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TEAM COHESION IN THE RESTAURANT INDUSTRY:
THE INFLUENCE OF CORE EVALUATIONS

by

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ABSTRACT

Team cohesion has been clearly established in the literature as an essential component of effective work teams, yet little research has been conducted in regard to what factors lead to cohesion within a restaurant management team. What is currently known about the antecedents of cohesion indicates that it emerges from individual team member attitudes and perceptions as a collective property of the team. This, in turn, suggests cohesion is influenced by the dispositional traits of team members. The core evaluations construct, which represents a model of dispositional traits existing within each individual at the most basic level, offers implications for the emergence of cohesion in both of its forms, task cohesion and social cohesion. To help bridge the gap in prior research, this study was conducted to investigate the influence of core evaluations on team cohesion within restaurant management teams. This study first adopted and modified Judge et al.'s (1997) theoretical model of core evaluations, advancing a model in which two types of core evaluations, self and external, were both second-order latent constructs each reflected by four first-order evaluative traits. The proposed trait structure was then tested. Finally, drawing on approach/avoidance theory and social exchange theory, this study hypothesized a multilevel model in which the dispositional traits of core self-evaluation (CSE) and core external-evaluation (CEE) at the individual front-line manager level have positive effects on task and social cohesion within restaurant management teams.

To accomplish the objectives of this study, a survey research design was employed. The survey instrument was comprised of four sections: core self-evaluation, core external-evaluation, team cohesion, and demographic profile. Data were collected from managers employed by four restaurant franchise groups, resulting in a useable sample of 317 individual responses composing

76 teams ranging in size from 2-6 members. Confirmatory factor analysis was conducted to test the factor structure of CSE and CEE, as well as the overall measurement model. The task and social cohesion items were then aggregated to the team level and multilevel structural equation modeling (MSEM) was conducted to test the relationships between latent constructs.

The results of this study supported the second-order factor structure of core evaluations. CSE was shown to be reflected by self-esteem, generalized self-efficacy, emotional stability, and locus of control. CEE was shown to be reflected by belief in a benevolent world, belief in a just world, and belief in people. Due to sample size, a reduced-parameter model was developed in which CSE and CEE were treated as sub-dimensions and measured by mean scores. MSEM results from this model showed that CSE had significant positive effect on team task cohesion whereas CEE had a significant positive effect on team social cohesion. These results offer numerous theoretical and practical implications for the study of core evaluations, team cohesion, and micro-macro phenomena, which are discussed in the final chapter. Limitations and suggestions for future research are also discussed.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS/ABBREVIATIONS

CEE   Core External-Evaluation

COE   Core Evaluations of Others

CSE   Core Self-Evaluation

CSES   Core Self-Evaluation Scale

CWE   Core Evaluations of the World

ICC   Intraclass Correlation

IPO   Input-Process-Output model of teamwork

IMOI   Input-Mediator-Ouput-Input model of teamwork

MSEM   Multilevel Structural Equation Modeling

CHAPTER ONE: INTRODUCTION

This study investigated the relationship between manager core evaluations and management team cohesion in the restaurant industry. First, the individual factors that contribute to core self-evaluation and to core external-evaluation were considered. Then, the influence that these core evaluations had on the creation of cohesion within restaurant management teams was analyzed. This first chapter explores the background of the restaurant industry and the structure of restaurant management teams, provide the research problem and questions, discuss research contributions, and define key terms.

Background

The restaurant industry plays a significant role in the United States. Comprised of both small businesses in the form of single-unit operations and large corporations in the form of regional and national chains, restaurant industry sales as a whole are projected to total $709.2 billion in 2015, which is equal to approximately 4% of the U.S. gross domestic product (National Restaurant Association [NRA], 2015). Additionally, the restaurant industry is the second largest non-government employer in the United States, and is expected to add 1.7 million jobs over the next decade, with employment reaching 15.7 million by 2025 (NRA, 2015). However, while overall employment within the restaurant industry is predicted to outpace the economy, the number of restaurant manager positions is only projected to increase by 2% from 2012-2022 (Bureau of Labor Statistics [BLS], 2014). Although population and income growth are expected to produce a greater demand for meals prepared outside the home, including dining out, purchasing take-out meals, and delivery, employment growth for managers is expected to be

minimal as restaurant companies continue to consolidate managerial functions and reduce the number of available positions (BLS, 2014). This suggests that the demands placed on managers will increase, making it critical to understand the restaurant manager role and how to build high-performing management teams that have the ability to successfully function as a unit within the changing restaurant environment.

Restaurant managers maintain a wide variety of responsibilities within the restaurant unit. Typical duties of a restaurant manager are as follows:

- Coordinate kitchen and dining room staff

- Oversee food preparation and presentation

- Establish and maintain personnel performance and guest service standards

- Manage inventory and ordering of food, beverage, supplies, and equipment

- All aspects related to employee staffing, including interviewing, hiring, training, scheduling, and termination

- Ensure compliance with all health and food safety standards and regulations

- Manage the financial performance of the restaurant (BLS, 2014; O*NET, 2010)

This diversity in job duties requires that restaurant managers have a broad range of knowledge, skills, and abilities including business acumen, customer-service, organizational speaking, giving direction, problem-solving, and decision-making skills (BLS, 2014; Walker, 2011). Perhaps the most significant responsibility of the restaurant manager is the effective leadership of their employees. Food quality, labor costs, and the work environment itself are just a few of the factors affected by the team members who serve guests and help achieve the restaurant's goals (Hayes, Miller, & Ninemeier, 2014). Thus, a successful restaurant requires not

only managers who possess the knowledge, skills, and abilities to serve in a managerial capacity, but also a *team* of managers acting together to lead and provide direction to employees in order to achieve unit and company goals (Hayes et al., 2014).

Industry-focused periodicals inform restaurant operators that creating a team-focused environment can directly impact a restaurant's ability to retain valuable employees, increase customer satisfaction, and exceed sales goals (Farkas, 2010; Gregory, 2013). A restaurant's management team, comprised of the front-line managers and led by the general manager, can set the tone for teamwork for the entire restaurant (Cichy & Hickey, 2012), making it essential that these individuals present a "unified front" for the operation and the employees in regard to performance goals in order to achieve the positive outcomes attributed to teamwork. Literature identifies this "unified front" as team cohesion, defining it as a

> "dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Cannon-Bowers & Bowers, 2010, pg. 625).

Team cohesion is a key variable in models of effective work teams (Cohen & Bailey, 1997; Sundstrom, DeMeuse, & Futrell, 1990). Prior empirical research has also found that highly cohesive groups are characterized by friendliness, mutual liking, cooperation, and motivation in carrying out group tasks (Janis, 1982). Highly cohesive groups have also been positively related to the affective commitment of individual team members (Andrews, Kacmar, Blakely, & Bucklew, 2008), cooperation (Beal, Cohen, Burke, & McLendon, 2003), prosocial behavior (George & Bettenhausen, 1990), and satisfaction with groups and group viability (Tekleab, Quigley, & Tesluk, 2009). Members of cohesive groups tend to be more satisfied with their jobs

and to engage in constructive work behaviors (Griffith, 1988). Additionally, a shared commitment to group goals is associated with teams that are more effective, efficient, and give better customer service (Carless & De Paola, 2000). Several meta-analyses have been published regarding the relationship between cohesion and performance and the general finding is that team cohesion is positively associated with team performance, particularly when individual team member responsibilities, productivity, and results are highly interdependent (Beal et al., 2003; Carron, Colman, Wheeler, & Stevens, 2002; Chiocchio & Essiembre, 2009; Evans & Jarvis, 1980; Gully, Devine, & Whitney, 1995; Mullen & Copper, 1994; Oliver, Harman, Hoover, Hayes, & Pandhi, 1999).

Problem Statement

The outcomes of team cohesion, particularly team performance have been researched extensively, but little attention has been paid to the predictors. Hence, the present study sought to fill a gap in the literature by focusing on the antecedents of cohesion within management teams. Marks, Mathieu, and Zaccaro (2001) proposed that team cohesion is an emergent state rather than a behavioral process, characterized by qualities of the team that represent team member attitudes, values, cognitions, and motivations, and influenced by context. In other words, team cohesion develops as a collective phenomenon driven by the characteristics of the individual team members rather through a managed process of activities designed to produce specific behaviors. Similarly, Kozlowski and Klein (2000) argued that team-level constructs can emerge as shared unit properties. Shared unit properties are those which describe characteristics common to the members of the unit, are presumed to originate in individual unit members' perceptions,

4

cognitions, and attitudes, and converge among members as a function of attraction, socialization, and other psychological processes (Kozlowski & Klein, 2000).

This suggests that, while cohesion itself is not a trait, the antecedents of team cohesion are related to individual differences in disposition between team members. The dispositional viewpoint theorizes that individuals possess relatively stable characteristics. These characteristics affect outcomes within an individual's life, independent of situational attributes. Within the stream of personality and individual differences research, core evaluations represent dispositional traits which exist at the most basic level within a person. Core evaluations are the bottom-line appraisals, the deepest metaphysical assumptions that all individuals hold subconsciously. Core evaluations pertain to the three fundamental areas of everyone's life: the self, others, and the world (Packer, 2013). These appraisals are implicit in an individual's other beliefs, attitudes, motivations, and actions (Chang, Ferris, Johnson, Rosen, & Tan, 2012).

Core evaluations are grounded in clinical and social psychology, but were introduced to organizational literature via Judge, Locke, and Durham's (1997) theory of job satisfaction as a function of individual disposition. On the basis that dispositional traits must be evaluative rather than behavioral, fundamental, and broad in scope, Judge et al. (1997) proposed that the three types of core evaluations (self, other, and world) were higher order constructs captured through lower order traits. They suggested core self-evaluation was composed of self-esteem, generalized self-efficacy, emotional stability, and locus of control. They further suggested core other-evaluation was composed of trust versus cynicism and core world-evaluation was composed of beliefs in a benevolent versus malevolent world, a just versus unjust world, and an exciting versus dangerous world. Later, on the basis that core other-evaluation and core world-evaluation

5

both reflected an individual's fundamental appraisal of their environment, the two were collapsed in a single construct called core external-evaluations (Judge, Locke, Durham, & Kluger, 1998).

Within an organizational context, core evaluations have been examined in relation to job and life satisfaction (Judge et al., 1998; Judge, Bono, Erez, & Locke, 2005; Judge, Bono, & Locke, 2000; Piccolo, Judge, Takahashi, Watanabe & Locke, 2005), job performance (Judge & Bono, 2001; Tasa, Sears, & Schat, 2011), job burnout (Best, Stapleton, & Downey, 2005; Yagil, Luria, & Gal, 2008), customer service (Salvaggio et al., 2007), happiness (Piccolo et al., 2005), task motivation (Erez & Judge, 2001), work-family conflict (Boyar & Mosley, 2007), organizational change (Judge, Thoresen, Pucik, & Welbourne, 1999), goals (Bono & Colbert, 2005, Judge et al., 2005), positive affective state (Erol-Korkmaz & Sumer, 2012), and team performance (Haynie, 2012). Given the fundamentality of the core evaluations construct and its evident utility in predicting work-related outcomes, this study maintained that core evaluations offer implications for the emergence of team cohesion. An individual's view of the self and of others spills over into the work environment and affects not only the individual themselves, but also the team members they interact with.

Purpose of Study

The purpose of this study was to investigate the relationships between core evaluations and team cohesion within the context of restaurant management teams. This study adopted and modified Judge et al.'s (1997) theoretical model of core evaluations.

Based on the purpose of study, the research objectives of this study were:

1) To test the trait structure of core self-evaluation and core external-evaluation

2) To examine the relationship between core self-evaluation and team cohesion within restaurant management teams

3) To examine the relationship between core external-evaluations and team cohesion within restaurant management teams

Significance of Study

This study sought to bridge a number of gaps in the literature related to both core evaluations and team cohesion. Core self-evaluation (CSE) has become a prevalent construct for organizational researchers, but the study of its influence has been limited to individual level outcomes, such as job satisfaction, life satisfaction, job performance, leadership, and commitment (Chang et al., 2012). Although the basic and all-encompassing nature of CSE suggests that it has the potential to influence the attitudes and behaviors that contribute to team-based outcomes, CSE has yet to be considered in a team context.

Additionally, although CSE was initially discussed alongside core other-evaluations (COE) and core-world evaluations (CWE), virtually no research has focused on the consequences of CWE/COE or the traits that reflect these constructs. This study, however, argues that when considering a team dynamic, evaluations of the external environment, which is captured in the combination of COE and CWE, play an equally important role. This study sought to expand the boundaries of core evaluations as a predictor of workplace outcomes by including both self- and external-evaluations and their influence on a team-based, rather than individual,

outcome. This study was also the first to model and test the traits theorized to comprise core external-evaluation.

The relationship between core evaluations and team cohesion proposed in this study also offers implications for theory. To date, there is a large amount of literature indicating that cohesion is strongly related to performance. However, organizational psychologists have tried wide range of interventions (i.e. ropes courses, teambuilding activities) to create team cohesion and found minimal to no support for such endeavors (Bowers, 2014). In essence, research indicates that cohesion is either present or it is not, but the factor(s) which contribute to cohesion have yet to be identified. This study hypothesized that high levels of both CSE and CEE in team members would be related to higher levels of cohesion within the team because high-CSE and high-CEE individuals are more likely to develop and invest in social relationships, to believe that they can work successfully to accomplish team-driven objectives, and to trust their managerial counterparts. The theoretical implication is that cohesion stems from the fundamental dispositions of the team members.

Finally, from a managerial perspective, the findings from this study are relevant to those in the restaurant industry who have input into the selection and promotion of managers. A prevailing industry theme is that if a team is not cohesive or unified, a teambuilding activity can help to resolve these issues (Farkas, 2010). However, teambuilding activities often require both a significant investment in time and money; advance planning and coordination is necessary to allow all managers to participate, and structured teambuilders can cost upwards of $150 per participant (Paton, 2005). The findings of this research would suggest that rather than relying on team building activities after the team is assembled, success in building cohesive teams stems

from the selection process for both front-line and general managers. Cohesive teams have the potential to function at a high level of performance, which can lead to manager retention and a reduction in the high costs associated with management turnover (Davidson, Timo, & Wang, 2010). The implication of this study is that restaurant companies should implement careful selection processes that make use of personality assessment instruments in order to hire and promote individuals who are, in essence, predisposed to team cohesion.

Definition of Key Terms

- *Team:* (a) Two or more individuals who (b) socially interact (face to face, or increasingly, virtually); (c) possess one or more common goals; (d) are brought together to perform organizationally relevant tasks; (e) exhibit interdependencies with respect to workflow, goals, and outcomes; (f) have different roles and responsibilities; and (g) are together embedded in an encompassing organizational system, with boundaries and linkages to the broader system context and task environment

- *Management team:* Teams that are responsible for the overall performance of the business unit and coordinate and provide direction to sub-units within the business unit

- *Team cohesion:* a dynamic process that is reflected in the tendency for a team to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs

  - *Task cohesion:* the team's shared commitment to the team task or goal and motivation to coordinate team efforts to achieve work-related goals

- o *Social cohesion:* shared attraction to the group, caring and closeness among team members, and enjoyment of social time together

- *Core evaluations:* The basic conclusions and bottom-line evaluations that all individuals hold subconsciously

- *Core self-evaluations (CSE):* An individual's fundamental appraisal of one's self

- *Dimensions of CSE:*

  - o *Self-esteem:* An overall appraisal of one's self-worth

  - o *Generalized self-efficacy:* An estimate of one's ability to perform and cope successfully within an extensive range of situations

  - o *Locus of control:* The belief that desired effects result from one's own behavior

  - o *Emotional stability:* The tendency to feel calm and secure

- *Core external-evaluations (CEE):* An individual's fundamental appraisal of their environment

- *Dimensions of CEE:*

  - o *Belief in a benevolent world:* The belief that happiness and achievement are possible in life

  - o *Belief in a just world:* The belief that the world is fair and virtue is rewarded

  - o *Belief in the benevolence of people:* the belief that people are basically good, caring, and helpful

  - o *Propensity to trust:* A general willingness to trust people

CHAPTER TWO: LITERATURE REVIEW

This chapter begins with an explanation of teams and the different types of work teams, followed by a discussion of the existing research on team cohesion. Then, core evaluations are introduced and a discussion of the different types of core evaluations, their theoretical foundation and application in an organizational context is provided. Finally, the theoretical framework and hypotheses development of this study is described.

Teams, Team Types, and Teamwork

To facilitate a discussion of team cohesion, it is first necessary to understand both the general and specific characteristics of work teams and the framework within which "teams" research is conducted. The literature has often used the terms *groups* and *teams* interchangeably and early attempts to distinguish between them were given little recognition. More recent efforts to separate the definitions of these two types of collectives underscore certain important differences between them (Humphrey & Aime, 2014; Sundstrom, McIntyre, Halfhill, & Richards, 2000). Whereas *group* members may lack interdependence or a connection to an organizational structure and thus may not be perceived by others or themselves as part of a collective, *team* members are viewed as a collective entity comprised of interdependent individuals whose tasks are relevant to the organization in which they exist (Humphrey & Aime, 2014).

Literature provides a number of definitions of teams, many of which share similar attributes. For example, Sundstrom et al. (1990) offer a straightforward definition, characterizing work teams as "small groups of interdependent individuals who share responsibility for

outcomes for their organizations" (pg. 120). Salas, Dickinson, Converse, and Tannenbaum (1992, pg. 4) advanced and refined the definition, offering the following definition of teams:

> "a distinguishable set of two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal/objective/mission, who have each been assigned specific roles or functions to perform, and who have a limited life-span membership."

Synthesizing past work, Kozlowski and Ilgen (2006, pg. 79) provide perhaps the most comprehensive definitions, and the definition adopted by this study, defining teams as:

> "(a) Two or more individuals who (b) socially interact (face to face, or increasingly, virtually); (c) possess one or more common goals; (d) are brought together to perform organizationally relevant tasks; (e) exhibit interdependencies with respect to workflow, goals, and outcomes; (f) have different roles and responsibilities; and (g) are together embedded in an encompassing organizational system, with boundaries and linkages to the broader system context and task environment."

This definition provides an overarching viewpoint as to what a team is, but in order to understand the specific characteristics of a management team, it is necessary to examine team types. Although there is no universally adopted taxonomy of teams, a taxonomic approach is recommended because it is useful for setting boundaries and establishing generalizability (Cannon-Bowers & Bowers, 2010). Table 1 presents several common team taxonomies that specifically address management teams, identifying them as teams which are composed of managers and direct reports (Sundstrom et al., 1990; Sundstrom, 1999; Sundstrom et al., 2000), responsible for managing the performance of a unit or units (Mohrman, Cohen, & Mohrman, Jr., 1995), and share responsibility for the success of the firm (Cohen & Bailey, 1997).

Table 1: Common Team Taxonomies

Author	Team Types	Definitions
Cohen & Bailey, 1997	Management Teams	Coordinate and provide direction to sub-units under their jurisdiction
	Work Teams	Continuing work units responsible for producing goods or providing services
	Parallel Teams	People from different work units/jobs pulled together to perform functions that the regular organization is not equipped to perform well
	Project Teams	Time-limited teams that produce one-time outputs
Morhmon, Cohen, & Morhmon Jr., 1995	Management Teams	Responsible for coordinating the management of a number of sub-units that are interdependent in the accomplishment of a collective output
	Work Teams	Established to perform the work that constitutes the core transformation process of the organization
	Integrating Teams	Established to make sure the work across various parts of the organization fits together
	Improvement Teams	Established to make improvements in the capability of the organization to deliver its products and services
Sundstrom, 1999; Sundstrom et al., 2000	Management Teams	Teams consisting of an executive or senior manager and the managers/supervisors who report directly to him or her
	Production Groups	Front-line employees who repeatedly produce tangible output
	Project Groups	Cross-functional teams who carry out defined, specialized, time-limited projects and disband after completion
	Service Groups	Employees who cooperate to conduct repeated transactions with customers
	Action & Performing Groups	Groups that conduct complex, time-limited performance events involving audiences, adversaries, or challenging environments
	Advisory Groups/Parallel Teams	Temporarily assembled groups for the purpose of solving problems and recommending solutions that work outside of, and in parallel with, production processes

Sundstrom's (1999, 2000) taxonomy was adopted for this study, as it provides a more comprehensive characterization of management teams and accurately describes a management

13

team in the context of the restaurant industry. Sundstrom (1999) defines management teams as those responsible for organizing the work of the units within their purview; thus, management teams are composed of managers responsible for each sub-unit within the business unit. Specializations within the team may vary but managers are accountable for similar duties with respect to their unit. Members of the management team also have shared duties such as staffing, planning, budgeting, and coordination. In the restaurant context, the business unit is the restaurant, and sub-units include the kitchen, bar, and waitstaff; this composition is often represented by *Back-of-House* and *Front-of-House* designations, such as *Kitchen Manager* or *Chef, Bar Manager,* and *Service Manager*. Although individual managers may be responsible for certain functions within their specific sub-unit, such as scheduling, purchasing, and inventory, staffing the restaurant as a whole falls to the entire management team, as does responsibility for financial and guest service targets and management of day-to-day operations.

In Sundstrom's (1999) description of management teams, he also characterized them as those which are generally treated as permanent fixtures but in practice experience changes to membership as managers are transferred or promoted. There may be multiple management teams across an organization that all possess similar responsibilities but are housed in different work units. This is also applicable in the restaurant context, particularly with regional and national chains, where there may be hundreds of units, each with their own management team, which allow managers to move from unit to unit.

Finally, Sundstrom (1999) also suggested that the authority of a management team stems from its hierarchical structure and rank of its members. This aspect of management teams is also evident in the restaurant context, as the typical structure of the management team includes a

General Manager and several front-line managers or supervisors. Large-scale restaurants may also include an additional layer of management in the form of an Assistant General Manager or Senior Manager who falls between the General Manager and the front-line managers.

Evolving directly from the definition of work teams and team taxonomies is the concept of what teamwork is and how it is affected by factors internal and external to the team (Cannon-Bowers & Bowers, 2010). In order to understand these factors, a number of models of teamwork have been developed, the most predominant of which is the input-process-output (IPO) model proposed by McGrath (1964). According to this framework, *inputs* are the antecedents that support and hinder team members' interactions. Inputs fall into three categories: individual team member attributes, team-level factors such as task structure and team size, and organizational-level factors such as reward structures and organizational design features. *Processes* are those activities team members engage in for the purpose of accomplishing team tasks and include transition processes such as planning and strategy formulation, action processes such as coordination and monitoring, and interpersonal processes such as conflict management and motivation. *Outputs* are the team's results, typically operationalized as performance, and other affective outcomes such as satisfaction and viability (Mathieu, Maynard, Rapp, & Gilson, 2008).

The IPO model has served as a guiding framework for teams researchers, but has been modified and extended in several ways since its inception (Cohen & Bailey, 1997; Hackman, 1987; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Salas et al., 1992). Relevant to the forthcoming discussion of team cohesion is the distinction between processes and emergent states noted by Marks et al. (2001). Emergent states are mechanisms within a team that capture the cognitive, motivational, and affective states of the team rather than the interaction between

team members (Marks et al., 2001; Mathieu et al., 2008). Marks et al. (2001) argued that constructs such as cohesion, collective efficacy, and shared mental models had been misrepresented as interaction processes. Rather, these constructs reflected qualities within a team that represented team member cognition, attitudes, values, and motivations, which were more appropriately labeled *emergent states*.

Building on this distinction, Ilgen et al. (2005) proposed the *input-mediator-output-input* (IMOI) model as an alternative conceptualization to the IPO model. Like Marks et al. (2001), Ilgen et al. (2005) criticized the IPO model for failing to recognize that many of the processes initially recognized by researchers as mediators between inputs and outputs were not processes but emergent cognitive or affective states. By reframing the model from IPO to IMOI, Ilgen et al. (2005) implied that there is a broader range of mediators influencing the relationship between inputs and outputs that include both processes and emergent states. Subsequent to Marks et al.'s (2001) definition of emergent states and Ilgen et al.'s (2005) specification of the IMOI model of teamwork, cohesion has been universally recognized as a core emergent state within teams research (Cannon-Bowers & Bowers, 2010; Kozlowski & Chao, 2012).

In their review of teams literature, Cannon-Bowers and Bowers (2010) noted that the scholarly study of work teams was a relatively recent phenomenon, and there is considerable work to be done in order to fully understand the complex nature of teams. They also echoed Mathieu et al.'s (2008) contention that teams come in many different configurations, are tasked with performing many different types of functions, and work environment influences the manner in which teams function; therefore, findings in teams research may not be universally applicable to all teams. Cannon-Bowers and Bowers (2010) concluded that it was critically important in

empirical teams research to specify not only the type of team under study, but also to include an extensive description of the type of task(s) being performed, and delineate the organizational environment in which the team operates.

In this vein, it is both the team task demands and the environment which makes the restaurant setting of particular interest concerning the topic of cohesion. A fundamental element of management teams is the interdependence between team members (Sundstrom, 1999). Although there are a number of team task taxonomies, this study adopted Saavedra, Early, and Van Dyne's (1993) model of team tasks (See Table 2), as it suggests that teams can be further categorized on the basis of the type of interdependence required.

Table 2: Interdependence Model of Team Tasks

Type of Interdependence	Definition	Example
Pooled	Independent workflow where each team member contributes separately to the team's output without interacting directly with other team members	Individual contributors housed within the same department
Sequential	One-way workflow where the input from one group member is necessary to the functioning of another	Traditional assembly line
Reciprocal	Two-way workflow where two team members interact in such that the output of one becomes input to another and vice versa	Command-and-control teams
Team	Simultaneous, multi-directional flow where group members must act collaboratively to complete the task	Self-managed teams

Source: Saavedra et al. (1993)

Saavedra et al. (1993) defined reciprocal interdependence as a two-way workflow where two team members interact such that the output of one becomes the input to the other and vice versa. Order of individual actions can vary, and often member roles are specialized, but team performance requires coordination among individual team members in order to support the overall task. The task demands of restaurant managers, as described below, fit this definition. Although all members of the management team may share the same generic title, each manager is typically assigned a specialized role, such as Kitchen Manager, Bar Manager, or Service Manager. Within these roles, sequential execution of tasks is not required, but communication and cooperation among team members is. For example, a Bar Manager and a Service Manager may share some of the same employees, and thus need to coordinate their schedule-writing efforts. Further, the task of shift-management is interdependent; the actions of the opening manager affect the actions of the closing manager, which in turn affects the actions of the manager who opens the following shift or day. Cohesion, particularly task cohesion, is relevant for this type of task interdependence, as managers need to be united in order to achieve unit-level objectives such as those which fall under sales, labor cost, and guest service benchmarks.

