

Scenario 8: Mission Analysis
Item 1 + Item 6 – Item 3 – Item 5 = Total

Scenario 9: Mission Analysis
Item 3 + Item 4 – Item 2 – Item 6 = Total

Scenario 10: Mission Analysis
Item 2 + Item 6 – Item 4 – Item 5 = Total

Sum of Totals = Composite Score

Part 3: Big Five Inventory

How I am in General

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please write a number next to each statement to indicate the extent to which **you agree or disagree with that statement.**

1	2	3	4	5
Disagree Strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly

I am someone who…

1. _____ Is talkative
2. _____ Tends to find fault with others
3. _____ Does a thorough job
4. _____ Is depressed, blue
5. _____ Is original, comes up with new ideas
6. _____ Is reserved
7. _____ Is helpful and unselfish with others
8. _____ Can be somewhat careless
9. _____ Is relaxed, handles stress well.
10. _____ Is curious about many different things
11. _____ Is full of energy
12. _____ Starts quarrels with others
13. _____ Is a reliable worker
14. _____ Can be tense
15. _____ Is ingenious, a deep thinker
16. _____ Generates a lot of enthusiasm
17. _____ Has a forgiving nature
18. _____ Tends to be disorganized
19. _____ Worries a lot
20. _____ Has an active imagination
21. _____ Tends to be quiet
22. _____ Is generally trusting
23. _____ Tends to be lazy
24. _____ Is emotionally stable, not easily upset
25. _____ Is inventive
26. _____ Has an assertive personality
27. _____ Can be cold and aloof
28. _____ Perseveres until the task is finished

29. _____ Can be moody
30. _____ Values artistic, aesthetic experiences
31. _____ Is sometimes shy, inhibited
32. _____ Is considerate and kind to almost everyone
33. _____ Does things efficiently
34. _____ Remains calm in tense situations
35. _____ Prefers work that is routine
36. _____ Is outgoing, sociable
37. _____ Is sometimes rude to others
38. _____ Makes plans and follows through with them
39. _____ Gets nervous easily
40. _____ Lies to reflect, play with ideas
41. _____ Has few artistic interests
42. _____ Likes to cooperate with others
43. _____ Is easily distracted
44. _____ Is sophisticated in art, music, or literature

Appendix B: IRB Approval Letters

MIDDLE TENNESSEE STATE UNIVERSITY

October 8, 2013

Psychology

Dr. Glenn Littlepage glenn.littlepage@mtsu.edu
DJ Steffensen dsteffensenjr@gmail.com
Protocol Title: Validation of a Situational Judgment Test Measuring Team Processes

Protocol Number: 14-091

Dear Investigator(s),

The MTSU Institutional Review Board, or a representative of the IRB, has reviewed the research proposal identified above. The MTSU IRB or its representative has determined that the study poses minimal risk to participants and qualifies for an expedited review under 45 CFR 46.110 Category 7.

Approval is granted for one (1) year from the date of this letter for 85 participants.

According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to provide a certificate of training to the Office of Compliance. If you add researchers to an approved project, please forward an updated list of researchers and their certificates of training to the Office of Compliance (c/o Kelly, Box 134) before they begin to work on the project. Any change to the protocol must be submitted to the IRB before implementing this change.

Please note that any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918.

You will need to submit an end-of-project form to the Office of Compliance upon completion of your research located on the IRB website. Complete research means that you have finished collecting and analyzing data. Should you not finish your research within the one (1) year period, you must submit a Progress Report and request a continuation prior to the expiration date. Please allow time for review and requested revisions. Your study expires October 8, 2014.

Also, all research materials must be retained by the PI or faculty advisor (if the PI is a student) for at least three (3) years after study completion. Should you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,
Shelley C. Moore, PhD, MSN, RN IRB Committee Member

MIDDLE TENNESSEE STATE UNIVERSITY

October 31, 2013

DJ Steffensen, Dr. Glenn Littlepage
Psychology Department
dss3z@mtmail.mtsu.edu, glenn.littlepage@mtsu.edu

Protocol Title: "CONTINUING VALIDATION OF A SITUATIONAL JUDGMENT TEST MEASURING TEAM PROCESSES"

Protocol Number: 14-129

Dear Investigator(s),

The MTSU Institutional Review Board, or a representative of the IRB, has reviewed the research proposal identified above. The MTSU IRB or its representative has determined that the study poses minimal risk to participants and qualifies for an expedited review under 45 CFR 46.110 and 21 CFR 56.110, and you have satisfactorily addressed all of the points brought up during the review.

Approval is granted for one (1) year from the date of this letter for 150 participants.

Please note that any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918. Any change to the protocol must be submitted to the IRB before implementing this change.

You will need to submit an end-of-project form to the Office of Compliance upon completion of your research located on the IRB website. Complete research means that you have finished collecting and analyzing data. **Should you not finish your research within the one (1) year period, you must submit a Progress Report and request a continuation prior to the expiration date.** Please allow time for review and requested revisions. Failure to submit a Progress Report and request for continuation will automatically result in cancellation of your research study. Therefore, you will not be able to use any data and/or collect any data. Your study expires October 31, 2014.

According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to complete the required training. **If you add researchers to an approved project, please forward an updated list of researchers to the Office of Compliance before they begin to work on the project.**

All research materials must be retained by the PI or faculty advisor (if the PI is a student) for at least three (3) years after study completion and then destroyed in a manner that maintains confidentiality and anonymity.

Sincerely,

Kellie Hilker
Compliance Officer/ MTSU Institutional Review Board Member