As noted above, along with team type and task demands, the context in which the team functions is paramount to a better understanding of teams. The restaurant industry is a very specific context but is understudied in regard to team cohesion, leaving minimal academic knowledge of cohesion in the restaurant setting. To date, there is one study that included cohesion as an outcome variable for service management teams in a restaurant setting (Guchait, Hamilton, & Hua; 2014); however, this study used student project teams that managed two meal services as proxies for working management teams. Yet, there are elements of the environment

which suggest that a high level of cohesion among managers would be beneficial. Restaurant managers are responsible to ensure that hourly employees provide consistent, high-quality service. At the same time, the restaurant industry is known for its high expectations of managers in terms of hours spent in the unit, level of employee supervision, and extensive customer contact, all of which can create an environment that is primed for intra-team conflict. Finally, restaurant managers often work their shifts alone and are reliant on the previous shift's manager to ensure that the shift is set up successfully with regard to staffing, product levels, and equipment. Cohesion within the management team can allow for better communication among the managers, reduce intragroup conflict, and allow the managers to present a singular vision to their employees.

Team Cohesion

Conceptual Definition

Cohesion is one of the most widely studied concepts in small group research, conceptually grounded in social psychology and researched extensively in the context of social groups, sports teams, and organizational/work teams (Kozlowski & Chao, 2012; Kozlowski & Ilgen, 2006; Greer, 2012; Rosh, Offerman, & Van Diest, 2012). Festinger (1950, pg. 274) first introduced cohesion as "the *resultant* of all forces acting on the members of a group to remain in the group." Since this initial conceptualization, cohesion has been defined in number of ways and in varying dimensions.

Festinger (1950) viewed cohesion as a compilation of three factors: commitment to the group task, interpersonal attraction, and group pride. However, in spite of Festinger's (1950)

three-dimensional conceptualization, early researchers treated cohesion as a unidimensional construct (Pepitone & Kleiner, 1957; Seashore, 1954; Van Bergen & Koekebakker, 1959). As cohesion research evolved, numerous debates ensued regarding the definition and dimensionality of cohesion. Some researchers continued to favor the broad unidimensional approach (Piper, Marrache, Lacroix, Richarden, & Jones, 1983) while others focused on just one of Festinger's (1950) three facets. Within this second group of researchers, some variation of interpersonal attraction to the group was most commonly used as the definition for cohesion (Dailey, 1978; Evans & Jarvis, 1980; Narayanan & Nath, 1984; O'Reilly, Caldwell, & Barnett, 1989; Schriesheim, Kinicki, & Schriesheim, 1979; Stokes, 1983). Goodman, Ravlin, and Schminke (1987) took a different approach, defining cohesion as commitment of members to the group task, whereas Staw (1975) echoed to some extent Festinger's (1950) notion of group pride, equating cohesion with group spirit. Although the viewpoint that cohesion was a unitary construct was predominant, there was some early criticism of this approach. Gross and Martin's (1952) critique of Festinger's (1950) definition was that it was too vague; they proposed that cohesion was comprised of two underlying dimensions: task cohesion and interpersonal cohesion.

This assortment of definitions led to Mudrack's (1989a) review and pronouncement that research into cohesion had, to date, been "dominated by confusion, inconsistency, and almost inexcusable sloppiness in regard to defining the construct" (pg. 45). In a parallel review, Mudrack (1989b) called for a reconceptualization of the construct, arguing that focusing solely on attraction to the group limited the nature and meaning of cohesion and that Goodman et al.'s (1987) definition of cohesion as commitment to the group task was a valuable inclusion.

Mudrack's (1989a, 1989b) did not directly state that cohesion was a multidimensional construct, but his collective commentaries on the subject contributed to the shift away from viewing cohesion as a unidimensional construct. Mudrack (1989a, 1989b) also suggested that sports psychology literature offered a more appropriate definition, which provided a starting point for a multidimensional explanation of cohesion in an organization context.

Sports psychology literature reaffirmed Gross and Martin's (1952) early conceptualization of cohesion, defining it as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982, pg. 124). This definition of cohesion was further advanced to that which is currently found in the *APA Handbook of Industrial and Organizational Psychology:*

> "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Carron, Brawley, & Widmeyer, 1998 as cited in Cannon-Bowers & Bowers, 2010, pg. 625).

Notable in this definition is the recognition of both commitment to the team task and interpersonal or mutual attraction to the group, whereas group pride is missing. While still an integral factor in sports research, the group pride component is rarely included in organization literature (Chiocchio & Essiembre, 2009). In their respective meta-analyses of cohesion, both Mullen and Copper (1994) and Beal et al. (2003) tested the number of dimensions supported by cohesion research using Festinger's (1950) three components of cohesion and found a minimal number of correlations for group pride, indicating that group pride has received little attention. Thus, in organizational literature, team cohesion is generally considered to have two components: task cohesion and social cohesion (Beal et al., 2003; Castano, Watts, & Tekleab,

2013; Chiocchio & Essiembre, 2009). *Task cohesion* is defined as the team's shared commitment to the team task or goal and motivation to coordinate team efforts to achieve work-related goals (Beal et al., 2003; Castano et al., 2013; Chiocchio & Essiembre, 2009; Hackman, 1976). *Social cohesion* is defined as the shared attraction to the group, caring and closeness among team members, and enjoyment of social time together (Evans and Jarvis, 1980; Castano et al., 2013).

Measurement of Cohesion

Given the varying definitions and conceptualizations spanning over 60 years of cohesion research, it is unsurprising that the debate over the dimensionality of cohesion also extends to how the construct is measured. Seashore (1954), a proponent of cohesion as a unidimensional construct, designed a five-item scale to measure cohesion limited to assessing members' attraction to remaining a part of the group. In their review of the literature, Casey-Campbell and Martens (2009) noted Seashore's (1954) scale was the most often cited and was used either verbatim or as the basis for an adapted measure. Multi-dimensional measures also exist. In line with their two-dimensional definition, Gross and Martin (1952) developed the Gross Cohesiveness Questionnaire, comprised of seven items that addressed both task and social cohesion. Zaccaro and Lowe (1988) used an additive group task to determine whether there were differing effects of task and social cohesion, and created separate measures for each dimension.

More recent work lending support to a two-dimensional approach to measurement is the Team Cohesion (TC) scale from Carless and De Paola (2000), which is an adapted version of the Group Environment Questionnaire (GEQ) developed by Widmeyer, Brawley, and Carron (1985). Widmeyer et al. (1985) developed the 18-item GEQ, which measures four dimensions of

cohesion, based on their meta-analysis of literature related to sports and activities (Carron, Brawley, & Widmeyer, 1985). Widmeyer et al. (1985) argued that distinctions must be made between both the task and social aspects of cohesion as well as between the group and individual aspects. Their definitions of task and social cohesion parallel those used in organizational literature. They also included a group dimension called *Group Integration,* which they defined as the individual's perceptions about what the group believes about its closeness, similarity, and bonding as whole, as well as an individual dimension called *Individual Attraction to the Group,* which they defined as the extent to which an individual wants to be accepted by group members and remain in the group (Carron & Brawley, 2012). Although designed for sports teams, organizational researchers recognized the application of the GEQ to work teams, particularly because the model acknowledged the importance of both the individual and the group, and because prior organizational research indicated it was useful to separate task and social cohesion (Mullen & Copper, 1994; Mudrack, 1989b). Carless and De Paola (2000) adapted the GEQ for work teams, examining its factor structure and demonstrating the construct- and criterion-related validity of the adapted scale using a sample of members from naturally occurring work teams in the retail sector. The resulting 10-item Team Cohesion Scale reflects task cohesion and social cohesion, with social cohesion measured by items reflecting both individual attraction to the team and the desire to spend time with team members (Carless and De Paola, 2000).

Due to the myriad of definitions and conceptualizations of cohesion present in the literature, the level of analysis at which cohesion is measured also varies. Although cohesion is generally acknowledged to be a group-level construct (Carless, 2007), there is some debate stemming from researchers who defined cohesion as individual attraction to the group (e.g. Lott

& Lott, 1965; Shaw, 1974, 1976) or proposed that cohesion was an individual-level concept (e.g. Bollen & Hoyle, 1990; Hoyle & Crawford, 1994). Widmeyer et al. (1985) argued that cohesion is both an individual-level and a group-level construct and should be measured and analyzed as such. However, within the context of work teams, Carless and De Paola (2000) found that the conceptualization of cohesion at the group-level, rather than at the individual-level, was more appropriate. Kozlowski and Klein's (2000) discussion of multilevel organizational theory, in which they argued that team cohesion is a group- or unit-level construct because it describes an emergent process occurring within an entity composed of two or more individuals, lends support to Carless and De Paola's (2000) empirical findings.

Further complicating the level of analysis debate is the manner in which cohesion ratings are collected. Among researchers who conceptualize cohesion at the team-level, the most common practice is to survey team members, collect individual responses, and aggregate the data to a team-level mean (Bergman, Rentsch, Small, Davenport, & Bergman, 2012; Castano et al., 2013; Kozlowski & Chao, 2012; Mach, Dolan, & Tzafrir, 2010; Tung & Chang, 2011; Wei & Wu, 2013). However, this method has been criticized because the measurement resides at the level of the individual (Castano et al., 2013). Consensus-based approaches have been proposed which specifically measure cohesion at the team-level. Gist (1987) suggested that team members complete the survey as a group and come to a consensus on each item. Obtaining expert ratings of the extent to which cohesion appears to be present within in the group has also been offered as a means to derive a more accurate measure of cohesion (Kirkman, Tesluk, & Rosen, 2001). Although some empirical and theoretical studies have offered support for the superiority of

consensus-based measures, Castano et al. (2013) found no significant differences between consensus and aggregation measures in their recent meta-analysis of cohesion studies.

Kozlowski and Klein (2000) proposed that cohesion can be further categorized as a shared unit property, meaning it describes characteristics common to the members of the team that are presumed to originate from individual team members' perceptions and attitudes. This provides implications for the appropriateness of the aggregation approach to measurement. They defined shared-unit properties as properties that

> "originate in individual unit member's experiences, attitudes, perceptions, values, cognitions, or behaviors and converge among group members as a function of attraction, selection, attrition, socialization, social interaction, leadership, and other psychological processes" (Kozlowski & Klein, 2000, pg. 30).

Thus, shared unit properties *emerge* as a collective property of the team as a whole and are based on the composition model of emergence, which assumes similarity or correspondence between constructs across levels (Kozlowski & Chao, 2012). From a theoretical perspective, since the origin of shared unit properties is at the psychological level, measurement of individuals is appropriate (Kozlowski & Klein, 2000). Critical to this assumption is verification of the composition process; "sharedness" within the unit must be evaluated and aggregation is only justified when there is evidence for restricted within-group variance (Kozlowski & Chao, 2012).

Consequences of Cohesion

Cohesion is one of the more thoroughly studied emergent states in organizational literature. Cohesion research suggests that cohesion within teams is a worthy goal; positive outcomes include easier knowledge transfer, more effective communication, higher individual satisfaction, lower team conflict, lower team member turnover, and higher team loyalty (Wise,

2014). However, no outcome has been studied in relation to cohesion more extensively than performance (Mathieu et al., 2007). Several meta-analytic reviews have consistently supported a positive relationship between team cohesion and team performance, although not all were able to isolate whether there were differing effects for task cohesion versus social cohesion (Beal et al. 2003; Castano et al., 2013; Chiocchio & Essiembre, 2009; Evans & Dion, 1991; Gully et al., 1995; Mullen & Copper, 1994).

In what the authors cited as the most comprehensive cohesion meta-analysis to date, Castano et al. (2013) synthesized 60 years of literature and examined a series of moderators of the cohesion-performance relationship. Expanding on previous meta-analyses, this analysis incorporated the largest number of studies (132) and independent effect sizes (159) and investigated the effects of the following moderators on both task and social cohesion: group size, group setting (sports, military, lab, organizational, and academic), research design (cross-sectional and longitudinal), team tenure, level of measurement, and performance measurement. The results indicated medium effect sizes for both social cohesion and task cohesion on performance. A small number of studies (9) measured cohesion in overall terms, and these studies also showed a significant relationship with performance, albeit with a smaller effect size, leading the authors to conclude that the more general the measure of cohesion, the lower its relationship with performance is likely to be. These findings support the viewpoint that task and social cohesion should be measured separately. In terms of the moderators, the authors found a significant difference between business teams and sports teams on the task cohesion-performance relationship, which supports the viewpoint that researchers conducting empirical studies of team must explicitly identify the type of team under study.

In more recent individual empirical studies, cohesion is typically examined as a mediator or moderator between a construct of interest as the predictor and performance/effectiveness as the outcome variable. Using a sample of restaurant management teams within a major international quick-service chain, Tung and Chang (2011) found that cohesion mediated the relationship between empowering leadership and team performance. DeOrtentiis, Summers, Ammeter, Douglas, and Ferris (2013) found that trust was positively related to cohesion, that cohesion was positively related to team effectiveness, and that cohesion mediated the relationship between trust and satisfaction. In a more extensive causal chain, Wei and Wu (2013) found that team cohesion moderated the relationship between cognitive diversity, which is deep-level diversity in beliefs and ways of thinking, in top management teams and the elaboration of task-related information, which in turn acted as a mediator between cognitive diversity and firm performance. Specifically, they found that cognitive diversity was positively related to elaboration of task-related information when team cohesion was high, but negatively related when cohesion was low. This finding indicates that highly cohesive teams have a greater ability to accommodate diversity in beliefs among managers and to communicate and receive task-related information more effectively than minimally cohesive teams.

Researchers have recently investigated outcomes of cohesion that expand beyond performance yet still offer implications for teamwork. Joo, Song, Lim, and Yoon (2012) found that team cohesion had a direct positive effect on team creativity and moderated the relationship between perceived learning culture, or the extent to which team members believed the organization embraced knowledge transfer and creativity, and team creativity. They also found that cohesion moderated the relationship between developmental feedback, or the extent to

which team members are provided with useful information related to their performance from managers, and team creativity. The positive effects of learning culture were stronger in low cohesion teams and the positive effects of developmental feedback were stronger in high cohesion teams.

Antecedents of Cohesion

Whereas the outcomes of team cohesion have been studied extensively, there is minimal research into the antecedents contributing to the development and emergence of cohesion (Kozlowski & Chao, 2012; Kozlowski & Ilgen, 2006). As a result, other than structural antecedents such as group size, few true antecedents to cohesion have been identified (Casey-Campbell & Martens, 2009).

Drawing upon the existing research at the time, Cartwright (1968) provided a general commentary on cohesion, indicating that a team member's intention to remain a part of the team was a precursor to cohesion and was often included in the varying definitions of the construct. Lott and Lott (1965) discussed the influence of interpersonal connections and suggested team members' attraction to the team as a whole and to its team members could translate into cohesion. Hogg (1992) suggested the extent to which a team member identified with the team could also play an important role in consequent levels of cohesion. Kozlowski & Ilgen (2006) speculated that establishing clear team norms and goals might help a team to develop both task and social cohesion. However, these are all theoretical rather than empirically tested antecedents. Furthermore, particularly in regard to the suggestions of Cartwright (1968) and Lott and Lott

(1965), the proposed antecedent, attraction to the team, is captured in the definition of cohesion, which confounds both the antecedent and the potential consequences.

Research in the area of team composition offers one possible avenue for revealing the predictors of team cohesion and suggests that composition with respect to team member personalities or dispositions may be important (Kozlowski & Ilgen, 2006). *Team composition* is the configuration of member attributes within a team, such as team size, demographics, member ability, and personality, and is thought to have a powerful influence on team processes and outcomes (Bell, 2007; Moreland & Levine, 1992). Deep-level composition variables are those underlying psychological characteristics such as dispositional factors, values, and attitudes which are communicated through verbal and nonverbal behaviors and learned over multiple interactions. Researchers have suggested that although demographic attributes within a team may be important, deep-level composition variables may have a stronger influence on team processes and outcomes (Bell, 2007; Harrison, Price, & Bell, 1998; Harrison, Price, Gavin, & Florey, 2002; Hollenbeck, DeRue, & Guzzo, 2004). Research in this area has attempted to discern the optimal level of diversity within a team, and although the predominant outcome of interest is team performance, the results from these studies offer implications for the role that individual disposition has on cohesion. Barrick, Stewart, Neubert, and Mount (1998) offered empirical support for this relationship in their study of work teams, finding that teams with high levels of member extraversion and emotional stability had higher levels of social cohesion.

Core Evaluations

The core evaluations construct is grounded in appraisal theory and has origins in both clinical and social psychology. According to appraisal theory, "emotions are the form in which one experiences subconscious appraisals of objects, people, or events in relation to one's perceived values, needs, or commitments" (Judge et al., 1997, pg. 157). Clinical psychologist Edith Packer maintained these appraisals occur at different levels and that situational appraisals are affected by more fundamental, all-encompassing appraisals. She called these appraisals *core evaluations*, and defined them as the "basic conclusions, bottom-line evaluations that individuals all hold subconsciously" (Packer, 1985). She further argued that core evaluations lie at the base of all other appraisals and "pertain to three fundamental areas of everyone's life: the self, reality, and other people" (Packer, 1985).

Packer's (1985) concept of core evaluations is very similar to the ideas of Milton Rokeach, a social psychologist. Rokeach (1972) used the term belief to represent an individual's values, evaluations, cognitions, and attitudes and asserted that individuals possess a belief system representing the "total universe of a person's beliefs about the physical world, the social world, and the self" (pg. 123). His tripartite model mirrored Packer's (1985) three types of core evaluations. Rokeach (1972) further claimed that an individual's central belief system, which reflects the beliefs directly concerning an individual's own existence and identity in the physical and social world, is not easily changeable, which is also consistent with the fundamentality and stability of Packer's (1985) core evaluations. Both also contended that evaluations of the self in particular affect all other evaluations or appraisals (Judge et al., 1997).

The application of core evaluations to organizational psychology stemmed from Judge et al.'s (1997) efforts to provide an integrative theory for a dispositional source of job satisfaction. The dispositional approach contends that individuals possess relatively consistent characteristics or traits which affect job satisfaction independently of situation-specific attributes, such as job duties or the organization. Judge et al. (1997) proposed three attributes of dispositional traits delimiting the extent to which they affect job satisfaction: evaluation-focus, fundamentality, and breadth.

Evaluation-focus refers to the extent to which a trait involves evaluation versus description. For example, self-esteem is a fundamental evaluation of one's self, whereas agreeableness describes a pattern of behavior. On the basis that job satisfaction is an evaluation, Judge et al. (1997) predicted evaluation traits would have a greater impact than descriptive traits. This is not to say that descriptive traits have no impact on satisfaction, but instead that the impact of descriptive traits is lesser and takes a more indirect route to influence satisfaction.

Fundamental traits are those underlying surface traits and are the most basic of traits. Cattell (1965) differentiated between source traits and surface traits, stating that source traits are the causes of surface traits. Rokeach (1972) delineated between central and peripheral traits in his conception of the belief system, arguing that central beliefs were stable whereas peripheral beliefs were malleable. Judge et al. (1997) suggested central traits were more connected to other traits, evaluations, and beliefs than peripheral traits and predicted that central, or fundamental, traits would more strongly and consistently influence job satisfaction.

Breadth refers to the scope of a trait. As noted by Allport (1961) in his distinction between central and secondary traits, some traits are broader in scope than others. Allport (1961)

31

viewed central traits as the core building blocks that shape behavior, and these traits are more likely to be related to other preferences and attitudes. For example, traits like honesty, friendliness, and sensitivity are considered central traits. Judge et al. (1997) argued that the broader a trait is in scope, the more objects and entities are encompassed by the trait, which in turn increased the chances the trait encompasses the work realm; thus, dispositional traits that are broad in scope were more likely to have an effect on job satisfaction.

On the basis that core evaluations met the criteria of evaluation-focus, fundamentality, and breadth, Judge et al (1997) posited a theoretical model of core evaluations and identified the four elements reflecting what is now collectively referred to as *core self-evaluation*: self-esteem, generalized self-efficacy, locus of control, and emotional stability. In line with Packer's (1985) trichotomous definition, they also proposed elements for core evaluations of others and for core evaluations of the world. For *core evaluations of others*, Judge et al. (1997) proposed trust vs. cynicism and for *core evaluations of the world* they proposed three elements: benevolence vs. malevolence, just vs. unjust world, and exciting vs. dangerous world. The evolution, empirical investigation, and application of each of these types of core evaluations in organizational literature will now be discussed in turn.

Core Self-Evaluation

Core self-evaluation (CSE) is a higher order construct describing the fundamental premises that individuals hold about themselves and their ability to function in the world. CSE is comprised of four specific traits: *self-esteem, generalized self-efficacy, emotional stability, and*

locus of control (Judge et al., 1997; Judge & Larsen, 2001; Judge et al., 1998; Chang et al., 2012). The relationship between CSE and its traits are displayed in Figure 1.
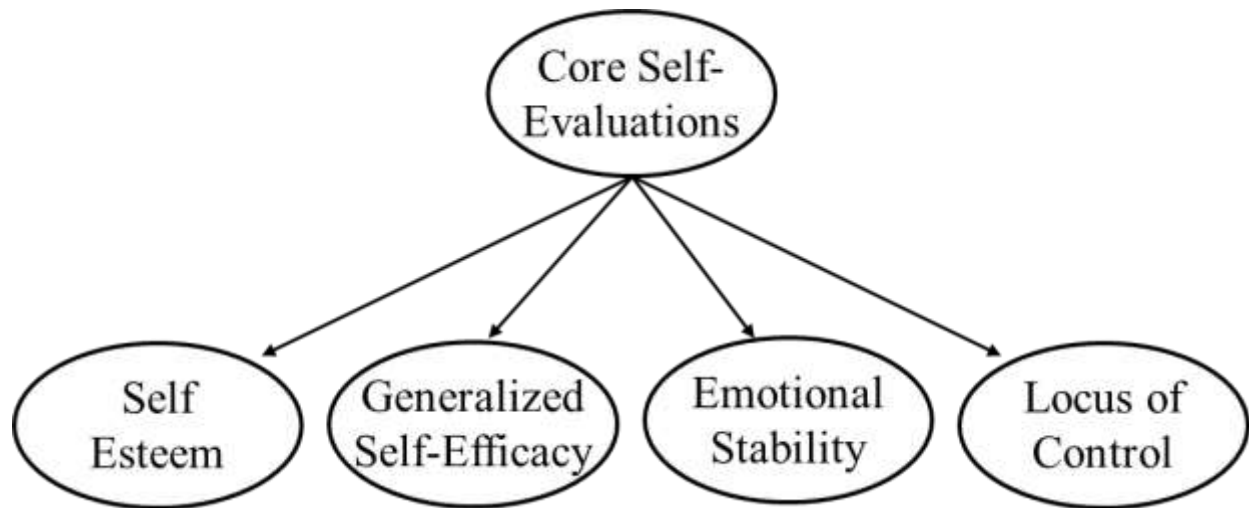
Figure 1: Model of Core Self-Evaluation

The traits that compose the CSE construct are described as follows:

1. *Self-esteem:* Self-esteem is an overall appraisal of one's self-worth (Rosenberg, 1965). It refers to one's self-acceptance, self-liking, and self-respect. Research has indicated that although self-esteem can have short-term fluctuations, it demonstrates long-term stability (Judge & Larsen, 2001).

2. *Generalized self-efficacy*: Generalized self-efficacy is the belief about how well one can perform across a variety of different situations (Chen, Gully, & Eden, 2001). Generalized self-efficacy is a different dimension than self-esteem because what an individual masters is not necessarily the same as what that individual values (Judge & Larsen, 2001).

3. *Emotional stability*: Emotional stability is often referred to by its opposite pole, neuroticism, and is one of the traits of the "Big Five" model of personality. Emotional stability is the proclivity to feel calm and secure; conversely, neuroticism is the tendency to display poor emotional adjustment and focus on negative aspects of the self (Chang et al., 2012; Hu, Wang, Liden, & Sun, 2012).

4. *Locus of control*: Locus of control represents the perceived degree of control one has in life (Rotter, 1966). Individuals with an internal locus of control believe their behavior controls their lives, whereas those with an external locus of control believe that outside forces, such as luck, fate, or powerful others, control their lives. Conceptually, locus of control is related to generalized self-efficacy, but possesses one key difference. Locus of control affects confidence in being able to control outcomes while self-efficacy concerns confidence in regard to behaviors (Judge & Larsen, 2001).

CSE has been researched extensively in regard to outcomes in the workplace, most notably job satisfaction (Judge et al., 1998; Judge et al., 2005; Judge et al., 2000; Piccolo et al., 2005). CSE has also been linked to other individual outcomes such as work motivation (Erez & Judge, 2001), commitment to developmental goals (Bono & Colbert, 2005), job performance (Judge & Bono, 2001), work success (Judge & Hurst, 2008), customer service (Salvaggio et al., 2007), happiness (Piccolo et al., 2005), coping with organizational change (Judge et al., 1999), and task motivation (Judge, Hurst, & Simon, 2009).

The emphasis in CSE research has been on individual outcomes, but the construct has been incorporated to a lesser extent into teams research. Current findings demonstrate that CSE

has a positive impact on conflict management, the delivery of performance feedback to team members, and team performance (Almost, Doran, Hall, & Laschinger, 2010; Resick, Whitman, Weingarden, & Hiller, 2009; Siu, Laschinger, & Finegan, 2008). Haynie (2012) found, when aggregated to the team level, a high mean level of CSE was positively related to team performance when a high level of team-member exchange was also present. In a multilevel study, Tasa et al. (2011) found that CSE positively predicted an individual's performance management behavior, and that team collective efficacy was a cross-level moderator of this relationship. Stated differently, confidence in the team's joint capabilities, which was treated as a team-level variable, played a role in stimulating or repressing the relationship between individual traits and individual behaviors.

In their review and meta-analysis of 149 studies in which CSE was included as a construct, Chang et al. (2012) found that CSE had strong, positive relationships with job satisfaction, affective organizational commitment, goal commitment, intrinsic motivation, perceived job characteristics, and approach motivation. They also found that CSE had moderate, positive relationships with task performance, organizational citizenship behaviors, perceived fairness, and perceived support. Finally, they determined that CSE was negatively related to avoidance motivation, counterproductive work behavior, turnover intention, occupational stressors, and strains. Strains are maladaptive responses to stress such as negative emotions, exhaustion, psychosomatic complaints, and substance abuse (Rosen, Chang, Djurdjevic, & Eatough, 2010).

These findings led Chang et al. (2012) to propose the approach-avoidance theoretical framework to integrate CSE research. When Judge et al. (1997) introduced the concept of CSE to

organizational literature, they offered four processes through which CSE could influence outcomes. First, there could be a direct effect through the process of emotional generalization, in which an individual's positive self-view spills over to influence other outcomes, such as job satisfaction or organizational commitment. Second, there could be an indirect or mediated effect in which CSE influences an individual's cognitions and appraisals regarding different attributes (i.e. job characteristics). Third, CSE could have an indirect or mediating effect on outcomes by the actions an individual engages in (i.e. task persistence). Finally, CSE could have a moderating effect between two variables such that an individual's response to events (i.e. receiving a raise) is influenced by how worthy the individual views themselves.

A significant gap in CSE research relates to the theoretical support for why CSE has an effect on organizational outcomes. While Judge et al. (1997) suggested *how* CSE influences outcomes, there was little theoretical rationale to explain *why* this would occur. To address this issue, Chang et al. (2012) proposed that the approach-avoidance framework provided the necessary theoretical support for CSE. This framework suggests that many categories of human experience, such as attitudes, motivation, emotion, and perception, can all be classified in terms of sensitivity to positive or negative stimuli (Elliot & Thrash, 2002). Chang et al. (2012) argued that the approach-avoidance themes were already implied in CSE research but not labeled explicitly, and that this framework (a) explained why the lower order CSE dimensions are related and (b) provided a parsimonious rationale for how the higher order CSE construct influenced outcomes. For example, high levels of CSE are associated with a strong approach temperament and a weak avoidance temperament (Ferris et al., 2011). From this Chang et al. (2012) conceptualized that high-CSE individuals are sensitive to positive stimuli and insensitive to

negative stimuli. These differences in sensitivities are thought to drive the relationship between individual disposition, such as CSE, and workplace outcomes, such as job satisfaction.

Core External-Evaluation

Whereas the core self-evaluation construct has been explicitly identified and subject to a wide range of empirical study, the research pertaining to core external-evaluation has remained largely theoretical. When Judge et al. (1997) theorized that core evaluations provided a dispositional explanation for job satisfaction, they included all three elements of Packer's (1985) tripartite model (core self-evaluation, core world-evaluation, and core other-evaluation) and proposed specific traits or appraisals to capture core world-evaluation and core other-evaluation. These appraisals are depicted in Figure 2.
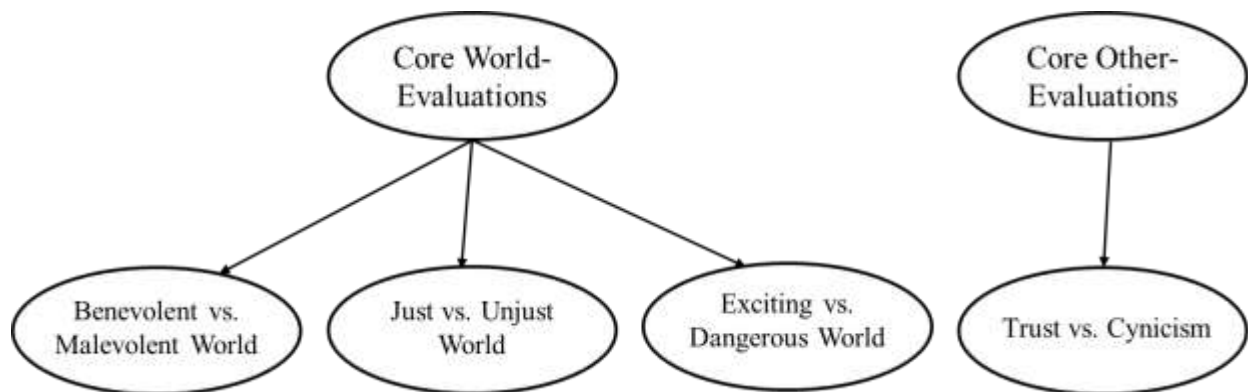
Figure 2: Model of Core World- and Core-Other Evaluations

Core world-evaluation. Core world-evaluation (CWE) refers to the fundamental appraisals individuals hold about the world in general (Chang et al., 2012). Judge et al. (1997) theorized that the construct of CWE could be represented by three worldviews: belief in a *benevolent versus malevolent world*, belief in a *just versus unjust world*, and belief that the world

is *exciting or dangerous*. They selected these worldviews, or appraisals, because they adhered to the criteria of evaluation-focus, fundamentality, and breadth.

Judge et al. (1997) suggested that a belief in benevolence versus malevolence was the most fundamental appraisal one can make about the external world. The premise that the universe is benevolent refers to the belief that happiness and success are possible in life, whereas malevolence refers to the belief that the rule of human life is rooted in misery, failure, and frustration (Piekoff, 1991; Rand, 1964; Judge et al., 1998). Thus, Judge et al. (1997) argued that a benevolent worldview should enhance feelings of job satisfaction whereas a malevolent worldview would undermine it.

The second worldview, which is considered an individual difference, was the belief in a just world (Trevino, 1992). Individuals who subscribe to the just world viewpoint believe rewards and punishments occur fairly, virtue is rewarded, and people get what they deserve (Judge et al., 1998). Conversely, Judge et al. (1997) theorized that individuals with a strong belief in an unjust world are more likely to become hostile or resentful in response to disappointment and therefore are less able to enjoy what they do attain. In an organizational setting, Ball, Trevino, and Sims (1994) found that individuals who believed in an unjust world perceived punishments to be more negative and less constructive than those who believed in a just world.

The third worldview was the belief that the world is either exciting or dangerous. Acknowledging that this belief was narrower in scope than benevolence-malevolence, Judge et al. (1997) argued it could still influence fundamental appraisals which affect an individual in the work place. Citing Maddi and Kobassa (1984), who found that "hardy" individuals view changes

as exciting rather than threatening, they suggested that individuals who embrace challenges as exciting opportunities to test knowledge and skills rather than threats to their job or career are more likely to be satisfied with their job.

Core other-evaluations. Core other-evaluation (COE) refers to the fundamental appraisals that an individual holds about other people, and thus could be considered a facet of CWE (Chang et al., 2012). Judge et al. (1997) proposed *trust versus cynicism* as the main dispositional trait, referencing Erikson's (1950) research on child development and trust. Erikson (1950) asserted that one of the earliest conclusions a child can reach is the extent to which other people can be trusted; therefore, at a fundamental level, individuals are predisposed to trust or distrust others. Judge et al. (1997) described cynicism as the converse of trust, attributing this trait to individuals who are "contemptuously distrustful of human nature and motives" (pg. 166).

However, even though CWE and COE were initially introduced with CSE as part of the core evaluations model, almost no research has focused on CWE or COE. Only two studies have examined these evaluations. In their first empirical test of the influence of core evaluations on job satisfaction, Judge et al. (1998) included CSE, CWE, and COE, but collapsed CWE and COE into a singular "core external evaluation" measure, assessing belief in a just world, belief in a benevolent world, and trust in others. Belief in an exciting versus dangerous world was excluded from the measure (See Figure 3).
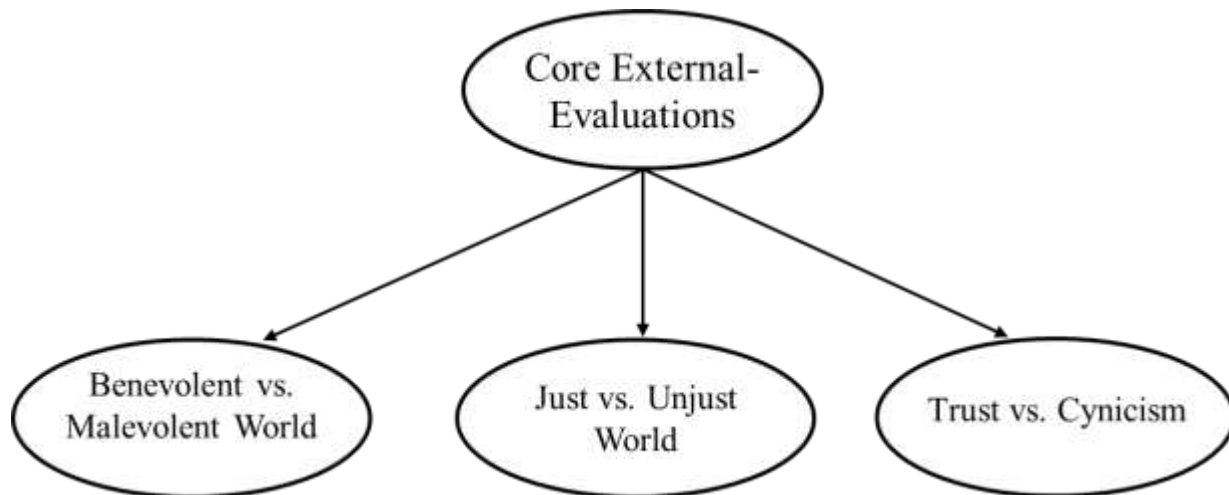
Figure 3: Collapsed Model of Core External-Evaluation

Judge et al.'s (1998) study found that core external evaluations (CEE) did not explain any further variance in job satisfaction after controlling for CSE. Since the early impetus for incorporating core evaluations into organizational research was to understand job satisfaction, subsequent studies focused solely on CSE as a predictor of individual work outcomes. Recently, CEE was incorporated into one study by Erol-Korkmaz and Sumer (2012), who found that CEE influenced the emergence of a pleasant affective state, which in turn yielded positive organizational outcomes such as increased job satisfaction, organizational commitment, and organizational citizenship behaviors.

Measurement of Core Evaluations

With the exception of the two studies mentioned in the preceding section, empirical research into core evaluations has only incorporated core self-evaluations (CSE) into an array of models; thus, discussion of measurement will be restricted to the scale development and measurement issues surrounding CSE. This study operated under the premise that the

implications and suggestions for the measurement of CSE, which are discussed below, applied to the measurement of CEE as well. As defined in the preceding sections, CSE is a multidimensional construct comprised of self-esteem, generalized self-efficacy, emotional stability, and locus of control. To date, both direct and indirect approaches have been used to measure and represent the shared variance among these four traits (Chang et al., 2012).

The most common direct measure of CSE is the 12-item Core Self-Evaluation Scale (CSES; Judge, Erez, Bono, & Thoreson, 2003). This measure demonstrated acceptable internal consistency, test-retest reliability, and convergent and discriminant validity (Chang et al., 2012). Items on the CSES cover multiple traits and were selected in part based on the strength of their relationship with job satisfaction and performance (Judge et al., 2003). While the CSES has a noted advantage in that it is short, it has been criticized for its use of double-barreled items that address multiple constructs within the same question (Dillman, Smyth, & Christian, 2009; Johnson, Rosen, & Levy, 2008). Moreover, one of the three critical attributes of core evaluations set forth by Judge et al. (1997) is a broad scope, but the CSES contains several domain-specific items, rather than general items, which narrows the scope of the measure (Chang et al., 2012).

Indirect approaches to measuring CSE involve measuring the four CSE traits separately and then deriving the CSE construct from these measures. Various methods have been employed to achieve an overall measurement. One method has been to aggregate item-level or trait-level data into a single CSE score (Best et al., 2005; Bono & Colbert, 2005; Johnson, Marakas, & Palmer, 2006; Srivastava, Locke, Judge, & Adams, 2010). A second method has been to use principal components analysis or exploratory factor analysis to obtain loadings for each item or trait and then calculate an overall CSE score based on those loadings (Johnson, Kristof-Brown,

Van Vianen, De Pater, & Klein, 2003; Piccolo et al., 2005). A third method has been to use structural equation modeling to model a second-order CSE construct using item-level or trait-level data (Boyar & Mosley, 2007; Judge et al., 1998), which, unlike simple aggregation, acknowledges that the four traits may not contribute equally to the underlying CSE construct. This method specifically targets the shared variance between traits and allows for non-equivalent loadings to the higher factor (Chang et al., 2012).

Although both the direct and indirect approaches have their merits, and despite the extensive use of the CSES in empirical studies, the indirect approach in which CSE is treated as a second-order construct has recently been advocated as the preferred approach (Chang et al., 2012; Gardner & Pierce, 2009). Theoretically, a second-order model is appropriate when first-order factors are explained by a higher-order factor structure (Schumacker & Lomax, 2010). Gardner and Pierce (2009) compared the two approaches and found that although the measures converged as they should and both the direct and indirect measures correlated with the outcome variables, the indirect measure correlated more strongly than the CSES. They proposed that since the indirect approach involves a greater number of scale items it also has greater psychometric properties. Chang et al. (2012) argued that this method is preferred because it preserves the trait structure, allows for the verification that all four of the traits are valid predictors, specifically targets the shared variance among traits, and allows for disproportionate loadings on the higher order factor.

Theoretical Framework & Hypothesis Development

The purpose of this study was to investigate the relationships between core evaluations and team cohesion within the context of restaurant management teams. This study addressed the following research objectives:

1) To test the trait structure of core-self evaluation and core-external evaluation

2) To examine the relationship between core self-evaluation and team cohesion within restaurant management teams

3) To examine the relationship between core external-evaluations and team cohesion within restaurant management teams

In order to achieve these research objectives, a theoretical framework (Figure 4) and hypotheses were developed based on existing literature. The following section presents the development of hypotheses.
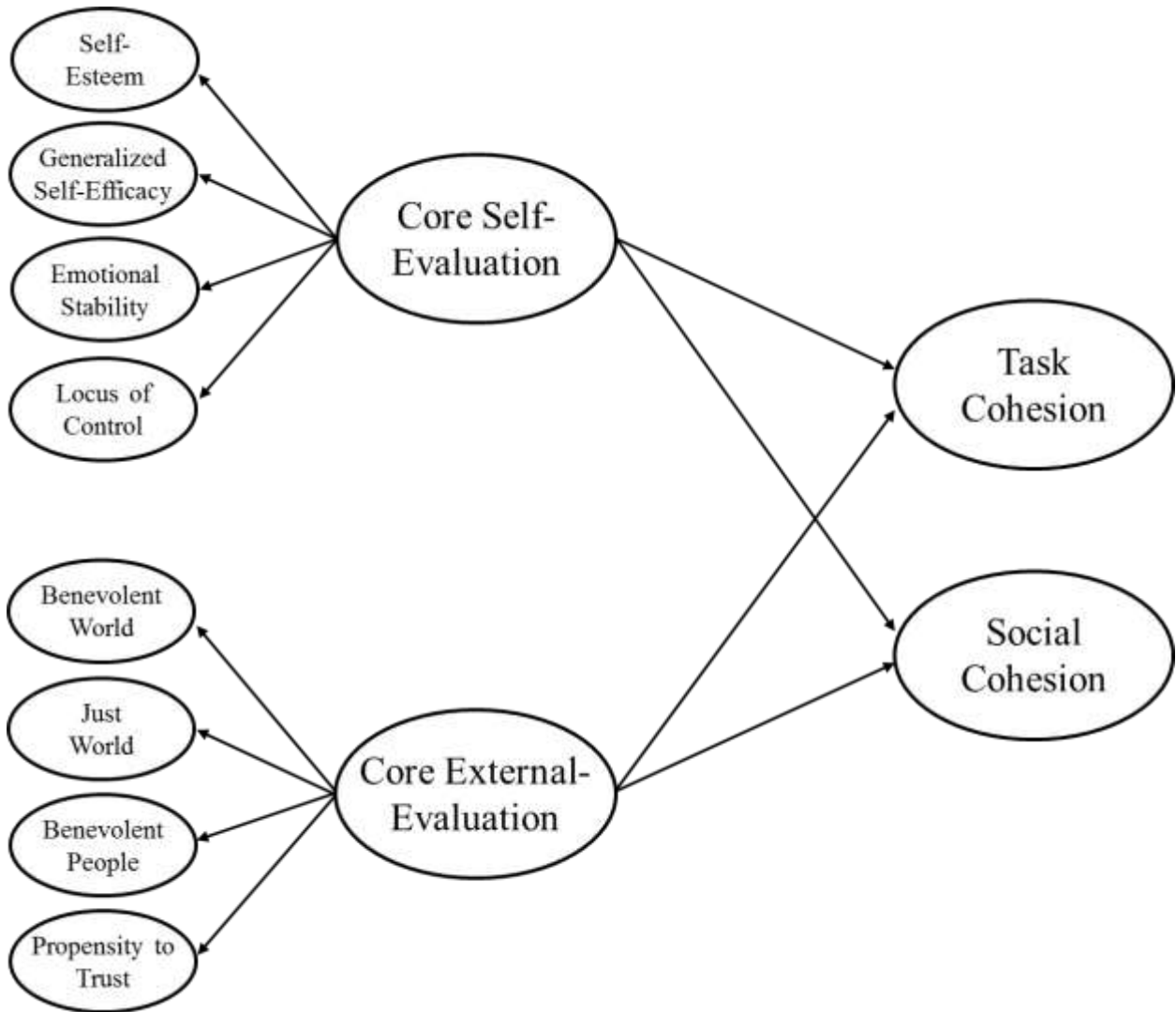
Figure 4: Proposed Model

Core Evaluations as Higher Order Constructs

Higher order models, also referred to as superordinate constructs and second-order factor models, have been used in psychological research across a wide variety of domains when constructs can be operationalized at different levels of abstraction (Chen, Sousa, & West, 2005; Edwards, 2001; Hair, Black, Babin, & Anderson, 2010). Constructs such as the Big Five

personality structure (DeYoung, Peterson, & Higgins, 2002), self-concept (Marsh, Ellis, & Craven, 2002), quality of life (Gotay, Blaine, Haynes, Holup, & Pagano, 2002), and psychological well-being (Hills & Argyle, 2002) are examples of psychological constructs that have been shown to have multiple conceptual layers. A second-order model represents numerous distinct yet related latent constructs that can be accounted for by one underlying higher order construct (Chen et al., 2005). Conceptually, both CSE and CEE can be considered second-order factor models, as each reflects several interrelated latent traits.

In regard to the specific traits that are theorized to represent CSE based on Judge et al. (1997) criteria of evaluation-focus, fundamentality, and breadth, there is empirical evidence to demonstrate that the traits of self-esteem, generalized self-efficacy, emotional stability, and locus of control are adequate first-order indicators of the CSE construct. Through structural equation modeling, meta-analysis, and multi-trait-multi-method analysis, prior research has indicated that these four CSE traits relate significantly to each other across multiple samples (Gardner & Pierce, 2009; Judge & Bono, 2001; Judge et al. 2002; Chen, 2012). Consequently, the following hypothesis was proposed:

> *H1: Core self-evaluation is a second-order factor that reflects the first-order factors of self-esteem, generalized self-efficacy, emotional stability, and locus of control.*

Unlike CSE, which has been studied extensively, there has been little empirical research into CEE and, to date, no studies that have operationalized CEE as a second-order model. Additionally, the four worldviews and traits that Judge et al. (1997) initially proposed as indicators of CEE have not been consistently included in subsequent work (Erol-Korkmaz &

45

Sumer, 2012; Gardner & Pierce, 2009; Judge et al., 1998). Thus, while there is some evidence to suggest that, like CSE, CEE is a higher order construct, there is some ambiguity as to the specific traits which represent the construct. By definition, traits that represent CEE must tap into an individual's baseline appraisals of their environment, whether it be the world in general or other people. Belief in a benevolent world, belief in a just world, belief in an exciting world, and trust versus cynicism were the four traits proposed as the factors of CEE on the basis that they were fundamental beliefs, evaluative in nature, and broad in scope (Judge et al., 1997).

Belief in a benevolent world and belief in a just world find additional theoretical support for inclusion via the assumptive worlds schema found in social psychology. Parkes (1975) used the term *assumptive world* to refer to "a strongly held set of assumptions about the world which is confidently maintained" (pg. 132). Grounded in social cognition, schemas serve as preexisting theories that guide evaluation and provide a basis for anticipating the future (Fiske & Taylor, 1984). Janoff-Bulman (1989) argued that although schemas can address categories with clear and identifiable referents, they could also represent the most basic evaluations and assumptions that individuals hold about the world, a concept that mirrors core evaluations. Based on this premise, Janoff-Bulman (1989) proposed that perceived benevolence of the world and meaningfulness of the world, or justice, were two of the three primary categories of a world assumptions schema.

Janoff-Bulman (1989) also argued that benevolence could be divided into two basic assumptions: the benevolence of the impersonal world and the benevolence of people. This distinction is relevant, as CEE encompasses an individual's evaluations of the world at large and evaluations of people. Similar to Judge et al.'s (1997) conceptualization of belief in a benevolent world, in which individuals believe in the possibility of happiness and success, Janoff-Bulman

(1989) defined belief in the benevolence of the impersonal world as the belief that the world is a good place and that misfortune is rare. He maintained that belief in the benevolence of people was a separate but related assumption, defining it as the belief that people are basically good, caring, and helpful. The separation of these concepts was later psychometrically supported through confirmatory factor analysis (Elklit, Shevlin, Solomon, & Dekel, 2007). As belief in the benevolence of people is rooted in the assumptive worlds schema, which conceptually meets Judge et al.'s (1997) theoretical criteria of evaluation-focus, fundamentality, and breadth, and addresses an individual's baseline appraisal of other people, it merits inclusion as an indicator of CEE.

The third worldview that Judge et al. (1997) proposed was the belief in an exciting versus dangerous world. However, this belief was excluded from future empirical studies of CEE, perhaps due to the acknowledgement that it was less fundamental and narrower in scope than the benevolent and just world beliefs (Judge et al., 1997; Judge et al., 1998). As this belief lacks strong theoretical or empirical support to suggest it is an appropriate indicator of CEE, it is not included in the proposed theoretical model.

Finally, Judge et al. (1997) included trust vs. cynicism as the main dispositional trait reflecting core evaluations of other people. Further theoretical support for the inclusion of trust as an indicator of CEE is found in Rotter's (1967, 1971, 1980) stream of work in trust. Rotter (1980) argued that the general willingness to trust people is a dispositional trait, and thus it is ostensibly fundamental in nature and broad in scope. Rotter (1980) referred to this as propensity to trust. Propensity to trust involves evaluation and is distinct from trustworthiness and trust behaviors.

Consequently, the following hypothesis was proposed:

> *H2: Core external-evaluation is a second-order factor that reflects the first-order factors of belief in a benevolent world, belief in just world, belief in the benevolence of people, and propensity to trust.*

Core Evaluations and Team Cohesion

A theoretical framework for the influence of core evaluations on the emergence of team cohesion can be found in approach-avoidance theory and social exchange theory. Approach-avoidance temperament is a general neurobiological sensitivity to either positive or negative stimuli (present or imagined) that is accompanied by a "perceptual vigilance for, an affective reactivity to, and a behavioral predisposition toward such stimuli" (Elliot & Thrash, 2010, pg. 866). This sensitivity is present from birth; research in neuropsychology and neurobiology informs that approach and avoidance processes operate in the brainstem and the cerebral cortex, and these processes are essential for adaptive functioning (Berridge & Pecina, 1995; Davidson, 1993; Elliot & Thrash, 2010). The approach-avoidance sensitivity allows an individual to evaluate stimuli and move towards potentially positive stimuli (approach orientation) and away from potentially negative stimuli (avoidance orientation). Temperamental characteristics are biologically based, emerge early in childhood, and are relatively stable across the life span (Bates, 1987; Buss & Plomin, 1984). Functionally, approach and avoidance temperament produce immediate affective, cognitive, and behavioral inclinations in response to encountered or imagined stimuli, and they orient individuals in a consistent fashion across domains and situations (Elliot & Thrash, 2010).

With respect to disposition, a central tenet of approach-avoidance theory is that certain dispositions or traits are more prone to an approach temperament whereas others are more prone to an avoidance temperament. For example, neuroticism, which represents the opposite pole of emotional stability, has been attributed to an avoidance temperament (Elliot & Thrash, 2002; Elliot & Thrash, 2010). The approach-avoidance framework has also been applied to core evaluations, specifically CSE, and suggests that individuals with high levels of CSE possess a strong approach temperament and thus are more likely to focus on the positive aspects of the evaluative target. In the case of CSE, the evaluative target is the self. A strong approach temperament is theorized to positively affect outcomes (Ferris et al., 2011; Chang et al., 2012). For example, CSE studies have found that high-CSE individuals adopt approach goals (Judge et al., 2005) and that low-CSE individuals endeavor to avoid threats (Srivastava et al., 2010). Approach temperaments have also been linked to performance-achievement goals (Elliot & Thrash, 2002), which suggests that high-CSE individuals are more likely to be committed to goals.

The approach-avoidance framework provides theoretical support for a linkage between high levels of CSE and CEE and positive outcomes. Social exchange theory offers an explanation for why task cohesion and social cohesion would be two such outcomes. Interdependence within a team mandates that some type of exchange relationships develop. Rewarding exchanges lead to positive relationships while negative exchanges discourage interaction (Homans, 1974). The nature of these exchanges is dynamic to the extent that early exchanges impact future ones; however, early social interaction among team members may be based on assumptions or stereotypes (Kozlowski & Ilgen, 2006). Team members with low levels

of CEE, for example, may take a negative view of their team members, finding it difficult to trust team members or believing that they are being treated unfairly, which in turn reduces the likelihood that cohesion will emerge.

Following the approach/avoidance and social exchange theoretical frameworks, it can be argued that high-CSE and high-CEE individuals are more likely to be motivated to develop social relationships, desire to be part of a team, join the team with a positive outlook, and demonstrate commitment to work-related goals and objectives. Consequently, the following relationships were hypothesized:

> *H3a: High levels of individual core self-evaluation in front-line managers will be positively related to task cohesion within restaurant management teams.*

> *H3b: High levels of individual core self-evaluation in front-line managers will be positively related to social cohesion within restaurant management teams.*

> *H4a: High levels of individual core external-evaluation in front-line managers will be positively related to task cohesion within restaurant management teams.*

> *H4b: High levels of individual core external-evaluation in front-line managers will be positively related to social cohesion within restaurant management teams.*

CHAPTER THREE: METHODOLOGY

The purpose of this study was to examine the influence of core evaluations on team cohesion within restaurant management teams. First, this study tested the factor structure of core self- and core-external evaluations as second-order latent constructs. Second, this study examined the influence of core self-evaluation on management team task and social cohesion. Third, this study examined the influence of core external-evaluation on management team task and social cohesion. This chapter presents the research design and methods that were employed to achieve the objectives of this study. The sampling frame, survey instrument, data collection procedure, and data analysis techniques used to test the hypotheses are described.

Sampling Frame

The target population for this study was front-line restaurant managers employed in the United States. The sampling frame was comprised of restaurant managers from four U.S.-based restaurant franchise groups which represented two global casual dining brands and one global quick-service brand. The researcher approached the President and/or Operations Director of each franchise group and obtained permission to collect data from restaurant managers within the organization. In order to group individual responses by management team correctly during data analysis, the researcher also received a list of restaurant units invited to participate in the study from the Operations Director from each franchise group. This list included unit names, numbers, locations, and unit email addresses, as well as the number of managers in each unit.

Survey Instrument

The survey instrument was developed based on an extensive literature review of previous research in core evaluations, the traits theorized to reflect core evaluations, and team cohesion. The questionnaire was comprised of four sections: 1) core self-evaluation, 2) core external-evaluation, 3) team cohesion, and 4) respondent's profile.

Core Self-Evaluations

The first section of the questionnaire assessed core self-evaluation, as reflected by the traits of self-esteem, generalized self-efficacy, emotional stability, and locus of control. Rosenberg's (1965) Self-Esteem Scale, Chen et al.'s (2001) New General Self-Efficacy Scale, McCrae & Costa's (2010) NEO-FFI Neuroticism Scale, and Levenson's (1981) IPC Internality subscale were used to measure the four traits. These scales were selected due to their demonstrated reliability and validity as well as their use in prior empirical testing of the core self-evaluation construct in studies that measured CSE indirectly (Garder & Pierce, 2009; Judge et al., 1998; Judge et al., 2002; Srivastava et al., 2010). In total, the four scales include 38 items, which are presented in Table 3. All items were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Self-esteem was measured using Rosenberg's (1965) 10-item Self-Esteem Scale (SES). The SES is the most common measure of self-esteem, is widely used with adult participants, has demonstrated considerable empirical support regarding both convergent and discriminant validity, and is the standard by which other self-esteem measures establish validity (Blascovich & Tomaka, 1991). Previous studies have reported internal consistency and test-retest reliabilities

ranging from 0.77 – 0.90 (Dobson, Goudy, Keith, & Powers, 1979; Fleming & Courtney, 1984; Gardner & Pierce, 2009; Judge et al., 1998; Judge et al., 2002; Låstad, Berntson, Näswall, & Sverke, 2014; Srivastava et al., 2010). Sample items used in the SES include "I feel that I have a number of good qualities" and "I take a positive attitude toward myself."

Generalized self-efficacy was measured using Chen et al.'s (2001) 8-item New General Self-Efficacy Scale (NGSE). Although Sherer et al.'s (1982) Self-Efficacy Scale has been more widely used, the psychometric evidence regarding reliability, validity, and dimensionality has been mixed (Scherbaum, Cohen-Charash, & Kern, 2006). Studies of the GSES in two countries found that the NGSE has higher construct validity than previous generalized self-efficacy scales (Chen et al., 2001). Further, internal consistency of the NGSE has ranged from 0.85 – 0.90 and the scale has demonstrated an advantage over other measures in terms of item discrimination and brevity (Scherbaum et al., 2006). Sample items used in the NGSE scale include "I will be able to achieve most of the goals that I have set for myself" and "I am confident I can perform effectively on many different tasks."

Emotional stability was measured using the 12-item Neuroticism scale from the NEO Five Factor Inventory (NEO-FFI; McCrae & Costa, 2010), which is a shortened version of Costa & McCrae's (1992) Revised NEO Personality Inventory (NEO-PI-R). The NEO-FFI was developed to address the time limitations that occur when administering the assessment in a practical setting. Although some precision is lost when traded for speed and convenience, the NEO-FFI has still been found to maintain a high level of internal consistency and test-retest reliability; in particular, the Neuroticism scale has reported reliabilities ranging from 0.79 – 0.89 (Costa & McCrae, 1992; Judge et al., 2002; McCrae & Costa, 2010; Murray, Rawlings, Allen, &

Trinder, 2003; Robins, Fraley, Roberts, & Trzesniewski, 2001). Items used in the NEO-FFI Neuroticism scale include "I am not a worrier" and "I often feel tense or jittery" (reverse-scored).

Locus of control was measured with the 8-item Internality subscale of Levenson's (1981) Internal, Powerful Others, and Chance (IPC) Scale. This measure has demonstrated moderate reliability across a wide variety of studies (Levenson, 1981; Presson, Clark, & Benassi, 1997). Studies in which it was specifically used to measure locus of control in relation to CSE report Cronbach's alpha reliabilities ranging from 0.55 – 0.84 (Gardner & Pierce, 2009; Johnson et al., 2003; Judge et al., 1998; Judge et al., 2002; Låstad et al., 2014; Srivastava et al., 2010). Sample items from the Internality subscale include "My life is determined by my own actions" and "When I get what I want, it is because I worked hard for it."

Table 3: Core Self-Evaluation Measurement Items

Factor	Items
Self-Esteem	SE1: I feel that I am a person of worth, at least on an equal basis with others
	SE2: I feel that I have a number of good qualities
	SE3: All in all, I am inclined to feel that I am a failure (R)
	SE4: I am able to do things as well as most other people
	SE5: I feel I do not have much to be proud of (R)
	SE6: I take a positive attitude toward myself
	SE7: On the whole, I am satisfied with myself
	SE8: I wish I could have more respect for myself (R)
	SE9: I certainly feel useless at times (R)
	SE10: At times I think I am no good at all (R)
Generalized Self-Efficacy	GSE1:I will be able to achieve most of the goals that I have set for myself
	GSE2: When facing difficult tasks, I am certain that I will accomplish them
	GSE3: In general, I think that I can obtain outcomes that are important to me
	GSE4: I believe I can succeed at most any endeavor to which I set my mind
	GSE5: I will be able to successfully overcome many challenges
	GSE6: I am confident that I can perform effectively on many different tasks
	GSE7: Compared to other people, I can do most tasks very well
	GSE8: Even when things are tough, I can perform quite well
Emotional Stability	ES1: I am not a worrier
	ES2: I rarely feel fearful or anxious
	ES3: I often feel tense or jittery (R)
	ES4: I often get angry at the way people treat me (R)
	ES5: At times I have felt bitter or resentful (R)
	ES6: I rarely feel lonely or blue
	ES7: Sometimes I feel completely worthless (R)
	ES8: I am seldom sad or depressed
	ES9: Too often, when things go wrong, I get discouraged and feel like giving up (R)
	ES10: At times I have been so ashamed I just want to hide (R)
	ES11: I often feel helpless and want someone else to solve my problems (R)
	ES12: When I am under a great deal of stress, sometimes I feel like I'm going to pieces (R)

Factor	Items
Locus of Control	LC1: Whether or not I get to be a leader depends mostly on my ability
	LC2: Whether or not I get in to a car accident depends mostly on how good of a driver I am
	LC3: When I make plans, I am almost certain to make them work
	LC4: How many friends I have depends on how nice a person I am
	LC5: I can pretty much determine what will happen in my life
	LC6: I am usually able to protect my personal interests
	LC7: When I get what I want, it is usually because I worked hard for it
	LC8: My life is determined by my own actions

(R) = Reverse-scored

Core External-Evaluations

The second section of the questionnaire assessed core external-evaluation, as reflected by the traits of belief in a benevolent world, belief in a just world, belief in the benevolence of people, and propensity to trust. As with the core self-evaluation section, the scales used in the core external-evaluation section of the questionnaire were selected based on evidence of validity and reliability, as demonstrated in previous studies. The scales comprise 24 items, which are presented in Table 4. All items were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Belief in a benevolent world and belief in the benevolence of people were each measured with four items from Janoff-Bulman's (1989) World Assumptions Scale (WAS), which is the predominant measure used in assumptive worlds research. Previous studies using the WAS provide evidence for both the reliability and the validity of the measure and reported internal consistencies for the benevolence subscales ranging from 0.71 – 0.89 (Fiest, Bodner, Jacobs, Miles, & Tan, 1995; Gurtman, 1992; Kaler et al., 2008). The item "There is more good than evil

in the world" is an example of the Benevolent World subscale, whereas the item "People are basically kind and helpful" is an example of the Benevolent People subscale.

Belief in a just world was measured with Lipkus, Dalbert, and Siegler's (1996) 8-item Belief in a Just World-Other (BJW-Other) scale. Unlike previous just world scales (Dalbert, Montada, & Schmitt, 1987; Lipkus, 1991; Rubin & Peplau, 1975), this scale differentiates between a global belief in a just world and a narrower viewpoint regarding justice for oneself; thus, it is deemed more appropriate for this study. The global perspective assessed the BJW-Other scale fits within the "external" or "outward-facing" paradigm of core external-evaluation and meets the criteria of breadth in regard to the scope of the trait. Previous studies provide support for this distinction and report reliabilities for the BJW-Other ranging from 0.83-0.89 (Lipkus et al., 1996; Khera, Harvey, & Callan, 2014; Sutton & Douglas, 2005). Sample items from the BJW-Other scale include "I feel that the world treats people fairly" and "I feel that people get what they deserve."

Propensity to trust was measured with the 8-item Trust facet scale from the NEO-PI-R (McCrae & Costa, 2010). A series of studies offer evidence for both the convergent and discriminant validity of each of the 30 facets within the overall measure and the Trust facet scale has demonstrated a high level of internal consistency with alpha levels ranging from $0.79 - 0.80$ (Costa & McCrae, 2008; McCrae & Costa, 2010; Piedmont & Weinstein, 1993). Sample items include "I tend to assume the best about people" and "I'm suspicious when someone does something nice for me" (reverse-scored).

57

Table 4: Core External-Evaluation Measurement Items

Factor	Items
Benevolent World	BW1: The good things that happen in this world far outnumber the bad
	BW2: There is more good than evil in the world
	BW3: The world is a good place
	BW4: If you look closely enough, you will see the world is full of goodness
Benevolent People	BP1: People are naturally unfriendly and unkind (R)
	BP2: Human nature is basically good
	BP3: People don't really care what happens to the next person (R)
	BP4: People are basically kind and helpful
Just World	JW1: I feel that the world treats people fairly
	JW2: I feel that people get what they deserve
	JW3: I feel that people treat each other fairly in life
	JW4: I feel that people earn the rewards and punishment they get
	JW5: I feel that people treat each other with the respect they deserve
	JW6: I feel that people get what they are entitled to have
	JW7: I feel that a person's efforts are noticed and rewarded
	JW8: I feel that when people are treated with misfortune, they have brought it on themselves
Propensity to Trust	TR1: I tend to be cynical and skeptical of others' intentions (R)
	TR2: I believe that most people are basically well-intentioned
	TR3: I believe that most people will take advantage of you if you let them (R)
	TR4: I tend to assume the best about people
	TR5: I'm suspicious when someone does something nice for me (R)
	TR6: My first reaction is to trust people
	TR7: I think most of the people I deal with are honest and trustworthy
	TR8: I have a good deal of faith in human nature

(R) = Reverse-scored

Cohesion

The third section of the survey assessed the two dimensions of team cohesion, task cohesion and social cohesion, using the 10-item Team Cohesion scale from Carless and De Paola

(2000). Although the Group Environment Questionnaire (GEQ; Widmeyer et al., 1985) and various measures of social cohesion (Seashore, 1954; Podsakoff & MacKenzie, 1994) are more widely used in studies of cohesion, Carless and De Paola's (2000) Team Cohesion scale was selected for this study because it (a) is based on the GEQ but was adapted and tested for use with work teams rather than sports teams, (b) has been found to be psychometrically sound, and (c) measures both task and social cohesion. Previous research has supported Carless and De Paola's (2000) assertion that their scale adequately reflects the distinction between task and social cohesion in a variety of different types of work teams and has reported internal consistency reliabilities ranging from 0.74 - 0.81 for task cohesion and 0.70 - 0.82 for social cohesion (Carless & De Paola, 2000; Forrester & Tashchian, 2006; Huber, Eggenhofer, Römer, Schäfer, Titze, 2007; Parry, 2013; Sánchez & Yurrebaso, 2009; Van den Bossche, Gijselaers, Segers, & Kirschner, 2006). Four items assessed task cohesion and six items assessed social cohesion (See Table 5). These items were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Table 5: Team Cohesion Measurement Items

Factor	Items
Task Cohesion	TC1: Our team is united in trying to reach its goals for performance
	TC2: I'm unhappy with my team's level of commitment to the task (R)
	TC3: Our team members have conflicting aspirations for the team's performance (R)
	TC4: This team does not give me enough opportunities to improve my personal performance (R)
Social Cohesion	SC1: Our team would like to spend time together outside of work hours
	SC2: Members of our team do not stick together outside of work time (R)
	SC3: Our team members rarely socialize together (R)
	SC4: Members of our team would rather go out on their own than get together as a team (R)
	SC5: For me this team is one of the most important social groups to which I belong
	SC6: Some of my best friends are in this team

(R) = Reverse-scored

Demographic Profile

The fourth and final section of the questionnaire was comprised of items that would aid in understanding the profile of the restaurant managers that participated in the survey. The variables used to measure respondent demographics were time with the team, time with the organization, time in a management position (in any restaurant organization), age, gender, and level of education.

A pilot study of the survey instrument was conducted before implementing the final survey. This is a strategy used to evaluate the interconnectedness among the survey items, the questionnaire as a whole, and the implementation procedures (Dillman et al., 2009). For the pilot study, the proposed questionnaire was sent to 15 university colleagues and restaurant industry

professionals in order to test the survey instrument for questionnaire design, grammatical or spelling errors, comprehension of instructions and items, and face validity. Feedback regarding completion time was also requested, as the length of the survey (78 items) was a concern, particularly given the intended audience of working restaurant managers. However, survey times ranged from 8-10 minutes for the pilot study participants, who generally indicated that the matrix format of the survey aided in readability and ease of completion. Pilot study participants also indicated that the instructions and items were clear; thus, no changes were made.

Data Collection

The finalized questionnaire was distributed to the management teams of the four restaurant franchise groups. Although the questionnaire was designed for online distribution, Internet restrictions within two of the franchise groups required a format change to a paper survey booklet. For these two groups, company protocols prevented managers from viewing any external links or websites. Therefore, paper survey packets were created for each team which included a letter of explanation and an invitation for the managers to participate in the study, along with survey booklets for each member of the team. In partnership with the Operations Directors for these two franchise groups, survey packets were delivered to each unit. Each survey packet included six blank survey booklets and a separate envelope for completed surveys. In order to protect anonymity, managers were asked not to write any personal information, such as their name, on the survey booklet. Survey packets were then collected from each unit once the franchise group indicated that all units were complete. For the remaining two franchise groups, the survey was conducted online via Qualtrics as originally planned, and an email was sent to

each of the restaurant units inviting the managers to participate. This email contained a brief explanation of the study and a web-based link to the survey. The data collection period was June to September of 2015.

From the four franchise groups, a total of 600 restaurant managers totaling 131 teams were invited to participate in the survey, and 389 surveys were returned. Nine surveys were deleted due to incomplete responses. Additionally, because of the team-based nature of this study, it was necessary to obtain data from all members of a given management team for the analysis; in other words, if a management team had four members, then the data were only retained in the final sample if useable responses were received from all four members of the team. The final sample included 317 individual responses, which equated to 76 management teams ranging from 2-6 members.

Data Analysis

Once data collection was completed, the data were coded and entered into SPSS v.22.0 (IBM Corp., 2013). The data were screened to check for deviations from normality or linearity, missing data, and outliers following the procedures recommended by Hair et al. (2010). Descriptive statistics were used to develop a profile of the sample. The internal consistency of each of the individual scales was checked using the Cronbach's alpha coefficient.

After the data cleaning, assumption testing, and analysis of internal consistency were complete, the data were analyzed in five steps:

1) Confirmatory factor analysis of the factor structure of the second-order constructs (core self-evaluation and core external-evaluation)

2) Confirmatory factor analysis of cohesion measured at the individual level

3) Within-unit variance analysis to assess the suitability of data aggregation for team-level constructs (task cohesion and social cohesion)

4) Confirmatory factor analysis of the measurement model as a whole, with the core evaluation factors remaining at the individual level and the team cohesion factors aggregated to the team level

5) Multilevel structural equation modeling to test the proposed theoretical model

MPlus v.7.3 (Muthén & Muthén, 1998-2012) was used for the analysis conducted in steps 1, 2, and 4, and SPSS v.22.0 (IBM Corp., 2013) was used for the analysis conducted in step 3. MPlus was selected as the primary software as it offers a wide choice of modeling techniques and is currently the only software program that allows for the analysis of single- and multi-level data within a single model. MPlus also has special features for handling missing data and nonnormality.

Confirmatory Factor Analysis

Confirmatory processes allow for the analytical testing of a conceptually grounded theory that explains the extent to which different measured items represent psychological constructs (Hair et al., 2010). Model fit was assessed by comparing the estimated covariance matrix (the theoretical model) to the observed covariance matrix (reality) using a series of goodness-of-fit indices (Hair et al., 2010). Several different fit indices are available; however, there is no consensus as to which fit index is most appropriate. Therefore, it is standard practice to consider several indices that address both absolute fit and incremental fit when evaluating fit of the

measurement model. Fit indices, when used in in conjunction with theory and literature, can also guide post-hoc decisions regarding changes to the model. Absolute fit indices provide a direct measure of how well the theoretical model fits the observed data whereas incremental fit indices assess how well the theoretical model fits relative to an alternative baseline model (Hair et al., 2010). The most commonly used absolute fit indices are the chi-square statistic, the root mean square error of approximation (RMSEA) and the corresponding 90% confidence interval, and the standardized root mean residual (SRMR). The most commonly used incremental fit index is the comparative fit index, also known as Bentler's CFI (Hair et al., 2010; O'Rourke & Hatcher, 2013). Table 6 presents the range of values for good fit for each of these indices.

Table 6: Value Ranges for Goodness-of-Fit Indices

Goodness-of-Fit Index		Desired Range of Values	
		Adequate	Ideal
Chi-square statistic	χ^2	Small value with corresponding p-value > 0.05	
Root Mean Square Error of Approximation	RMSEA	0.055 – 0.08	< 0.055
Standardized Root Mean Square Residual	SRMR	< 0.08	< 0.055
Comparative Fit Index	CFI	0.90 – 0.94	> 0.94

Source: Hair et al., 2010; O'Rourke & Hatcher, 2013

Using Mplus v.7.3 (Muthén & Muthén, 1998-2012), the confirmatory factor analysis (CFA) approach was first employed to statistically test the model fit of the hypothesized second-order factor structures of core self-evaluation and core external-evaluation. To test a second-order model, the relationships between the measured indicators and the latent first-order factors and the relationships between the first-order factors and the second-order factor are assessed

simultaneously. Each second-order construct was assessed separately and then as a combined model in order to establish model fit, convergent validity, and discriminant validity using the procedures outlined by Hair et al. (2010). A separate CFA was conducted for the items that measured task cohesion and social cohesion.

Data Aggregation

Since task cohesion and social cohesion are ultimately team-level outcomes and conceptualized as shared unit-level constructs, the next step in the data analysis process was to assess the individual-level data from these measures for the purpose of aggregation. As with the goodness-of-fit indices used in CFA, there is no one universally preferred approach for analyzing shared constructs (Klein et al., 2000). Thus, three different procedures, as outlined below, were used in this study (LeBreton & Senter, 2008; Woehr et al., 2015).

The first two procedures used to evaluate the merits of aggregation involved the intraclass correlation coefficient. The intraclass correlation coefficient (ICC) contrasts within-team and between-team variability across the entire sample of teams (Klein et al., 2000). Both the ICC(1) and the ICC(2) were calculated from a one-way random effects analysis of variance (ANOVA). The ICC(1) provides an estimate of the proportion of total variance of a measure that is explained by team membership (Bliese, 2000). Since this statistic reveals the extent to which individual ratings are attributable to group membership, the ICC(1) is generally interpreted as a measure of effect size, and researchers are advised to follow traditional social science benchmarks for interpretation (i.e., 0.01 = small effect, 0.10 = medium effect, 0.25 = large effect) (LeBreton & Sinter, 2008). Woehr et al. (2015) found that, across a sample of 416 ICC(1) values

reported in organizational literature, the mean ICC(1) was 0.21 (SD = 0.15) and over 75% of the values reported exceeded 0.11. The ICC(2) provides an estimate of the reliability of the group means within the sample and, like other measures of reliability, are generally considered to be acceptable if they equal to or exceed 0.70 (Klein & Kozlowski, 2000). However, the ICC(2) adjusts the ICC(1) for team size, meaning that values of ICC(2) are higher when there are more team members per group (Woehr et al., 2015). Although ICC(2) values above 0.70 are ideal, Woehr et al. (2015) found that, across a sample of 372 ICC(2) values for group-level constructs, the mean ICC(2) reported was 0.64 (SD = 0.18) and that over 40% of the values reported were below 0.70. More specifically, they found that the mean ICC(2) reported for team cohesion was 0.25 (SD = 1.06), which suggests that a lower threshold can be used when considering the aggregation of cohesion data.

The third procedure used in judging whether the task and social cohesion data could be aggregated was the r_{wg} index. The r_{wg} index differs from the ICC(1) and the ICC(2) in that assesses the extent of consensus, or within-team agreement, for a single team on a single measure, rather than across the sample as a whole (James, Demaree, & Wolf, 1984). The r_{wg} index compares the observed group variance for a given variable within a specific team to an expected variance. If the variance within the team is substantially smaller than the variability expected by chance, then the resulting r_{wg} value suggests that it is justifiable to aggregate the individual-level data, for the specific variable and specific team in question, to the team-level of analysis (Bliese, 2000; Klein & Kozlowski, 2000). Values of 0.70 have traditionally been used as the cut point for supporting aggregation (Klein et al., 2000); however, LeBreton & Senter (2008) more recently advanced a more inclusive set of guidelines for interpreting agreement in which

r_{wg} values of 0.51-0.70 can be considered moderate agreement, values of 0.71-0.90 can be considered strong agreement, and values exceeding 0.90 can be considered very strong agreement.

Multilevel Structural Equation Modeling

In the final step of data analysis, the hypotheses related to the proposed theoretical model of this study were tested. A CFA test of the measurement model was conducted using the aggregated team-level task and social cohesion variables to ensure that construct validity was maintained after aggregation (Daspit, Tillman, Boyd, & McKee, 2013; Klein & Kozlowski, 2000; Mach et al., 2010; Wei & Wu, 2013).

Since the independent variables in the model (core self-evaluation and core external-evaluation) were measured at the individual level but the dependent variables were aggregated to the team level, a micro-macro situation or "bottom-up" existed that could not be analyzed using traditional structural equation modeling or multilevel modeling approaches (Croon & van Veldhoven, 2007; Preacher, Zyphur, & Zhang, 2010). Thus, Preacher et al.'s (2010) integrative multilevel structural equation modeling (MSEM) approach using MPlus v.7.3 (Muthén & Muthén, 1998-2012) was employed in this study. Traditional approaches require the researcher to either aggregate all variables to the team level or disaggregate all variables to the individual level. However, forcing aggregation of the individual-level core evaluation variables and analyzing all variables in the model at the team level discounts relevant information regarding within-unit variation in individual core evaluations. Further, forcing disaggregation of the team cohesion variables and analyzing all variables at the individual level fails to separate within-

group and between-group variance in cohesion and ignores the hierarchical team structure. The advantage of MSEM is that it offers the ability to analyze models that contain both individual-level predictors and team-level outcomes (Preacher et al., 2010).

MSEM models separate the variance of a variable into a latent within-unit component (within-team variance) and a latent between-unit component (between-team variance). At the within level, variables can have random intercepts and random slopes that vary across teams. At the between level, the random intercepts are latent variables with the members of each team acting as indicators. Relationships between the variance components are then modeled at each level through the specification of a measurement model and a structural model (Lüdtke et al., 2008; Nohe, Michaelis, Menges, Zhang, & Sonntag, 2013; Preacher et al., 2010). Model fit is assessed in the same manner as a traditional structural equation model, using goodness-of-fit indices for overall model fit, a chi-square difference test to compare the theoretical model to the structural model, and modification indices for re-specification (O'Rourke & Hatcher, 2013). This type of analysis is relatively new in the social sciences (see Muthén & Asparouhov, 2011 or Preacher et al., 2010 for further discussion) and virtually non-existent in hospitality and tourism literature; therefore, little precedent has been provided from which to glean an analytical approach. In the following section, results will be provided along with detailed steps for the analysis and treatment of data using MSEM.

CHAPTER FOUR: FINDINGS

This chapter reports the results of the data collection process and the empirical analyses of the hypotheses of this study. For ease of interpretation, Table 7 provides a summary of hypotheses tested. The results of the preliminary data screening, descriptive statistics, confirmatory factor analyses (CFA), data aggregation, multilevel structural equation modeling (MSEM), and post hoc analysis are presented. Two statistical programs, SPSS v.22.0 and MPlus v.7.3, were used to perform the analyses conducted in this chapter.

Table 7: Research Hypotheses

H1	Core self-evaluation is a second-order factor that reflects the first-order factors of self-esteem, generalized self-efficacy, emotional stability, and locus of control.
H2	Core external-evaluation is a second-order factor that reflects the first-order factors of belief in a benevolent world, belief in just world, belief in the benevolence of people, and propensity to trust.
H3a	High levels of individual core self-evaluation in front-line managers will be positively related to task cohesion within restaurant management teams.
H3b	High levels of individual core self-evaluation in front-line managers will be positively related to social cohesion within restaurant management teams.
H4a	High levels of individual core external-evaluation in front-line managers will be positively related to task cohesion within restaurant management teams.
H4b	High levels of individual core external-evaluation in front-line managers will be positively related to social cohesion within restaurant management teams.

Data Screening

The target population for this study was front-line restaurant managers employed in the United States. The sampling frame was comprised of restaurant managers from four U.S.-based restaurant franchise groups which represent two global casual dining brands and one global quick-service brand. A 78-item paper survey booklet was distributed to two of the franchise

groups, while the remaining two franchise groups received an email with a web-based link to an online survey hosted by Qualtrics. Data collection took place from June to September 2015. All data were entered in SPSS v.22.0.

Combined, the four franchise groups employed a total of 600 restaurant managers across 131 restaurant units. All managers were invited to participate in the survey, and 389 surveys were returned, representing a 64.8% response rate. Because of the team-based nature of this study, it was necessary to obtain data from all members of a given management team for the analysis; in other words, if a management team had four members, then the data was only retained in the final sample if useable responses were received from all four members of the team. A total of 57 surveys were deleted based on this criterion. A missing data/missing values analysis was conducted following the steps outlined in Hair et al. (2010) and an additional nine cases were deleted due to incomplete data.

The data were then screened for univariate and multivariate outliers. As a 5-point Likert scale served as the response basis for all survey items, no univariate outliers were detected. The Mahalanobis D^2/df measure and the Cook's Distance measure were used to check for multivariate outliers. Hair et al. (2010) suggest that in large samples, where N > 250, a D^2/df value exceeding 3.5 or 4 and a significance level of $p < 0.001$ indicates a possible outlier. Pallant (2010) suggests that Cook's Distance values larger than 1 can also indicate possible outliers. A review of the D^2/df values revealed 33 cases with significant p-values ($p < 0.001$); however, none of these cases had D^2/df values exceeding 3.5. Each of the 33 cases was checked, and no demonstrable proof was found that the responses were aberrant or not representative of the

70

population. Further, the largest Cook's distance value was 0.19, which suggested that no major issues existed within the dataset in regard to outliers. Therefore, all cases were retained.

Descriptive statistics for the 72 items used in the CFA and SEM analyses were analyzed to ensure the data met the necessary assumptions of normality, homoscedasticity, and linearity. A complete list of the descriptive statistics is provided in Appendix C. A visual inspection of histograms for each item indicated negative skewness in the majority of variables, an observation supported by skewness values ranging from -2.004 – 0.489. Kurtosis values ranged from -1.278 − 5.252. Combined, these values indicated nonnormality in the data; however, the impact of nonnormality diminishes when sample sizes exceed 200 (Hair et al., 2010). Since the sample size of this study was over 200, data transformations were not performed. Scatterplots were visually inspected for homoscedasticity and linearity. In light of these tests, it was determined that no assumptions were violated. The final sample used in the analyses of this study included 317 individual responses making up 76 management teams.

Descriptive Statistics

The respondents' personal demographic information is displayed in Table 8. Just over half (58.1%) of the respondents were female. In terms of age, 63.5% of the sample was under the age of 36, with the largest percentage (24.7%) between 18-25, followed by 31-35 (19.6%) and 26-30 (19.2%). The largest percentage of respondents (51.1%) reported that their highest level of education was a high school diploma or GED, while 26.8% reported that they had attended some college.

Table 8: Personal Descriptive Statistics

	n[a]	Percentage
Gender		
Male	129	41.9
Female	179	58.1
Total	308	100.0
Age		
18-25	74	24.7
26-30	60	19.2
31-35	61	19.6
36-40	38	12.2
41-45	20	6.4
46-50	29	9.3
51-55	19	6.1
Over 50	11	3.5
Total	312	100.0
Education		
High School/GED	160	51.1
Associate (2-year) Degree	28	8.9
Some College	84	26.8
Bachelor's (4-year) Degree	28	8.9
Master's Degree	3	1.0
Other	10	3.2
Total	313	100.0

[a]Sub-categories may not total 317 due to missing data

The respondents' also answered questions regarding their industry experience. Over thirty-one percent (31.7%) of respondents reported working 1-3 years in the restaurant industry, while 15.6% reported working 6 months-1 year, and 14.0% reported working 3-5 years (See Table 9). Additionally, as presented in Table 9, 19.6% of respondents reported that they had been with their current restaurant organization for 1-3 years, followed by 3-5 years (17.9%) and 6 months-1 year (15.6%).

Table 9: Industry Demographic Profile

	n[a]	Percentage
Time in Restaurant Industry		
Less than 6 months	19	6.0
6 months - 1 year	49	15.6
1-3 years	100	31.7
3-5 years	44	14.0
5-8 years	38	12.1
8-10 years	17	5.4
10-15 years	25	7.9
15-20 years	12	3.8
More than 20 years	11	3.5
Total	315	100.0
Time with Current Organization		
Less than 6 months	40	13.3
6 months - 1 year	47	15.6
1-3 years	59	19.6
3-5 years	54	17.9
5-8 years	12	4.0
8-10 years	17	5.6
10-15 years	25	8.3
15-20 years	21	7.0
More than 20 years	26	8.6
Total	301	100.0

[a]Sub-categories may not total 317 due to missing data

The length of time a manager had worked in their current unit ranged from 1 month – 180 months, with an average length of 22.11 months and a median length of 12 months. Management team sizes ranged from 2-6 members, with an average size of four members.

Internal Consistency

Before CFA and SEM model testing, an analysis of the internal consistency of all ten sub-scales used in the study was conducted. The Cronbach's alpha values for each sub-scale are reported in Table 10. The generally accepted threshold for Cronbach's alpha values is 0.70 (Hair et al., 2010; Pallant, 2010), but when dealing with psychological constructs, values below 0.70

can realistically be expected (Field, 2013). Cronbach's alpha is also, in part, a function of the number of items in the scale; as the number of items increases, the alpha value also increases (Field, 2013; Hair, 2010). O'Rourke and Hatcher (2013) noted that when a scale consists of less than eight items, Cronbach's alpha underestimates internal consistency. The internal consistency of six of the ten measurement sub-scales was adequate, with Cronbach's alpha values exceeding the generally accepted threshold of 0.70 for the following sub-scales: Generalized Self-Efficacy ($\alpha = 0.846$), Self-Esteem ($\alpha = 0.827$), Emotional Stability ($\alpha = 0.803$), Task Cohesion ($\alpha = 0.751$), Benevolent World ($\alpha = 0.730$), and Propensity to Trust ($\alpha = 0.712$). Three sub-scales had Cronbach's alpha values between 0.60-0.70: Just World ($\alpha = 0.698$), Benevolent People ($\alpha = 0.654$), and Social Cohesion ($\alpha = 0.623$).

One scale, Locus of Control, had a Cronbach's alpha value below 0.60 ($\alpha = 0.540$). This study used Levenson's (1981) Locus of Control Internality subscale to measure locus of control, as this was the predominant scale used in prior CSE studies (Gardner & Pierce, 2009; Johnson et al., 2003; Judge et al., 1998; Judge et al., 2002; Låstad et al., 2014; Srivastava et al., 2010). While the Cronbach's alpha value reported in this study is lower than values found in the majority of prior CSE studies, it is in line with some studies. For example, Johnson et al.'s (2003) study, which used the same items as this study to measure the Locus of Control factor of CSE, reported a Cronbach's alpha of 0.55. Moreover, in samples of adult populations, Levenson's (1981) Internality subscale has returned reliability estimates as low as 0.51 (Lefcourt, 1991). Since all sub-scales used in this study were established, validated scales, they were left intact, as the removal of items in order to increase reliability at this stage would diminish the ability to compare subsequent results with other studies (Pallant, 2010).

74

Table 10: Internal Consistency Reliability

Measurement Scale	Number of Items	Cronbach's Alpha
Generalized Self-Efficacy (GSE)	8	0.846
Self-Esteem (SE)	10	0.827
Emotional Stability (ES)	12	0.803
Task Cohesion (TC)	4	0.751
Benevolent World (BW)	4	0.730
Propensity to Trust (TR)	8	0.712
Just World (JW)	8	0.698
Benevolent People (BP)	4	0.654
Social Cohesion (SC)	6	0.623
Locus of Control (LC)	8	0.540

Confirmatory Factor Model for Core Evaluations

The following section reports the step-by-step results of the confirmatory factor analyses conducted on core self-evaluation (CSE) and core external-evaluation (CEE). Since both CSE and CEE were hypothesized to be hierarchical models in which a single higher-order factor had direct causal effects on lower-order factors, the appropriate data analysis technique was second-order confirmatory factor analysis (CFA) (Byrne, 2012; Kline, 2011). Two requirements must be satisfied in order to identify a second-order CFA: (1) there must be at least three first-order factors, and (2) each first-order factor must have at least two indicators (Kline, 2011). CFA results are provided separately for CSE and CEE. Model modification, which was based on parameter estimates as well as substantive theoretical considerations and extant literature, is also discussed for both CSE and CEE (Hair et al., 2010; Kelloway, 2015; Kline, 2011). Detailed results and associated rationale for modification of each measurement model are also provided in Appendices D and E. Then, the combined measurement model and its construct validity, as

evidenced through convergent validity, construct reliability, and discriminant validity are discussed.

Second-Order Confirmatory Factor Model for Core Self-Evaluation

Core self-evaluation (CSE) was hypothesized to be a second-order construct with four first-order factors: Self Esteem (SE), Generalized Self-Efficacy (GSE), Emotional Stability (ES), and Locus of Control (LC). Since there are four first-order factors and the number of indicators for the first-order factors ranges from 8-12, the model satisfied the identification requirements. Second-order CFA was conducted using the robust maximum likelihood (MLR) estimator. The MLR estimator provides maximum likelihood parameter estimates and a chi-square test statistic that are robust to non-normality (Muthén, 2011).

In the first round of analysis, model estimation terminated normally; however, MPlus issued the following warning error, which needed to be addressed prior to assessment and interpretation of model fit:

> "The latent variable covariance matrix (psi) is not positive definite. This could indicate a negative variance/residual variance for a latent variable, a correlation greater or equal to one between two latent variables, or a linear dependency among more than two latent variables. Problem involving variable SE."

A review of the output file revealed the presence of a Heywood case. Heywood cases occur when either (a) an estimated residual is negative, or (b) the correlation between factors exceeds 1.0 (Byrne, 2012). The factor Self-Esteem (SE) had a residual variance of -0.002 and the correlation between Self-Esteem and the higher-order factor Core Self-Evaluation exceeded 1.0 ($\rho = 1.010$). Since the negative residual variance was small and non-significant ($p = 0.683$), it

was fixed to zero and the model was re-run, terminating successfully (Muthén, 2006; Muthén, 2007).

The chi-square statistic was large and significant (χ^2 = 1616.234, p < 0.001), which is expected when sample size exceeds 250 and the number of measured of observed variables exceeds 30, as was the case for this model (Hair, 2010). The RMSEA value of 0.067 indicated adequate fit; moreover, the 90% confidence interval for the RMSEA was within an acceptable range (0.063 ≤ RMSEA CI$_{90}$ ≤ 0.072) but the SRMR value of 0.078 and the CFI value of 0.727 indicated that the model did not fit well and needed to be modified. While critical decisions are outlined in this section, Appendix D provides detailed statistical and theoretical justification for each step of model modification. To determine a starting point for modification, the parameter estimates of the first-order factors and the observed variables were reviewed for statistical significance. A non-significant parameter estimate indicates that the factor or measured variable does not significantly contribute to the measurement of the underlying model and should be deleted (O'Rourke & Hatcher, 2013). The first-order parameter estimates were all large and statistically significant. Three of the parameter estimates for the measured variables were not statistically significant (p-value for ES8 "I am seldom sad or depressed" = 0.148, p -value for LC2 "Whether or not I get into a car accident depends mostly on how good of a driver I am" = 0.097, p-value for LC4 "How many friends I have depends on how nice of a person I am" = 0.373); thus, these three items were removed and the model was re-run.

Fit for the revised model improved to the following: χ^2 = 1375.966, p-value < 0.001, RMSEA = 0.068 (0.064 ≤ RMSEA CI$_{90}$ ≤ 0.073), SRMR = 0.075, CFI = 0.752. All parameter estimates for both the first-order factors and the measured variables were statistically significant.

A review of the modification indices revealed that the measured variable SE10 ("At times I think I am no good at all" – reverse-scored) cross-loaded onto all three of the other first-order factors and therefore was deleted from the model. Subsequent model runs resulted in a similar cross-loading pattern for the measured variables SE9 ("I certainly feel useless at times" – reverse-scored) and SE8 ("I wish I could have more respect for myself" – reverse-scored), which resulted in the deletion of both items. Further revisions occurred to remove measured variables with standardized parameter estimates below 0.50 (Hair et al., 2010). The final goodness-of-fit indices are provided in Table 11, the retained measured variables are provided in Table 12, and a visual representation of the model is provided in Figure 5.

Table 11: Model Fit for Core Self-Evaluation as a 2nd-Order Construct

Goodness-of-Fit Index		Model Values	Desired Range of Values[a]	
			Adequate	Ideal
Chi-square statistic	χ^2	408.687**	p-value > 0.05	
Root Mean Square Error of Approximation	RMSEA	0.05 $(0.043 \leq CI_{90} \leq 0.058)$	$0.055 - 0.08$	< 0.055
Standardized Root Mean Square Residual	SRMR	0.054	< 0.08	< 0.055
Comparative Fit Index	CFI	0.906	$0.90 - 0.94$	> 0.94

[a]Source: Hair et al., 2010; O'Rourke & Hatcher, 2013
** p-value < 0.001

Table 12: Retained Core Self-Evaluation Measurement Items

Factor	Items
Self-Esteem	SE1: I feel that I am a person of worth, at least on an equal basis with others
	SE2: I feel that I have a number of good qualities
	SE4: I am able to do things as well as most other people
	SE6: I take a positive attitude toward myself
	SE7: On the whole, I am satisfied with myself
Generalized Self-Efficacy	GSE1: I will be able to achieve most of the goals that I have set for myself
	GSE2: When facing difficult tasks, I am certain that I will accomplish them
	GSE3: In general, I think that I can obtain outcomes that are important to me
	GSE4: I believe I can succeed at most any endeavor to which I set my mind
	GSE5: I will be able to successfully overcome many challenges
	GSE6: I am confident that I can perform effectively on many different tasks
	GSE7: Compared to other people, I can do most tasks very well
	GSE8: Even when things are tough, I can perform quite well
Emotional Stability	ES3: I often feel tense or jittery (R)
	ES4: I often get angry at the way people treat me (R)
	ES5: At times I have felt bitter or resentful (R)
	ES7: Sometimes I feel completely worthless (R)
	ES9: Too often, when things go wrong, I get discouraged and feel like giving up (R)
	ES10: At times I have been so ashamed I just want to hide (R)
	ES11: I often feel helpless and want someone else to solve my problems (R)
	ES12: When I am under a great deal of stress, sometimes I feel like I'm going to pieces (R)
Locus of Control	LC3: When I make plans, I am almost certain to make them work
	LC6: I am usually able to protect my personal interests

(R) = Reverse-scored

Figure 5: Core Self-Evaluation Measurement Model

Second Order Confirmatory Factor Model for Core External-Evaluation

Like core self-evaluation, core external-evaluation (CEE) was hypothesized to be a higher order model, and thus second-order confirmatory factor analysis (CFA) was the appropriate data analysis technique (Byrne, 2012; Kline, 2011). Specifically, CEE was hypothesized to be second-order factor with four first order-factors: Benevolent World (BW), Benevolent People (BP), Just World (JW), and Propensity to Trust (TR). The hypothesized model met the identification requirements because it had four first-order factors and the number of indicators for the first-order factors ranged from 4-8 (Kline, 2011). The CFA was conducted using the MLR indicator.

As with the core self-evaluation CFA, initial model estimation of CEE terminated normally but returned a warning message indicating a nonpositive definite latent covariance matrix. A review of the output file revealed the presence of a Heywood case in regard to the factor Benevolent People. Benevolent People had a non-significant residual variance of -0.013 ($p = 0.403$) and shared correlations over 1.0 with the higher-order factor Core External-Evaluation ($\rho = 1.035$) and the first-order factor Propensity to Trust ($\rho = 1.021$). While fixing the negative residual to zero was a viable option to resolve the Heywood case, changing the model was also a viable option (Muthén, 2006; Muthén, 2007). Given the correlation between Benevolent People and Propensity to Trust, the model was re-specified so that measured variables for both of these factors loaded onto a single new factor. Conceptually, the traits are similar enough to warrant this re-specification. Benevolent People refers to the belief that people are basically good, caring and helpful (Janoff-Bulman, 1989) and Propensity to Trust describes an individual's willingness to attribute benevolent intent and honesty to others (Rotter, 1971; Rotter, 1980). The re-specified

model met the conditions for identification, as there were still three first-order factors loading onto a single second-order factor (Kline, 2011). This change resolved the Heywood case and the model ran successfully.

The chi-square statistic was large and significant ($\chi^2 = 564.952$, $p < 0.001$), which is expected when sample size exceeds 250 and the number of measured of observed variables ranges from 12-30, as was the case for this model (Hair, 2010). The RMSEA value of 0.063 and corresponding 90% confident interval ($0.056 \leq$ RMSEA $CI_{90} \leq 0.070$) indicated adequate fit, but the SRMR value of 0.078 and the CFI value of 0.801 indicated that the model required further modification. Step-by-step results of model modification are provided in Appendix E. Parameter estimates were again used as the starting point for modification. The first-order parameter estimates were all large and statistically significant. One of the parameter estimates of the measured variables was not statistically significant (p-value for JW8 "I feel that when people are treated with misfortune, they have brought it on themselves" = 0.841) and was removed.

Fit for the revised model improved to the following: $\chi^2 = 491.411$, p-value < 0.001, RMSEA = 0.061 ($0.053 \leq$ RMSEA $CI_{90} \leq 0.068$), SRMR = 0.073, CFI = 0.801. All parameter estimates for both the first-order factors and the measured variables were statistically significant. A review of the modification indices revealed none of the measured variables cross-loaded onto other factors. Further revisions occurred to remove ten measured variables with standardized parameter estimates below 0.50 (Hair et al., 2010). The final goodness-of-fit indices are provided in Table 13, the retained measurement items are provided in Table 14, and a visual representation of the model is provided in Figure 6.

Table 13: Model Fit for Core External-Evaluation as a 2nd-Order Construct

Goodness-of-Fit Index		Model Values	Desired Range of Values[a]	
			Adequate	Ideal
Chi-square statistic	χ^2	116.324**	p-value > 0.05	
Root Mean Square Error of Approximation	RMSEA	0.053 $(0.038 \leq CI_{90} \leq 0.067)$	$0.055 - 0.08$	< 0.055
Standardized Root Mean Square Residual	SRMR	0.043	< 0.08	< 0.055
Comparative Fit Index	CFI	0.943	$0.90 - 0.94$	> 0.94

[a]Source: Hair et al., 2010; O'Rourke & Hatcher, 2013
** p-value < 0.001

Table 14: Retained Core External-Evaluation Measurement Items

Factor	Items
Benevolent World	BW2: There is more good than evil in the world
	BW3: The world is a good place
	BW4: If you look closely enough, you will see the world is full of goodness
Just World	JW1: I feel that the world treats people fairly
	JW3: I feel that people treat each other fairly in life
	JW5: I feel that people treat each other with the respect they deserve
	JW7: I feel that a person's efforts are noticed and rewarded
Belief in People	BP2: Human nature is basically good
	BP4: People are basically kind and helpful
	TR2: I believe that most people are basically well-intentioned
	TR6: My first reaction is to trust people
	TR7: I think most of the people I deal with are honest and trustworthy
	TR8: I have a good deal of faith in human nature

(R) = Reverse-scored
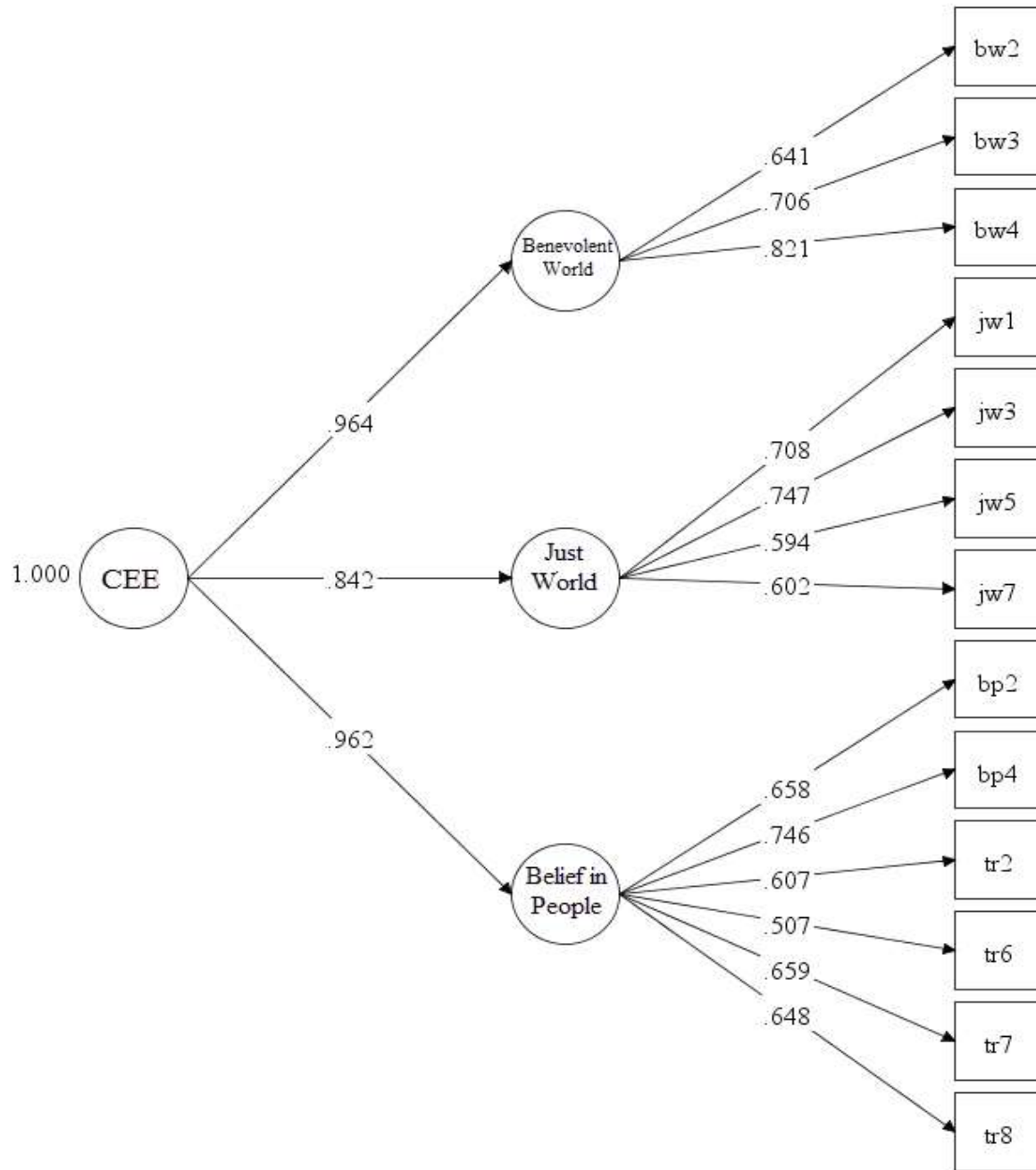
Figure 6: Core External-Evaluation Measurement Model

Construct Validity

The model modification steps conducted thus far returned acceptable goodness-of-fit indices for core self-evaluation and core external-evaluation when fitted as separate models. However, in order to establish convergent and discriminant validity, it was necessary to examine a larger measurement which contained both of these constructs. Therefore, a third CFA was conducted based on the results of the preceding analyses.

The first run of the combined model resulted in a large and significant chi-square value ($\chi^2 = 945.207$, $p < 0.001$) and fair to adequate model fit (RMSEA = 0.044, $0.039 \leq$ RMSEA $CI_{90} \leq 0.049$, SRMR = 0.062, CFI = 0.896) but also highlighted three problematic measured variables. The item JW7 ("I feel that a person's efforts are noticed and rewarded" cross-loaded onto four other factors and the items SE7 ("One the whole, I am satisfied with myself") and ES3 ("I often feel tense or jittery" – reverse-scored) each cross-loaded onto one other factor. These three items were systematically removed, resulting in the acceptable fit indices displayed in Table 15.

Table 15: Final Model Fit for Core Evaluations

Goodness-of-Fit Index		Model Values	Desired Range of Values[a]	
			Adequate	Ideal
Chi-square statistic	χ^2	728.773**	p-value > 0.05	
Root Mean Square Error of Approximation	RMSEA	0.039 ($0.033 \leq CI_{90} \leq 0.045$)	$0.055 - 0.08$	< 0.055
Standardized Root Mean Square Residual	SRMR	0.059	< 0.08	< 0.055
Comparative Fit Index	CFI	0.920	$0.90 - 0.94$	> 0.94

[a]Source: Hair et al., 2010; O'Rourke & Hatcher, 2013
** p-value < 0.001

Construct validity was then assessed via convergent and discriminant validity. Convergent validity can be evaluated in several ways, including the significance and size of the standardized factor loadings, the average variance extracted (AVE), the construct reliability, and the factor determinacy. Standardized factor loadings that are statistically significant and exceed 0.50 are considered one indication of convergent validity. The AVE is the percentage of variation extracted from, or explained by, the items of a latent construct, and an AVE of 0.50 or higher suggests adequate convergence. Finally, construct reliability measures the internal consistency of the variables that represent a latent construct. Like Cronbach's alpha, reliability estimates of 0.70 or higher suggest good reliability, which in turns supports the convergent validity of a latent construct (Hair et al., 2010). Factor score determinacy is the correlation between the estimated and true factor scores, with values ranging from zero to one, with one representing the ideal value (Muthén & Muthén, 1998-2012). Since the constructs of interest are second-order constructs, which have no measured variables as indicators, prior justification provided in the literature supported using the first-order factors of interest rather than the measured items (Hair et al., 2013; Gaskin, 2012; MacKenzie, Podsakoff, & Podsakoff, 2011).

The standardized factor loadings, AVE estimates, construct reliabilities, and factor determinacies are shown in Table 16. The standardized factor loadings were all significant (*p*-value < 0.001) and ranged from 0.660 − 1.000. The standardized loading for Self-Esteem onto CSE was 1.000 due to Self-Esteem being fixed at zero. The AVE values were 0.780 and 0.831, which indicated that a majority of the variance in the first-order constructs was shared with their respective second-order constructs. Construct reliability estimates both exceeded the 0.70 threshold. Factor determinacy scores, at 0.947 for CSE and 0.937 for CEE, were both very close

to the ideal value of 1.0. Taken together, the evidence supported the convergent validity of the measurement model of core evaluations displayed in Figure 7.

Table 16: Convergent Validity Estimates for Core Evaluations

Construct	Item	Standardized Loading	AVE	Construct Reliability	Factor Determinacy
Core Self-Evaluation	Self Esteem	1.000**	0.780	0.933	0.947
	Generalized Self-Efficacy	0.984**			
	Emotional Stability	0.660**			
	Locus of Control	0.847**			
Core External-Evaluation	Benevolent World	0.957**	0.831	0.936	0.937
	Just World	0.792**			
	Belief in People	0.975**			

** p-value < 0.001

Discriminant validity is supported when the AVE estimates for each second-order factor are greater than the corresponding interconstruct squared correlation estimates (Hair et al., 2010). For this model, the correlation between core self-evaluation and core external-evaluation was 0.423, and the interconstruct squared correlation was 0.178, which was lower than the AVE estimates of 0.787 and 0.831. This indicated good discriminant validity.
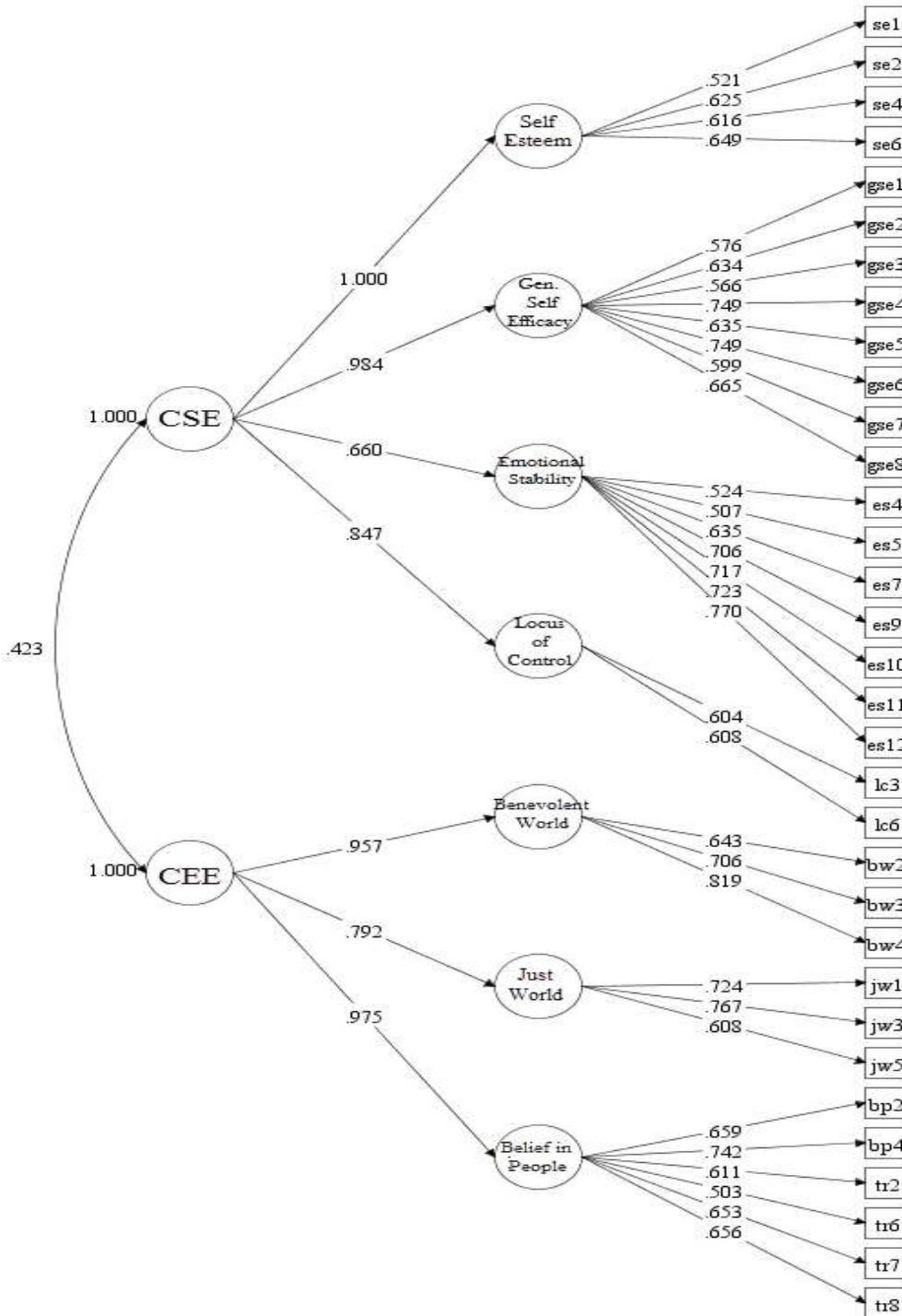
Figure 7: Core Evaluations Measurement Model

Hypothesis 1 stated that core self-evaluation is a second-order factor that reflects the first-order factors of self-esteem, generalized self-efficacy, emotional stability, and locus of control. The preceding analysis supported the factor structure and construct validity of core self-evaluation, thus also providing support for Hypothesis 1. Hypothesis 2 stated that core external-evaluation is a second-order factor that reflects the first-order factors of belief in a benevolent world, belief in just world, belief in the benevolence of people, and propensity to trust. The preceding analysis, while supporting the construct validity of core external-evaluation as a second-order construct, did not support the hypothesized factor structure. Rather than reflecting four distinct first-order factors, the results of this study revealed a more parsimonious model in which core external-evaluation was reflected by three first-order constructs: belief in a benevolent world, belief in just world, and belief in people. Thus, Hypothesis 2 is partially supported.

Confirmatory Factor Model for Team Cohesion

CFA using the MLR estimator was also used to examine the factor structure of team cohesion. In the initial model, a two-factor structure measured by 10 observed variables was assessed. The results suggested a poor fit to the model (χ^2 = 115.454, p-value < 0.001, RMSEA = 0.087, 0.070 $\leq$ RMSEA CI$_{90}$ $\leq$ 0.105, SRMR = 0.070, CFI = 0.824, although all parameter estimates were significant at the p < 0.05 level. A review of the modification indices (See Appendix F for step-by-step results) indicated that the item SC4 ("Members of our team would rather go out on their own than get together as a team" – reverse-scored) cross-loaded onto the Task Cohesion factor. This item was removed, resulting in a marginal improvement to model fit

with the RMSEA and SRMR indices approaching adequate levels (χ^2 = 76.553, p-value < 0.001, RMSEA = 0.078, 0.078 ≤ RMSEA CI$_{90}$ ≤ 0.099, SRMR = 0.062, CFI = 0.868). The items SC6 ("Some of my best friends are on this team") and SC5 ("For me, this team is one of the most important social groups to which I belong") were systematically removed due to low factor loadings. The removal of SC6 and SC5 resulted in acceptable fit indices (See Table 17).

Table 17: Model Fit for Team Cohesion

Goodness-of-Fit Index		Model Values	Desired Range of Values[a]	
			Adequate	Ideal
Chi-square statistic	χ^2	7.515	p-value > 0.05	
Root Mean Square Error of Approximation	RMSEA	0.000 (0.000 ≤ CI$_{90}$ ≤ 0.028)	0.055 – 0.08	< 0.055
Standardized Root Mean Square Residual	SRMR	0.023	< 0.08	< 0.055
Comparative Fit Index	CFI	1.000	0.90 – 0.94	> 0.94

[a]Source: Hair et al., 2010; O'Rourke & Hatcher, 2013

As with core evaluations, construct validity was then assessed for team cohesion via convergent and discriminant validity. The standardized factor loadings, AVE estimates, construct reliabilities, and factor determinacies are shown in Table 18. With the exception of SC1, the standardized factor loadings were all larger than 0.50 and significant at p < 0.001. The loading for SC1 ("Our team would like to spend time together outside of work hours") was 0.354; although this is below the generally accepted threshold of 0.50, the loading was significant at p < 0.001 and retention of the item was necessary for overall model fit. The AVE value for task cohesion was 0.442, which was lower than the general threshold of 0.50. However, Malhotra and Dash (2011) noted that "AVE is a more conservative measure than construct reliability. On the

basis of construct reliability alone, the researcher may conclude that the convergent validity of the construct is adequate, even though more than 50% of the variance is due to error" (p. 702). The construct reliability estimate for task cohesion was 0.809, and the factor determinacy score was 0.880, both of which supported convergent validity for task cohesion. Convergent validity for social cohesion was not fully confirmed. While the individual item loadings were all statistically significant and the factor determinacy score for social cohesion was adequate at 0.773, which combined do provide evidence for convergent validity, the AVE value of 0.263 and the construct reliability of 0.508 were both lower than the respective thresholds of 0.50 and 0.70.

Table 18: Convergent Validity Estimates for Team Cohesion

Item	Standardized Loading	AVE	Construct Reliability	Factor Determinacy
TC1: Our team is united in trying to reach its goals for performance	0.722**	0.442	0.809	0.880
TC2: I'm unhappy with my team's level of commitment to the task (R)	0.632**			
TC3: Our team members have conflicting aspirations for the team's performance (R)	0.644**			
TC4: This team does not give me enough opportunities to improve my personal performance (R)	0.657**			
SC1: Our team would like to spend time together outside of work hours	0.354**	0.263	0.506	0.773
SC2: Members of our time do not stick together outside of work time	0.569**			
SC3: Our team members rarely socialize together	0.582**			

** *p*-value < 0.001

Discriminant validity was also not fully confirmed, as the interconstruct squared correlation of 0.342 was only lower than the AVE for task cohesion. However, evidence for

discriminant validity is present when a measurement model is congeneric, meaning that there are no cross-loadings among either the measured items or the error terms (Hair et al., 2010). The measurement model of team cohesion, as displayed in Figure 8, is a congeneric model, and on this basis discriminant validity was supported. Although the evidence of convergent and discriminant validity for social cohesion was not as strong as the other constructs in this study, there was sufficient support to retain social cohesion in the model at this stage of the analysis. Since the intent was to aggregate the cohesion items to the team level, it was deemed more appropriate to proceed with aggregation assessment, as another CFA and corresponding construct validity analysis would be necessary if the items were aggregated. Should sufficient support for both convergent and discriminant validity still not be evident, removal of social cohesion from the model would then be considered.
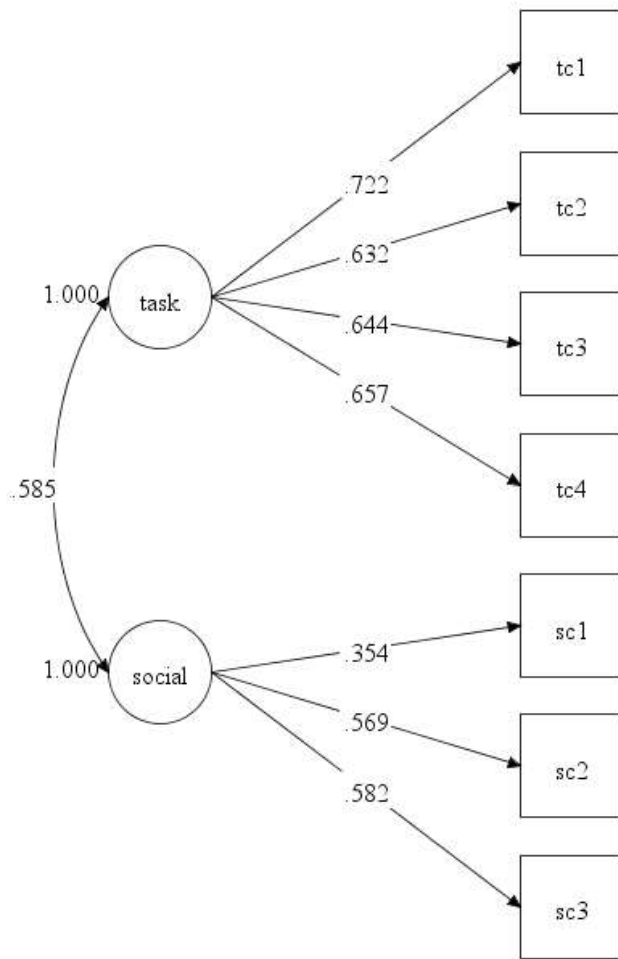
Figure 8: Team Cohesion Measurement Model

Data Aggregation

With the measurement models confirmed at the individual level, the next stage of data analysis determined whether task and social cohesion could be aggregated to the team level. Following the recommendations of Woehr et al. (2015), the intraclass correlation measures ICC(1) and ICC(2) for cohesion items were evaluated first, as they assess the level of agreement across teams (Klein et al., 2000). Then, r_{wg} estimates, which examined the level of agreement within teams, were calculated for each team.

ICC estimates were calculated for each of the four measured task cohesion variables, the task cohesion factor as a whole, each of the three measured social cohesion variables, and the social cohesion factor as a whole (See Table 19). The ICC(1) values indicated that 15.6 – 20.5% of the total variation in task cohesion and 15.6 – 24.6% of the variation in social cohesion could be attributed to team membership. These translated to medium to large effect sizes and provided initial support for aggregation (Bliese, 2000; LeBreton & Senter, 2008). Woehr et al. (2015) also recommend comparing ICC(1) values for a given construct to levels typically found in literature for the same or similar constructs. In their study of aggregation indices for common team-level variables, Woehr et al. (2015) found that the mean ICC(1) for cohesion was 0.22 (SD = 0.23), which aligned with the ICC(1) values found in this study and further supported aggregation.

The ICC(2) estimates for task cohesion ranged from 0.481 – 0.814, and the estimates for social cohesion ranged from 0.481 – 0.756. Although each of the individual item values were lower than the general guideline of 0.70, this result was not unexpected given the small average team size of four members. LeBreton and Senter (2008) recommend evaluating ICC estimates within the context of a study, specifically highlighting characteristics of the sample such as

group size. Additionally, the ICC(2) values reported for this study were higher than the average ICC(2) value reported in studies that include cohesion as a team-level construct ($M = 0.25$, $SD = 1.06$) (Woehr et al., 2015). Based on the average team size for this study and the cohesion ICC(2) estimates reported in extant literature, the ICC(2) estimates for task cohesion were deemed acceptable.

Table 19: ICC Estimates for Task and Social Cohesion

	ICC(1)	ICC(2)
TC1	0.205	0.564
TC2	0.205	0.564
TC3	0.156	0.481
TC4	0.201	0.588
Task Cohesion	0.180	0.814
SC1	0.246	0.621
SC2	0.156	0.481
SC3	0.197	0.550
Social Cohesion	0.171	0.756

Since the ICC estimates provided initial support for aggregation, the level of agreement within teams regarding task cohesion and social cohesion was evaluated using the r_{wg} index for a total of 76 teams. The frequencies and descriptive statistics are reported in Table 20 and Table 21. The complete table of r_{wg} estimates for task and social cohesion according to team are provided in Appendix H.

Table 20: Frequency Distribution of rwg Estimates for Task and Social Cohesion

| | Task Cohesion | | Social Cohesion | |
	n	Percentage	n	Percentage
Less than 0	4	5.3	7	9.2
0.00 - 0.30 (Lack of Agreement)	2	2.6	14	18.4
0.31 - 0.50 (Weak Agreement)	3	3.9	20	26.3
0.51 - 0.70 (Moderate Agreement)	7	9.2	19	25.0
0.71 - 0.90 (Strong Agreement)	35	46.1	15	19.7
0.91 - 1.00 (Very Strong Agreement)	25	32.9	1	1.3

Table 21: r_{wg} Estimates for Task and Social Cohesion

	Task Cohesion	Social Cohesion
Mean	0.60	0.45
Median	0.82	0.50
Standard Deviation	1.22	0.31
Minimum	-9.33	-0.54
Maximum	1.00	0.92

The mean r_{wg} estimate for task cohesion was 0.60, which can be considered moderate agreement. The mean, however, was influenced by a single large negative value, and therefore the median value of 0.50, which indicated strong agreement, provided a better indicator of the data. Additionally, 88.2% of the teams in the sample had r_{wg} values for task cohesion ranging from 0.51 – 1.00, which indicated moderate to very strong agreement within teams for this factor. This provided the final support for aggregating task cohesion to the team level (Woehr et al., 2015).

The mean r_{wg} estimate for social cohesion was 0.45, which can be considered weak agreement, but the median value was 0.50, suggesting moderate agreement. Almost half (46.0%) of the sample had r_{wg} values for social cohesion ranging from 0.51 – 0.92, which indicated moderate to very strong agreement within teams for this factor. When considered in conjunction

with the ICC(1) and ICC(2) estimates, both of which provided strong support for aggregation, the evidence was deemed sufficient to also aggregate the social cohesion items to the team level (Woehr et al., 2015).

Team Level Confirmatory Factor Model

Prior to testing the hypothesized structural model, a final CFA using the MLR estimator was conducted that incorporated the following latent variables: (1) CSE measured by the four first-order latent variables of self-esteem, generalized self-efficacy, emotional stability, and locus of control, (2) CEE measured by the three first-order latent variables of belief in a benevolent world, belief in a just world, and belief in people, (3) task cohesion measured by four observed variables aggregated to the team level, and (4) social cohesion measured by three observed variables aggregated to the team level.

Table 22 presents the goodness-of-fit indices for the model, which ranged from adequate to ideal fit (Hair et al., 2010). No modification was necessary. There was strong evidence of convergent validity for CSE, CEE, and team-level task cohesion, as the standardized factor loadings were all significant (p-value < 0.001) and above 0.50, the AVE values ranged from 0.541 − 0.830, construct reliability estimates ranged from 0.824 − 0.936, and the factor determinacy scores ranged from 0.915 − 0.946 (See Table 23). Whereas individual-level social cohesion demonstrated weak evidence of convergent validity, the evidence was stronger for team-level social cohesion. In aggregated form, social cohesion had two out of three standardized factor loadings and the AVE value just below the 0.50 threshold, but also had

significant loadings (p-value < 0.001), construct reliability of 0.70, and a factor determinacy

score of 0.975. Combined, these provided sufficient evidence of convergent validity.

Table 22: Model Fit for Full CFA Model with Aggregated Cohesion Factors

Goodness-of-Fit Index		Model Values	Desired Range of Values[a]	
			Adequate	Ideal
Chi-square statistic	χ^2	1142.052**	p-value > 0.05	
Root Mean Square Error of Approximation	RMSEA	0.042 $(0.039 \leq CI_{90} \leq 0.047$)	$0.055 - 0.08$	< 0.055
Standardized Root Mean Square Residual	SRMR	0.060	< 0.08	< 0.055
Comparative Fit Index	CFI	0.896	$0.90 - 0.94$	> 0.94

[a]Source: Hair et al., 2010; O'Rourke & Hatcher, 2013
** p-value < 0.001

Table 23: Convergent Validity Estimates for Full CFA Model

Construct	Item	Standardized Loading	AVE	Construct Reliability	Factor Determinacy
Core Self-Evaluation	Self Esteem	1.000**	0.780	0.933	0.946
	Generalized Self-Efficacy	0.979**			
	Emotional Stability	0.664**			
	Locus of Control	0.850**			
Core External-Evaluation	Benevolent World	0.950**	0.830	0.936	0.938
	Just World	0.790**			
	Belief in People	0.982**			
Task Cohesion	TC1 – Aggregated	0.790**	0.541	0.824	0.915
	TC2 – Aggregated	0.724**			
	TC3 – Aggregated	0.714**			
	TC4 – Aggregated	0.710**			
Social Cohesion	SC1 – Aggregated	0.497**	0.468	0.700	0.975
	SC2 – Aggregated	0.973**			
	SC3 – Aggregated	0.459**			

** p-value < 0.001

Discriminant validity of all constructs, including aggregated social cohesion was also evident, as the AVE estimates for each factor were greater than the corresponding interconstruct squared correlation estimates. The interconstruct squared correlations ranged from $0.017 - 0.229$ (See **Error! Not a valid bookmark self-reference.**). Based on these results, it was considered appropriate to retain social cohesion, as measured by its aggregated indicators, in subsequent model testing.

Table 24: Construct Correlation Matrix for Full CFA Model

	CSE	CEE	Task Cohesion	Social Cohesion
CSE	1.000	0.180	0.079	0.017
CEE	0.424**	1.000	0.046	0.073
Task Cohesion	0.282**	0.214**	1.000	0.229
Social Cohesion	0.130*	0.270**	0.479**	1.000

* *p*-value < 0.05

** *p*-value < 0.001

Note: Values below the diagonal are correlation estimates among constructs, diagonal elements are construct variances, and values above the diagonal are squared correlations

Multilevel Structural Equation Model

In the final stage of data analysis, the proposed framework was tested using multilevel structural equation modeling (MSEM). MSEM combines the techniques from multilevel modeling and structural equation modeling and allows for relationships between individual-level and group-level variables to be analyzed simultaneously within a single model (Preacher et al., 2010). In this section, Hypotheses 3a, 3b, 4a, and 4b were tested.

The foundation for the multilevel structural model was the team-level measurement model developed in the preceding section. Core self-evaluation (CSE) and core external-

evaluation (CEE) were modeled at the individual, or within, level using the 33 observed variables and 7 first-order constructs retained during CFA. Task cohesion and social cohesion were modeled at the team, or between, level using the seven observed variables aggregated to the team level. In order to analyze the effects of CSE and CEE on task and social cohesion, the random intercepts of CSE and CEE, along with the accompanying first-order factors, were also modeled as latent variables at the between level, with the mean scores for each team member acting the indicators or measured variables. As with the CFA procedures, the MLR estimator was used.

In the initial run of the data, model estimation terminated normally, but the results returned a non-positive first-order derivative product matrix, which was an indication of model non-identification. Inspection of the output indicated that the number of free parameters in the model (201) exceeded the number of clusters (76), where the "cluster" was the between-level grouping identifier. In this study, the grouping identifier was the team. While the entire sample of 317 individual responses was used in the analysis, in MSEM the sample size of interest with respect to model identification is that of the cluster. Thus, the sample size for the MSEM analysis was 76, which was the number of teams, or clusters, represented by the data. In order for the model to identify properly, there must be more clusters than parameters. The remedies for nonidentification were (1) changing the model to reduce the number of parameters, or (2) collecting more data to increase the number of clusters (L. Muthén, personal communication, December 14, 2015). At a minimum, data from an additional 125 teams, which equates to approximately 510 useable individual respondents, would be necessary to reach a dataset large enough for the number of clusters to exceed the number of parameters. As this was deemed

unattainable given the constraints of the study, the model was instead simplified in an effort to achieve identification.

Reduced-Parameter Model

Following the methodological example provided by Preacher et al. (2010) and similar modeling approaches to CSE found in extant literature (Ferris et al., 2013; Gardner & Pierce, 2009; Johnson et al., 2003), the first-order factors of CSE and CEE were treated as sub-dimensions. Mean scores were calculated for each factor, and these mean scores served as the indicators of CSE and CEE. The four observed variables used to measure task cohesion and the three observed variables used to measure social cohesion, all aggregated to the team level, continued to serve as the respective indicators for task and social cohesion. This change resulted in a model with 61 free parameters, which allowed for proper identification and the elimination of all nonpositive definite matrices.

This structural model was assessed with the same fit indices used to evaluate the various measurement models developed during the CFA process (See

Table 25). The majority of the fit indices for the reduced model were adequate, with a χ^2 = 133.711, p-value < 0.001, RMSEA = 0.042, SRMR$_{Within}$ = 0.049, and CFI = 0.963. The only problematic value was the SRMR$_{Between}$ of 0.132, which exceeded the maximum adequate value of 0.08. However, as noted by O'Rourke and Hatcher (2010), a model's fit does not need to meet all of the criteria to be considered acceptable. Given that the values for RMSEA, SRMR$_{Within}$,

and CFI all fell into the ideal range, the reduced-parameter model was deemed acceptable in this study.

Table 25: Model Fit for Structural Model with Reduced Parameters

Goodness-of-Fit Index		Model Values	Desired Range of Values[a]	
			Adequate	Ideal
Chi-square statistic	χ^2	133.711**	p-value > 0.05	
Root Mean Square Error of Approximation	RMSEA	0.042^b	$0.055 - 0.08$	< 0.055
Standardized Root Mean Square Residual (within)	$SRMR_W$	0.049	< 0.08	< 0.055
Standardized Root Mean Square Residual (between)	$SRMR_B$	0.132	< 0.08	< 0.055
Comparative Fit Index	CFI	0.963	$0.90 - 0.94$	> 0.94

[a]Source: Hair et al., 2010; O'Rourke & Hatcher, 2013
[b]90% confidence intervals for RMSEA not available for two-level models
** p-value < 0.001

Although the goodness-of-fit indices were appropriate, only two of the four hypothesized paths were significant. Figure 9 provides a visual representation of the structural model. Due to model identification issues related to sample size at the team level, hypotheses 3a-4b were not tested using the second-order factor structure from this study, and thus were not formally confirmed or disconfirmed. Instead, the reduced-parameter model was used as a proxy to perform post-hoc testing of these hypotheses.
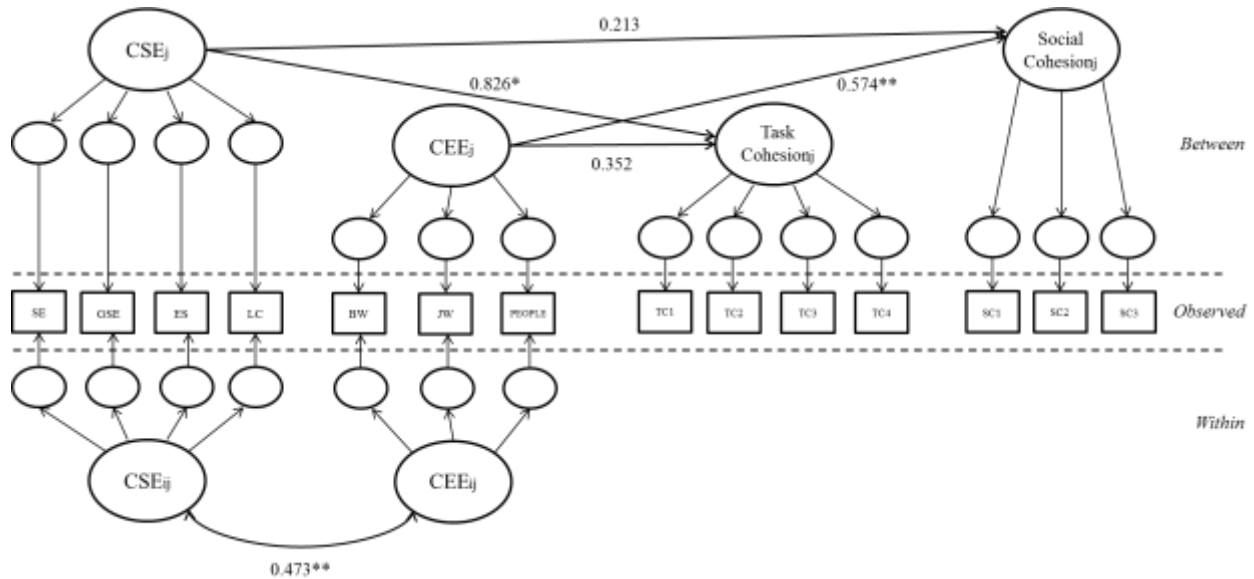
*p < 0.01
**p < 0.001
R^2 for Task Cohesion = 0.914
R^2 for Social Cohesion = 0.420

Figure 9: Reduced-Parameter Structural Model

Hypothesis 3a stated that high levels of individual core self-evaluation in front-line managers would be positively related to task cohesion within restaurant management teams. In the reduced-parameter model, the standardized path coefficient between CSE (at the between level) and team task cohesion was 0.826 ($p < 0.01$), which suggested that CSE does have a positive effect on team task cohesion. The R^2 value revealed that CSE, when treated as a first-order factor and measured by the sub-dimensions of self-esteem, generalized self-efficacy, emotional stability, and locus of control, accounted for 91.4% of the variance in team task cohesion.

Hypothesis 3b stated that high levels of individual core self-evaluation in front-line managers would be positively related to social cohesion within restaurant management teams. In

the reduced-parameter model, the standardized path coefficient from CSE (at the between level) to team social cohesion was 0.213 but was not statistically significant ($p = 0.406$). This suggested that CSE, when treated as a first-order factor and measured by the sub-dimensions of self-esteem, generalized self-efficacy, emotional stability, and locus of control did not have an impact on team social cohesion in this study.

Hypothesis 4a stated that high levels of individual core external-evaluation in front-line managers would be positively related to task cohesion within restaurant management teams. In the reduced-parameter model, the standardized path coefficient between CEE (at the between level) and team task cohesion was 0.352 but was not statistically significant ($p = 0.173$), which suggested that CEE, when treated as a first-order factor and measured by the sub-dimensions of belief in a benevolent world, belief in a just world, and belief in people, did not have an impact on team task cohesion in this study.

Hypothesis 4b stated that high levels of individual core external-evaluation in front-line managers would be positively related to social cohesion within restaurant management teams. In the reduced-parameter model, the standardized path coefficient from CEE (at the between level) to team social cohesion was 0.575 ($p < 0.001$), which suggested that CEE did have a positive effect on team social cohesion. The R^2 value showed that CEE, when treated as a first-order factor and measured by the sub-dimensions of belief in a benevolent world, belief in a just world, and belief in people, accounted for 42.0% of the variance in team social cohesion.

Post-Hoc Alternate Model Testing

Although the reduced-parameter model was shown to be a good fit to the data according to the model fit indices, "good empirical fit does not prove that a given model is the 'only' true structure" (Hair et al., 2010, pg. 659). Therefore, the consideration of theoretically sound alternative models is often recommended as a final step in the process of structural equation modeling (Hair et al., 2010; Kelloway, 2015). In this study, two factors revealed themselves to be potentially problematic to the overall structural model during the tests of internal consistency and confirmatory factor analyses: locus of control and social cohesion. Therefore, a series of alternate models were tested with these constructs systematically removed to determine their effects on the results.

Locus of control. Locus of control was hypothesized to be one of four first-order factors reflecting CSE. Locus of control had a Cronbach's alpha value of 0.54 and only two of the scale items were retained during the CFA process. To understand its effects on the overall model, a second-order CFA using the MLR estimator was run without the locus of control items. As with the original second-order CFA, several modification steps were necessary to remove 11 Self-Esteem and Emotional Stability items that either cross-loaded or had low factor loadings (See Appendix G for detailed decision steps). The resultant model fit was acceptable ($\chi^2 = 291.992$, p-value < 0.001, RMSEA = 0.055, $0.045 \leq$ RMSEA CI$_{90} \leq 0.064$, SRMR = 0.053, CFI = 0.910) and was identical to the original model in regard to the items retained for Generalized Self-Efficacy. The model was also very similar for Emotional Stability, with one additional item (ES3 "I often feel tense or jittery" – reverse scored) retained. The retained Self-Esteem items, however, were very different; the items SE1, SE2, SE4, and SE6 were retained in the original

model whereas the items SE1, SE6, and SE7 were retained in the alternate model. Table 26 provides a comparison of the items retained in the original and alternate CFA models.

The alternate second-order CFA model had good fit (χ^2 = 675.696, p-value < 0.001, RMSEA = 0.043, 0.037 ≤ RMSEA CI$_{90}$ ≤ 0.049, SRMR = 0.057, CFI = 0.915) and strong evidence of construct validity when considered in tandem with CEE. This form of CSE as a second-order construct was then incorporated into a full CFA model alongside CEE, team-level task cohesion, and team-level social cohesion, which had comparable fit to the original model (χ^2 = 1072.838, p-value < 0.001, RMSEA = 0.045, 0.040 ≤ RMSEA CI$_{90}$ ≤ 0.050, SRMR = 0.059, CFI = 0.892).

Finally, the alternate form of CSE was included in the reduced parameter MSEM model. The MSEM model returned a nonpositive definite matrix with negative residual variances for both the between-level emotional stability factor and for task cohesion. While the negative residual variance could be fixed at zero for emotional stability, this solution was inappropriate for negative residual variances of dependent variables. The only option was to re-specify the model (L. Muthén, personal communication, December 14, 2015). As the most theoretically sound re-specification was the original model, this result suggested that the inclusion of locus of control, even when measured with only two items, did affect the overall model and that it was meritorious to retain it.

Table 26: Comparison of Retained Core Self-Evaluation Items

Factor	Items Retained	
	Original Model	Alternate Model
Self-Esteem	SE1: I feel that I am a person of worth, at least on an equal basis with others	SE1: I feel that I am a person of worth, at least on an equal basis with others
	SE2: I feel that I have a number of good qualities	SE6: I take a positive attitude toward myself
	SE4: I am able to do things as well as most other people	*SE7: On the whole, I am satisfied with myself*
	SE6: I take a positive attitude toward myself	
Generalized Self-Efficacy	No differences between models – All 8 items retained	
Emotional Stability	ES4: I often get angry at the way people treat me (R)	*ES3: I often feel tense or jittery (R)*
	ES5: At times I have felt bitter or resentful (R)	ES4: I often get angry at the way people treat me (R)
	ES7: Sometimes I feel completely worthless (R)	ES5: At times I have felt bitter or resentful (R)
	ES9: Too often, when things go wrong, I get discouraged and feel like giving up (R)	ES7: Sometimes I feel completely worthless (R)
	ES10: At times I have been so ashamed I just want to hide (R)	ES9: Too often, when things go wrong, I get discouraged and feel like giving up (R)
	ES11: I often feel helpless and want someone else to solve my problems (R)	ES10: At times I have been so ashamed I just want to hide (R)
	ES12: When I am under a great deal of stress, sometimes I feel like I'm going to pieces (R)	ES11: I often feel helpless and want someone else to solve my problems (R)
		ES12: When I am under a great deal of stress, sometimes I feel like I'm going to pieces (R)
Locus of Control	*LC3: When I make plans, I am almost certain to make them work*	
	LC6: I am usually able to protect my personal interests	

(R) = Reverse-score

Social cohesion. Social cohesion was hypothesized to be an outcome of both CSE and CEE. During the CFA process, social cohesion exhibited weak evidence of construct validity at the individual level, which could have impacted the relationships between constructs in the later models. In the original model, three social cohesion items were retained via CFA, but one of those items had a factor loading of 0.354 ($p < 0.001$), which most likely contributed to the low AVE value and construct reliability. Strict adherence to holding 0.50 as the minimum value for item retention warranted removal of this item, which in turn left only two items remaining in the social cohesion factor. This was a violation of the three-indicator rule, which states that all factors in a congeneric model must have at least three significant indicators, and is a necessary condition for CFA (Hair et al., 2010; O'Rourke & Hatcher, 2013). While Hair et al. (2010) noted that a model with a two-item factor will be identified and can be assessed under certain conditions, both Hair et al. (2010) and O'Rourke & Hatcher (2013) state that models with two-item factors can exhibit problems with convergence. With this in mind, an alternate model was tested in which social cohesion was modeled out. The measurement model with just CSE, CEE, and team-level task cohesion had comparable fit to the measurement model that included team-level social cohesion ($\chi^2 = 970.179$, p-value < 0.001, RMSEA $= 0.042$, $0.037 \leq$ RMSEA CI$_{90} \leq$ 0.047, SRMR $= 0.060$, CFI $= 0.903$).

The reduced-parameter MSEM model also returned comparable fit indices ($\chi^2 = 91.873$, p-value < 0.001, RMSEA $= 0.047$, SRMR$_W = 0.049$, SRMR$_B = 0.128$, CFI $= 0.969$), and the relationships found in the alternate model were identical those found in the original model. CSE was significantly positively related to team task cohesion ($\gamma = 0.860$, $p < 0.01$) and explained 90.7% of the variance in team task cohesion. The relationship between CEE and team task

cohesion was not statistically significant. This result would suggest that the results gathered from the original model were not confounded by the inclusion of social cohesion.

Summary of Results

Six hypotheses were tested in this chapter using confirmatory factor analysis and multilevel structural equation modeling.

Table 27 provides a summary of the results of this study.

Table 27: Summary of Results

Hypothesis		Results
H1	Core self-evaluation is a second-order factor that reflects the first-order factors of self-esteem, generalized self-efficacy, emotional stability, and locus of control.	Supported
H2	Core external-evaluation is a second-order factor that reflects the first-order factors of belief in a benevolent world, belief in just world, belief in the benevolence of people, and propensity to trust.	Partially Supported
H3a	High levels of individual core self-evaluation in front-line managers will be positively related to task cohesion within restaurant management teams.	Supported via the reduced-parameter model
H3b	High levels of individual core self-evaluation in front-line managers will be positively related to social cohesion within restaurant management teams.	Not Supported
H4a	High levels of individual core external-evaluation in front-line managers will be positively related to task cohesion within restaurant management teams.	Not Supported
H4b	High levels of individual core external-evaluation in front-line managers will be positively related to social cohesion within restaurant management teams.	Supported via the reduced-parameter model

The first hypothesis addressed the factor structure of CSE, which was supported, and the second hypothesis addressed the factor structure of CEE, which was partially supported.

Although the results indicated that CEE was a second-order latent construct which reflected traits that tapped an individual's appraisal of both other people and the world at large, the data did not support the four first-order factors that were hypothesized. Instead, two of the factors merged into one, which resulted in a more parsimonious model of CEE that reflected three first-order factors.

The remaining four hypotheses tested the relationships between CSE, CEE, team task cohesion, and team social cohesion. Due to model identification issues related to sample size at the team level, these hypotheses were not formally tested using the second-order factor structures of CSE and CEE found in this study. A reduced-parameter model was developed by collapsing the first-order factors of CSE and CEE into sub-dimensions and calculating a mean score for each sub-dimension. The mean scores served as the observed variables measuring individual-level CSE and CEE. Task and social cohesion were aggregated to the team level. As proposed in hypothesis 3a, there was a significant positive effect of CSE on team task cohesion, and as proposed in hypothesis 4b, there was a significant positive effect of CEE on team social cohesion. Contrary to expectations, no significant effects of CSE on team social cohesion or of CEE on team task cohesion were found; thus, hypotheses 3b and 4a were not supported in this study.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

The purpose of this study was to investigate the relationships between core self-evaluation, core external-evaluation, task cohesion, and social cohesion within the context of restaurant management teams. This final chapter offers a discussion of the major findings. A summary of the study and methodology is provided, followed by a discussion of the findings, conclusions, and implications of the study. This chapter closes with a discussion of the limitations of the study and suggestions for future research.

Summary of Study and Methods

The fundamental premise of this study was that restaurant units can achieve success through a team-based environment led by the restaurant's management team. Within the typical restaurant management team structure, communication and coordination of activities is critical. Shift-management and decision-making, while interdependent, are generally solo activities and the actions of one manager during one shift can dictate the success or failure of the next manager during the next shift. Thus, cohesion, or unity, within the management team is critical. Although team cohesion has been clearly established in the literature as an essential component of effective work teams (Beal et al., 2003; Carron et al., 2002; Castano et al., 2013; Chiocchio & Essiembre, 2009; Evans & Jarvis, 1980; Gully et al., 1995; Mullen & Copper, 1994; Oliver et al., 1999), there has been minimal research related to the factors that lead to cohesion (Barrick et al.,1998; Kozlowski & Chao, 2012; Marks et al., 2001), and even less research exploring team cohesion within the restaurant setting (Guchait et al., 2014). What is currently known about the antecedents of cohesion indicates that it emerges as a collective property of the team as a whole,

stemming from individual members' perceptions, cognitions, and attitudes (Kozlowski & Klein, 2000). This, in turn, suggests cohesion is influenced by the dispositional traits of team members. The core evaluations construct, first introduced by Packer (1985) and further developed by Judge et al. (1997), represents a model of dispositional traits that exist within each individual at the most basic level which offers implications for the emergence of cohesion in both of its forms, task cohesion and social cohesion. To help bridge the gap in prior research, this study was conducted to investigate the influence of core evaluations on team cohesion within restaurant management teams. This study first adopted and modified Judge et al.'s (1997) theoretical model of core evaluations, advancing a model in which two types of core evaluations, self and external, were both second-order latent constructs each reflected by four first-order evaluative traits. The proposed trait structure was then tested. Next, grounded in approach-avoidance theory and social exchange theory, this study presented and tested a conceptual model of the relationships between core evaluations and team cohesion.

To accomplish the objectives of this study, a survey research design was employed. The survey instrument was developed based on an extensive literature review of prior research in core evaluations, the traits theorized to reflect core evaluations, and team cohesion. The questionnaire consisted of 38 core self-evaluation items, 24 core external-evaluation items, 4 team cohesion items, 6 social cohesion items, and 6 demographic profile items.

The target population of the study was front-line restaurant managers employed in the United States, and the sampling frame consisted of restaurant managers from four U.S.-based restaurant franchise groups. The franchise groups managed over 130 locations across 7 states in

the U.S. and represented two global casual dining brands and one global quick-service brand that, collectively, operate close to 150,000 units in all 50 states and over 70 countries.

In order to accurately group responses by team, information regarding unit identifiers (e.g. location name, company number) and the number of managers employed in each unit was obtained from the Operations Director of each franchise group. The survey was designed for online distribution, but company Internet restrictions within two of the franchise groups dictated changing to a paper-based survey. For these two groups, paper survey packets were delivered and picked up from each restaurant unit. For the remaining franchise groups, the survey was distributed online via Qualtrics as originally planned. Data collection took place over a four-month period from June – September 2015.

From the four franchise groups, a total of 600 restaurant managers making up 131 teams were invited to participate in the survey, and 389 surveys were returned. Nine surveys were deleted due to incomplete responses. Additionally, because of the team-based nature of this study, it was necessary to obtain data from all members of a given management team for the analysis; therefore, data were only retained in the final sample if useable responses were received from all members of the management team. This parameter resulted in the deletion of an additional 63 surveys. The final sample included 317 individual responses, which equated to 76 management teams ranging from 2 – 6 members.

Upon completion of data collection, the data were coded and entered into SPSS v.22.0. Preliminary procedures included data screening, development of a sample profile using descriptive statistics, and verification of the internal consistency of each scale using the Cronbach's alpha coefficient. Primary analysis was conducted in five phases using MPlus v.7.3.

In the first phase, the factor structure of core self-evaluation and core external-evaluation was tested using confirmatory factor analysis. In the second phase, confirmatory factor analysis of team cohesion was conducted with the cohesion items measured at the individual level. In the third phase, the team cohesion items were assessed using the intraclass correlation coefficient and r_{wg} index to determine whether the items could be aggregated to the team level. Since the results supported aggregation, the fourth phase consisted of another confirmatory factor analysis, this time with all of the relevant factors. Core self-evaluation and core external-evaluation remained at the individual level, while task cohesion social cohesion were included in their aggregated form. In the fifth and final phase, multilevel structural equation modeling was used to test the proposed theoretical model.

Discussion of Results

Structure of Core Evaluations

Core self-evaluation. The factor structure of core evaluations posited in this study was grounded in Packer's (1985) and Judge et al.'s (1997) tripartite conceptualization of the construct. One factor of the construct, core self-evaluation (CSE), has received significant attention in organizational literature over the last two decades, with little deviation in regard to the traits thought to comprise CSE. Based on the criteria of evaluation-focus, fundamentality, and scope, Judge et al. (1997) proposed that CSE was comprised of four traits: self-esteem, generalized self-efficacy, emotional stability, and locus of control, and the subsequent stream of research has supported this conception both in theory and in measurement. Recently, Chang et al. (2012), while maintaining the four-trait structure of CSE, championed the argument that CSE

should be measured and modeled as a second-order latent construct. Modeling CSE in this manner preserves the multidimensionality that Judge et al. (1997) originally theorized, allows for the verification of all theorized traits as valid predictors, specifically targets the shared variance among traits, and allows for disproportionate loadings on the higher order factor.

In light of Chang et al.'s (2012) claim and existing empirical evidence, this study hypothesized that CSE was a second-order factor reflected by first-order factors of self-esteem, generalized self-efficacy, emotional stability, and locus of control. The results of the confirmatory factor analysis supported this factor structure. The retention of all four traits is congruent with previous studies (Haynie, 2012; Judge et al., 1998; Judge & Larsen, 2001; Tasa et al., 2011) and this result is consistent with recent empirical work examining the factor structure of CSE (Gardner & Pierce, 2009). Notable among the first-order factors was locus of control. While locus of control as a first-order factor loaded strongly onto CSE, the factor was reduced to just two measured variables through the confirmatory process due to non-significant or very low factor loadings. However, the test of the alternate model suggested that these two items were important, as they were necessary to model relationships between CSE and other constructs. Given the total number of items (38) used to measure the four factors, some deletion was both expected and, in the interest of parsimony, considered desirable. Still, locus of control stood out with regard to the extent of items deleted. This study purposefully used the same locus of control scale, Levenson's (1981) Internality IPC subscale, as the handful of other studies that have explored the factor structure of CSE (Judge et al., 2002; Gardner & Pierce, 2009). But, whereas previous studies reported moderate reliability, this study reported a fairly low reliability ($\alpha = 0.54$) for locus of control, which likely contributed to the extensive deletion of items.

Further research focusing on the factor structure of CSE, utilizing all four of the same scales as were used in this study, is necessary to understand whether the initial reliability issues were a function of the locus of control scale itself, an aberration due to the study sample, or both.

Core external-evaluation. Based on Packer's (1985) theory, Judge et al. (1997) initially conceptualized core self-evaluation, core other-evaluation, and core world-evaluation, each with accompanying traits. Judge et al.'s (1998) follow-up study collapsed "other" and "world" into a single construct of core external-evaluation. However, previous literature has devoted its attention to the internally-focused core self-evaluation. Regardless of label, externally-focused evaluations have yet to be fully developed with respect to trait structure and measurement as extensively as CSE. This study expanded upon the trait structure of core external-evaluation proposed by Judge et al. (1997) and Judge et al. (1998). Using the same inclusion criteria of evaluation-focus, fundamentality, and breadth employed by Judge et al. (1997), and giving credence to Chang et al.'s (2012) call to preserve the multidimensionality of core evaluations, this study hypothesized that CEE was a second-order factor reflected by first-order factors of belief in a benevolent world, belief in a just world, belief in the benevolence of people, and propensity to trust. The results of the confirmatory factor analysis partially supported this hypothesis. The second-order factor structure of CEE was confirmed, and traits that reflect both other-focused and world-focused evaluations were retained. This trait structure provides empirical support for Judge et al.'s (1998) treatment of core-other and core-world evaluations as a single construct. As hypothesized, the traits that reflected world-evaluations, belief in a benevolent world and belief in a just world, were both retained as separate first-order factors. But, the traits that reflected other-evaluations, belief in the benevolence of people and propensity

116

to trust, merged into a single factor, which this study labeled "belief in people." The consolidation of these traits, while not hypothesized as such, was not surprising. Conceptually, belief in the benevolence of people and propensity to trust are similar; the former posits that individuals believe that people are basically good, caring and helpful (Janoff-Bulman, 1989), and the latter describes an individual's willingness to attribute benevolent intent and honesty to others (Rotter, 1971; Rotter, 1980).

Theoretical Model

Cohesion is one of the more thoroughly studied emergent states in teams research, but little is known about how cohesion actually develops within a team (Kozlowski & Chao, 2012; Kozlowski & Ilgen, 2006). Previous research has focused predominantly on the outcomes of cohesion, particularly as it relates to team performance (Castano et al., 2013; Mathieu et al., 2007; Wise, 2014). Less research has focused on the antecedents of cohesion, but there is some evidence to suggest that individual team member psychological characteristics, including traits, values, and attitudes, may play a significant role in the emergence of team cohesion (Barrick et al., 2007; Bell, 2007; Kozlowski & Ilgen, 2006). The theoretical model of cohesion proposed in this study involved two sets of relationships:

1) The relationship between core self-evaluation and team cohesion

2) The relationship between core external-evaluation and team cohesion

Model non-identification, which occurred during analysis of the structural model, precluded testing of the full theoretical model as it was conceptualized. More specifically, the second-order factor structures of CSE and CEE confirmed during the early stages of analysis

created a disproportionate number of parameters in comparison to the number of teams. To address this issue, several options were considered. The first option was to disaggregate all of the team-level cohesion items back to the individual level and conduct traditional structural equation modeling. This option was rejected, as the intraclass correlation values and the r_{wj} index values clearly showed (1) a considerable proportion of the total variance in both task and social cohesion were explained by team membership and (2) moderate to strong levels of agreement within the majority of teams regarding levels of task cohesion and moderate to strong levels of agreement within approximately half of the teams regarding levels of social cohesion. To disaggregate the team-level cohesion items would ignore the hierarchical structure of the data and fail to separate or acknowledge the differences between groups (Preacher et al., 2010).

The second option was to collect additional data. Additional data would have allowed the number of teams to exceed the number of parameters and resolved the model identification issue. Given the complexity of the model, this would have required useable data from an additional 125 teams, provided each team had approximately 4 members. As this equated to an almost 175% increase in participants, this was deemed unattainable for the current study.

The third option was to simplify the model in order to reduce the number of the parameters. Acknowledging that model simplification would require the second-order CSE and CEE to be collapsed, which could potentially affect model fit and the relationships between constructs, this option was considered the most viable. Therefore, the first-order factors of CSE and CEE were treated as sub-dimensions, with mean scores for each factor serving as the manifest indicators (Preacher et al., 2010). This change allowed for proper identification of the multilevel structural model. The results and subsequent discussion are based on the reduced-

118

parameter model and thus are speculative in regard to the relationships between core evaluations and team cohesion.

Core self-evaluation and team task cohesion. Hypothesis 3a stated that individual core self-evaluation in front-line restaurant managers would be positively related to task cohesion within restaurant management teams. The results provided support for this hypothesis, indicating that higher levels of core self-evaluation within individual team members lead to higher levels of team task cohesion. This result aligns with previous CSE research, which has found high-CSE individuals to demonstrate stronger work motivation (Erez & Judge, 2001), task motivation (Judge et al., 2009), commitment to developmental goals (Bono & Colbert, 2005), and performance achievement (Elliot & Thrash, 2002). Although previous studies were focused on individual-level outcomes rather than team-level outcomes, the idea that higher levels of motivation and goal commitment would converge at the team level, in the form of task cohesion, is a logical extension of this research and offers a new perspective on the outcomes of CSE to the literature.

Core self-evaluation and team social cohesion. Hypothesis 3b stated that individual core self-evaluation in front-line restaurant managers would be positively related to social cohesion within restaurant management teams. The results found no significant effect of CSE on team social cohesion. Although little is known about outcomes of CSE in a team environment, prior literature has found evidence that high-CSE individuals maintain an approach temperament, meaning they are more likely to actively engage with other team members in a positive manner (Chang et al., 2012; Elliot & Thrash, 2002). While this may be the case, it would appear, based on this study's result, that a high level of CSE does not produce the types of interactions which

lead to closeness within the team or the desire to engage in social time together, both of which are hallmarks of social cohesion. A possible explanation for this is high levels of CSE within individual mangers lead to an environment in which managers are professional, respectful, and courteous, but not socially bonded. For example, within the restaurant environment, a management team could have several high-CSE members who are able to communicate effectively regarding shift management, engage in open dialogue regarding decisions that affect the team and the employees, and resolve intra-team conflict in a positive manner. These team members may only interact within each other in the restaurant itself and focus their discussion on the business of the operation rather than on personal details and socialization.

Core external-evaluation and team task cohesion. Hypothesis 4a stated that individual core external-evaluation in front-line restaurant managers would be positively related to task cohesion within restaurant management teams. The results did not support this hypothesis. The hypothesis was grounded in approach-avoidance theory and social exchange theory, which imply that high-CEE individuals are more likely to view interactions with others as positive stimuli and therefore be more likely to engage in the task-based exchanges necessary for an interdependent team to function efficiently. The lack of a significant relationship between CEE and task cohesion suggests high levels of CEE within managers are not a prerequisite for the emergence of task cohesion, a finding which may be explained by regulatory focus theory. Regulatory focus theory refers to the means by which an individual pursues goals; a person can either have a promotion-focus or a prevention-focus (Higgins, 1997). Promotion-focused individuals are focused on goal attainment and achievement and seek opportunities to pursue gains, whereas prevention-focused individuals emphasize avoiding threats and loss (Lee & Oh, 2013). Much

120

like approach-avoidance theory, regulatory focus theory is based on the idea that individual differences can manifest themselves through varying sensitivities to positive and negative stimuli, but also considers varying levels of concern with one's self-concept (Ferris et al., 2013). In other words, regulatory focus theory suggests that the individual goal orientation and commitment to achievement necessary for team task cohesion is a function of high levels of core *self*-evaluation, rather than high levels of core *external*-evaluation.

Core external-evaluation and team social cohesion. Hypothesis 4b stated that individual core external-evaluation in front-line restaurant managers would be positively related to social cohesion within restaurant management teams. The results provided support for this hypothesis, indicating higher levels of core external-evaluation within individual team members lead to higher levels of social cohesion within a team. This result was expected, as the traits of CEE suggest high-CEE individuals are more likely see the best in people, thus increasing the likelihood that they will develop social relationships. Approach-avoidance theory also suggests high-CEE individuals react positively to outside stimuli, which can occur through the personal interactions experienced in the workplace, making it more likely that such individuals would be attracted to the team (Elliot & Thrash, 2002; Elliot & Thrash, 2010). Evidence from prior literature suggests that the benefit of social cohesion, particularly in smaller teams such as restaurant management teams, is that as social cohesion emerges and team members develop emotional bonds, there is a positive impact on team performance (Castano et al., 2013).

<div align="center">**Implications**</div>

Theoretical & Methodological Implications

This study offers several important theoretical and methodological contributions. Prior to this study, research on core evaluations has overwhelmingly focused on the consequences of core self-evaluation. Yet, the two seminal works on core evaluations authored by Packer (1985) and Judge et al. (1997) both articulated a tripartite model that included core evaluations of the self, of others, and of the world. Judge et al. (1998) later theorized that core other- and core world-evaluations could be represented by a single core external-evaluations construct, but virtually no literature since then has incorporated core external-evaluations as an antecedent of any workplace outcomes, nor has any study, to my knowledge, empirically tested the traits proposed to comprise core external-evaluations. Additionally, the stream of research focused on core self-evaluation has generally accepted Judge et al.'s (1997) conceptualization but, as pointed out by Chang et al. (2012), has yet to embrace indirect measures of CSE capable of preserving and validating the trait structure.

The work of this study offers a deeper understanding of the structure of core evaluations. The results demonstrate that both CSE and CEE are higher-order latent constructs. The traits associated with CSE presented here are consistent with previous literature, but the results of the CFA analysis give merit to the viewpoint that CSE should be modeled as a second-order construct. The final trait structure of CEE also lends validity to this viewpoint. Further, the trait structure of CEE presented here suggests the combination of core other- and core-world evaluations results in a valid construct which captures an individual's externally-focused evaluations. Moreover, the results of the CFA analysis offer a more parsimonious model than

<div align="center">122</div>

Judge et al.'s (1997) or (1998) conceptualization of CEE. While it was not the objective of this study to develop CSE or CEE scales, the findings provide the foundation for the refinement of scales designed to capture the first-order traits of CSE and CEE.

The research presented in this study also offers implications for the theory and practice of studying "bottom-up" or micro-macro phenomena in hospitality organizations. Organizational researchers are often interested in studying situations involving hierarchically clustered data, but until recently, the analytical procedures recommended for this type of data have only accommodated team- or organization-level independent variables. In other words, only "top-down" effects, such as a supervisor's influence on individual employee job satisfaction or the effects of organizational climate on an individual's citizenship behaviors, could be modeled (Krull & MacKinnon, 2001). Yet, "bottom-up" phenomena exist in practice; for example, individual employees can influence unit-level outcomes such as service climate or team performance. The developments in multilevel structural equation modeling by Muthén and Asparouhov (2008) and by Preacher et al. (2010) offer a means to test these phenomena and retain both levels of analysis.

To my knowledge, this study is the first to employ MSEM as an analytical technique within hospitality literature, and the challenges experienced provide guidance for future studies planning to utilize this method. More specifically, the number of parameters in a multilevel structural model increase exponentially due to modeling individual-level items at both the *Within* and *Between* levels. At the same time, the overall sample size is reduced to the number of groups when the endogenous variables are modeled at the *Between* level. Meuleman and Billiet (2009) concluded that as few as 40 groups may be required to detect structural paths at the *Between*

level, and Hox and Mass (2001) recommended 50 to 100 groups. The examples provided by Preacher et al. (2010) successfully converged with a sample size of 79 teams. The model non-identification that occurred in this study suggest these guidelines are only applicable when the model is simple. Complex models that include second-order latent constructs or several first-order latent constructs require the researcher to obtain samples almost double what the current recommendations suggest.

Finally, the findings of this study contribute to the understanding of cohesion by presenting a model of its antecedents. Prior to this study, there has been minimal investigation into the factors that lead to cohesion, and while research in the area of team composition has hinted at the linkage between individual disposition and cohesion, this study offers the first empirical test of the relationship (Barrick et al, 1998; Casey-Campbell & Martens, 2009). A major finding of this study was that CSE and CEE each predicted a separate aspect of team cohesion, with CSE positively influencing task cohesion and CEE positively influencing social cohesion. CSE had a stronger impact on task cohesion than CEE did on social cohesion, but the modified model suggests that both types of core evaluations are essential for team cohesion in the restaurant environment. This model could be tested, either in its modified form or in its original form, presuming appropriate sample size, in other hospitality operations settings. It is expected that a similar relationship would exist in other hospitality management teams, such as those found in hotels, casinos, or theme parks.

Practical Implications

Although care should be exercised when deriving practical recommendations from a single survey-based study, the current findings do offer compelling long-term implications for the restaurant industry. The primary implication is that it would be worthwhile to consider a selection instrument which assessed individual disposition in the form of core evaluations in order to evaluate potential managerial applicants' predisposition to team cohesion. Considering that 29% of employers in the U.S. use some type of psychological assessment (Society for Industrial and Organization Psychology [SIOP], 2016), a selection instrument is not a new idea. What is new is an instrument that focuses on focus on an applicant's potential to contribute to the emergence of team cohesion, as common instruments currently used in the restaurant industry such as the Batrus or Unicru tools tend to focus on individual benchmarks (i.e. leadership, ethics, effort). An instrument such as the one proposed by this study could aid human resources managers attempting to build high-performance teams accomplish this task during the selection process, rather than after the team is formed.

To be clear, this study is not advocating the use of personality testing as the sole benchmark for hire, nor is this study suggesting that the final scale items retained through the analysis represent a survey ready for industry use. Extensive work is still necessary to develop a valid, reliable, and legal assessment instrument suitable for the industry, and such work requires time, additional research, and replication (Below, 2014). For example, given the diversity that exists within the restaurant industry, cultural context must be considered and any further scale development must consider cross-cultural validation (Meinert, 2015). However, the results of this study can be considered the first step towards an assessment instrument.

Restaurant organizations as well other hospitality organizations with similar management team structures, such as hotels, stand to benefit from using such an instrument as a screening measure, as it would allow them to know before making an offer of employment whether a prospective candidate has a disposition that will contribute to the emergence of task cohesion, social cohesion, or ideally both. Building this disposition into a management team from the first day of employment also offers the potential for organizations spend less time and money on team building activities which are known to have little to no effect on creating or enhancing team cohesion (Casey-Campbell & Martens, 2009). There is also potential for restaurant and hotel companies to reduce turnover costs and, by extension, costs associated with selection and training, as cohesive management teams may experience greater retention (Davidson et al., 2010). Additionally, cohesive restaurant management teams able to perform at a high level will, arguably, meet or exceed goals related to sales, food and labor costs, and service, thus improving the restaurant's overall profitability.

Limitations & Future Research

The critical limitation of this study was the sample size. While 317 individual useable responses were collected, which was adequate for the various CFA procedures, the team-level sample size of 76 was insufficient for a MSEM model as complex as the conceptual model of this study. Although this study was able to test a modified version of the model, a larger sample is desirable in order to truly understand the relationships between core evaluations and team cohesion. The team-level sample size also prevented organizational moderators, such as industry segment or franchise group, to be explored in this study. The inclusion of such moderators may

have revealed conditions under which the core evaluations-team cohesion relationships change. Future research should attempt to collect larger sample of teams and respondents. One such avenue would be the inclusion of additional restaurant groups or segments. For example, approaching a national brand at the corporate level may provide the researcher access to hundreds of restaurant units across the United States. Another option would be to include smaller franchise groups that represent fast-casual or upscale casual brands. A second avenue for data collection that could result in a larger sample is the expansion to a broader population within the hospitality industry. Hotel management teams, particularly front office teams, housekeeping teams, and hotel-based food and beverage teams, are structured similarly to restaurant management teams, and share the same type of task interdependence and daily shift management, making this industry segment a viable candidate for inclusion (Hayes, Ninemeier, & Miller, 2012; Hsieh, Pearson, Chang, & Uen, 2004; Ricci, 2010).

A related issue is the makeup of the sample. The study sample was comprised of restaurant managers from four restaurant franchise groups based in the United States. Therefore, the findings cannot be generalized to a broader population. While the trait structure of CSE found in this study corresponds with prior research, there is currently no basis of comparison for the trait structure of CEE. Future research should attempt to replicate the findings of this study both within the restaurant context and in a broad sample of people to see if the trait structure holds. The same can be said for the relationships found between core evaluations and team cohesion. Replication of this study with other restaurant groups or within a broader segment of the hospitality industry will deepen our understanding of the impact that individual disposition has on both task and social cohesion.

Another limitation of this study stems from the utilization of a survey design. Research on personality and individual differences relies heavily on self-report survey instruments and measures, but self-report measures offer the potential for response distortion. Response distortion, or faking, refers to situations where respondents misrepresent their responses to self-report measures, presumably to make themselves look more attractive to the organization (Donavan, Dwight, & Schneider, 2013). Concerns about response distortion in personality measures are generally centered on the application phase of employment, as some personality researchers argue that applicants will fake desirable responses in order to increase their chances of being hired (Oswald & Hough, 2010). But, response distortion can occur when a personality-based survey is delivered to individuals who are already employed, as was the case in this study (Oswald & Hough, 2010). Although participating managers were informed that their responses were anonymous and confidential, a desire to represent themselves, their restaurant unit, or their organization in a positive light may have affected the responses for both the core evaluations component and the team cohesion component of the survey.

The specific measures used in the survey may have also been a limiting factor. Although the individual scales used in this study were all drawn from previous literature and were supported by ample evidence for their validity and reliability, there are few studies that have actually measured CSE or CEE in the manner undertaken by this study. The multitude of scales used to measure the first-order traits of CSE and CEE also led to a lengthy questionnaire, which could have caused survey fatigue that negatively influenced the validity of participant responses. The confirmatory factor analysis process did demonstrate evidence of validity and reliability; nevertheless, follow-up studies could further improve CSE and CEE measures. The same can be

said for task cohesion and social cohesion; while the selected scales were drawn from existing literature and demonstrated evidence of reliability and validity, the construct validity concerns related to individual-level social cohesion suggest further psychometric work is necessary. The results of this study, when considering task and social cohesion at the team level, suggest that the two constructs are distinct but related. This in turn would imply that validity issues related to social cohesion may stem from the specific scale items. Cohesion studies often use undergraduate student samples, which may explain why these studies achieve higher levels of construct validity for social cohesion measures (See Forrester & Tashchian, 2006; Van den Bossche et al., 2006). Social cohesion items that address socialization outside of the workplace and deep friendships may be more appropriate for student teams than for professional work teams. Future research should approach core evaluations and team cohesion separately, focusing on measurement and scale refinement across a wide range of participants and industries, and compare alternate scales in order to develop more precise, parsimonious measures.

Another limitation with respect to the survey design and measurement was the effort of this study to accurately depict cohesion via a self-report instrument. Much like personality research, the vast majority of cohesion research is based on survey-driven cross-sectional data, and this was the approach implemented in this study. However, as recently pointed out by Kozlowski & Chao (2012), the use of cross-sectional surveys takes a static rather than dynamic approach to understanding cohesion, and captures cohesion at a single moment in time rather than as it emerges within a team. Admittedly more challenging to implement, future researchers should consider more novel approaches in order to fully capture cohesion. A longitudinal design has the potential to reveal patterns, fluctuations, and cycles within the team that can help to

pinpoint when cohesion begins to emerge, events that strengthen or weaken cohesion, or how a change in team members may impact cohesion.

Kozlowski and Chao (2012) discuss one new technique, a wireless sensor that can monitor a team member's dynamic collaboration with other team members, allowing researchers to track the emergence of team cohesion. Still under development, the long-term intent is to create a non-intrusive means to collect cohesion data in real time. Neuroscience also offers an innovative approach in the form of electroencephalpgram (EEG) headsets, which allow for the mapping of a "team brain" based on a composite of individual team members. Early research indicates that the use of such devices can draw attention to a team's strengths, weaknesses, and cognitive diversity, which offers implications for the use of EEG scanning to map the emergence of cohesion as team members interact with each other (Nardi, 2016).

A final limitation of this study was its scope. In an effort to understand the antecdents of team cohesion, this study focused on the relationship between individual disposition, in the form of core evaluations, and cohesion. This study recognized the established relationship between team cohesion and team performance (Castano et al., 2013; Chiocchio & Essiembre, 2009), but did not include team performance as a variable in the conceptual model. While this was an intentional narrowing in scope, it does limit the findings and implications to only one half of a larger model. Given the documented team cohesion-team performance linkage, and given that CSE was positively related to team task cohesion and CEE was positively related to team social cohesion, a logical extension is that CSE and CEE are linked to team performance.

The potential impacts of CSE and CEE on team performance raise a number of questions, all of which form the basis for a unified research stream: Are CSE and CEE directly or indirectly

linked to team performance? If a relationship is established, which is more important to team functioning, CSE or CEE? Are there optimal levels of CSE and/or CSE; in other words, is it possible for an individual to have too high of a level of CSE or CEE? Are there other individual characteristics, either demographic or behavioral, or other team characteristics, such as size or tenure, that may lead to the emergence of cohesion? Do other emergent states, such as shared knowledge or team adaptability, have a greater influence on team performance than cohesion and if so, to what extent are they affected by CSE or CEE? Are there other variables, such as leadership style or organizational climate, that may moderate these relationships? To date, there are no studies that have conceptualized or explored the interrelationships between core evaluations, team cohesion, and team performance in a single model. Each of these questions offers a new avenue to explore within the larger framework of team cohesion. The findings of this study can aid future researchers in pursuing this promising line of inquiry, which could lead to a better understanding of team dynamics in the hospitality workplace.

APPENDIX A: IRB APPROVAL LETTER

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: Marissa A. Orlowski:

Date: **March 06, 2015**

Dear Researcher:

On 03/06/2015, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	Creating team cohesion in the restaurant industry: The effects of core evaluations
Investigator:	Marissa A. Orlowski
IRB Number:	SBE-15-11072
Funding Agency:	
Grant Title:	
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Kanielle Chap

IRB Coordinator

APPENDIX B: SURVEY INSTRUMENT

EXPLANATION OF RESEARCH

Title of Project: Creating team cohesion in the restaurant industry: The effects of core evaluations
Principal Investigator: Marissa Orlowski
Faculty Supervisor: Abraham Pizam, Ph.D.

You are being invited to take part in a research study. Whether you take part is up to you.

- The purpose of this study is to investigate the relationship between manager core evaluations and team cohesion within restaurant management teams.
- This study involves a questionnaire which takes approximately 15 minutes to complete.
- You will be asked to answer questions regarding your core evaluations and your perceptions of cohesion within your management team. There will also be demographic questions designed to understand the profile of the respondents. Information from your responses will be combined with other responses. Results from this study will be used for the researcher's dissertation and for submission to scholarly research journals in the future.
- Your name will not be collected. This is an anonymous survey. There are no right or wrong, desirable or undesirable, answers. Please feel free to express your opinions whether they are positive or negative. After the research is completed, all data will be stored on a password protected computer and a secure server. This is voluntary participation and there is no penalty for not taking part in the study.

Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, please contact Marissa Orlowski, Graduate Student, Department of Foodservice and Lodging Management, Rosen College of Hospitality Management by email at Marissa.Orlowski@ucf.edu or Dr. Abraham Pizam, Faculty Supervisor, Rosen College of Hospitality Management by email at Abraham.Pizam@ucf.edu. IRB contact about your rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

Q1 Would you like to participate in this study? (You can quit at any time. By agreeing to participate, you also confirm that you are at least 18 years old.)

❍ Yes (1)

❍ No (2)

If No Is Selected, Then Skip To End of Survey

SECTION 1 (Q2-11): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I feel that I am a person of worth, at least on an equal basis with others. (2)	❍	❍	❍	❍	❍
I will be able to achieve most of the goals I have set for myself. (3)	❍	❍	❍	❍	❍
I am not a worrier. (4)	❍	❍	❍	❍	❍
Whether or not a get to be a leader depends mostly on my ability. (5)	❍	❍	❍	❍	❍
I feel that I have a number of good qualities. (6)	❍	❍	❍	❍	❍
When facing difficult tasks, I am certain I will accomplish them. (7)	❍	❍	❍	❍	❍
I rarely feel fearful or anxious. (8)	❍	❍	❍	❍	❍
Whether or not I get into a car accident depends mostly on how good of a driver I am. (9)	❍	❍	❍	❍	❍
All in all, I am inclined to feel that I am a failure. (10)	❍	❍	❍	❍	❍
In general, I think that I can obtain outcomes that are important to me. (11)	❍	❍	❍	❍	❍

SECTION 2 (Q12-21): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I often feel tense or jittery. (12)	❍	❍	❍	❍	❍
When I make plans, I am almost certain to make them work. (13)	❍	❍	❍	❍	❍
I am able to do things as well as most people. (14)	❍	❍	❍	❍	❍
I believe I can succeed at almost any endeavor to which I set my mind. (15)	❍	❍	❍	❍	❍
I often get angry at the way people treat me. (16)	❍	❍	❍	❍	❍
How many friends I have depends on how nice of a person I am. (17)	❍	❍	❍	❍	❍
I feel that I do not have much to be proud of. (18)	❍	❍	❍	❍	❍
I will be able to successfully overcome many challenges. (19)	❍	❍	❍	❍	❍
At times I have felt bitter or resentful. (20)	❍	❍	❍	❍	❍
I can pretty much determine what will happen in my life. (21)	❍	❍	❍	❍	❍

SECTION 3 (Q22-31): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I take a positive attitude toward myself. (22)	○	○	○	○	○
I am confident I can perform effectively on many different tasks. (23)	○	○	○	○	○
I rarely feel lonely or blue. (24)	○	○	○	○	○
I am usually able to protect my personal interests. (25)	○	○	○	○	○
On the whole, I am satisfied with myself. (26)	○	○	○	○	○
Compared to other people, I can do most tasks very well. (27)	○	○	○	○	○
Sometimes I feel completely worthless. (28)	○	○	○	○	○
When I get what I want, it is usually because I worked hard for it. (29)	○	○	○	○	○
I wish I could have more respect for myself. (30)	○	○	○	○	○
Even when things are tough, I can perform quite well. (31)	○	○	○	○	○

SECTION 4 (Q32-39): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I am seldom sad or depressed. (32)	❍	❍	❍	❍	❍
My life is determined by my own actions. (33)	❍	❍	❍	❍	❍
I certainly feel useless at times. (34)	❍	❍	❍	❍	❍
Too often, when things go wrong, I get discouraged and feel like giving up. (35)	❍	❍	❍	❍	❍
At times I have been so ashamed I just I want to hide. (36)	❍	❍	❍	❍	❍
At times I think I am no good at all. (37)	❍	❍	❍	❍	❍
I often feel helpless and want someone else to solve my problems. (38)	❍	❍	❍	❍	❍
When I am under a great deal of stress, sometimes I feel like I'm going to pieces. (39)	❍	❍	❍	❍	❍

SECTION 5 (Q40-47): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
The good things that happen in this world far outweigh the bad. (40)	❍	❍	❍	❍	❍
I feel that the world treats people fairly. (41)	❍	❍	❍	❍	❍
I tend to be cynical and skeptical of others' intentions. (42)	❍	❍	❍	❍	❍
People are naturally unfriendly and unkind. (43)	❍	❍	❍	❍	❍
I feel that people get what they deserve. (44)	❍	❍	❍	❍	❍
I believe that most people are basically well-intentioned. (45)	❍	❍	❍	❍	❍
There is more good than evil in the world. (46)	❍	❍	❍	❍	❍
I feel that people treat each other fairly in life. (47)	❍	❍	❍	❍	❍

SECTION 6 (Q48-55): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I believe that most people will take advantage if you let them. (48)	❍	❍	❍	❍	❍
Human nature is basically good. (49)	❍	❍	❍	❍	❍
I feel that people earn the rewards and punishment they get. (50)	❍	❍	❍	❍	❍
I tend to assume the best about people. (51)	❍	❍	❍	❍	❍
The world is a good place. (52)	❍	❍	❍	❍	❍
I feel that people treat each other with the respect they deserve. (53)	❍	❍	❍	❍	❍
I'm suspicious when someone does something nice for me. (54)	❍	❍	❍	❍	❍
People really don't care what happens to the next person. (55)	❍	❍	❍	❍	❍

SECTION 7 (Q56-63): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I feel that people get what they are entitled to have. (56)	❍	❍	❍	❍	❍
My first reaction is to trust people. (57)	❍	❍	❍	❍	❍
If you look closely enough, you will see that the world is full of goodness. (58)	❍	❍	❍	❍	❍
I feel that a person's efforts are noticed and rewarded. (59)	❍	❍	❍	❍	❍
I think most of the people I deal with are honest and trustworthy. (60)	❍	❍	❍	❍	❍
People are basically kind and helpful. (61)	❍	❍	❍	❍	❍
I feel that when people are treated with misfortune, they have brought in on themselves. (62)	❍	❍	❍	❍	❍
I have a good deal of faith in the human nature. (63)	❍	❍	❍	❍	❍

For the next set of questions, please consider the management team that you currently work with.

SECTION 8 (Q64-68): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Our team is united in trying to teach its goals for performance. (64)	❍	❍	❍	❍	❍
Our team would like to spend time together outside of work hours. (65)	❍	❍	❍	❍	❍
I'm unhappy with my team's level of commitment to the task. (66)	❍	❍	❍	❍	❍
Members of our team do not stick together outside of work time. (67)	❍	❍	❍	❍	❍
For me this team one of the most important social groups to which I belong. (68)	❍	❍	❍	❍	❍

SECTION 9 (Q69-73): Please indicate your level of agreement or disagreement with the following statements.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Our team members have conflicting aspirations for the team's performance. (69)	○	○	○	○	○
Our team members rarely socialize together. (70)	○	○	○	○	○
This team does not give me enough opportunities to improve my personal performance. (71)	○	○	○	○	○
Members of our team would rather go out on their own than get together as a team. (72)	○	○	○	○	○
Some of my best friends are in this team. (73)	○	○	○	○	○

Q74 How long have you been a member of the management team you currently work with? Please be specific. For example, "3 months" or "2 years, 8 months"

Q75 How long have you worked for this company?
○ Less than 6 months (1)
○ 6 months - 1 year (2)
○ 1-3 years (3)
○ 3-5 years (4)
○ 5-8 years (5)
○ 8-10 years (6)
○ 10-15 years (7)
○ 15-20 years (8)
○ More than 20 years (9)

Q76 How long have you been employed as a restaurant manager (with any company)?
- ○ Less than 6 months (1)
- ○ 6 months - 1 year (2)
- ○ 1-3 years (3)
- ○ 3-5 years (4)
- ○ 5-8 years (5)
- ○ 8-10 years (6)
- ○ 10-15 years (7)
- ○ 15-20 years (8)
- ○ More than 20 years (9)

Q77 What is your gender?
- ○ Male (1)
- ○ Female (2)

Q78 What is your age?

Q79 What is your highest level of education?
- ○ High School/GED (1)
- ○ Associate (2-year) Degree (2)
- ○ Some College (3)
- ○ Bachelor's (4-year) Degree (4)
- ○ Master's Degree (5)
- ○ Doctorate Degree (6)
- ○ Other (7)

APPENDIX C: DESCRIPTIVE STATISTICS

Table 28: Descriptive Statistics

Item	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SE1	317	1	5	4.50	.696	-1.596	.137	3.686	.273
SE2	317	2	5	4.60	.568	-1.296	.137	1.837	.273
SE3	317	1	5	4.32	1.056	-1.551	.137	1.623	.273
SE4	317	1	5	4.39	.660	-1.033	.137	1.966	.273
SE5	317	1	5	4.24	1.040	-1.444	.137	1.433	.273
SE6	317	2	5	4.35	.739	-1.144	.137	1.331	.273
SE7	317	2	5	4.36	.713	-.959	.137	.725	.273
SE8	317	1	5	3.71	1.194	-.720	.137	-.384	.273
SE9	317	1	5	4.14	1.034	-1.180	.137	.774	.273
SE10	317	1	5	4.28	.939	-1.264	.137	.860	.273
GSE1	317	1	5	4.44	.721	-1.597	.137	3.780	.273
GSE2	317	1	5	4.40	.685	-1.372	.137	3.563	.273
GSE3	317	1	5	4.30	.694	-1.102	.137	2.738	.273
GSE4	317	2	5	4.48	.614	-.830	.137	.116	.273
GSE5	317	1	5	4.32	.756	-1.481	.137	3.799	.273
GSE6	317	2	5	4.48	.629	-1.111	.137	1.567	.273
GSE7	317	2	5	4.32	.695	-.686	.137	-.022	.273
GSE8	317	2	5	4.37	.611	-.663	.137	.795	.273
ES1	317	1	5	3.25	1.155	-.207	.137	-.732	.273
ES2	317	1	5	3.46	1.101	-.294	.137	-.675	.273
ES3	317	1	5	3.79	1.043	-.626	.137	-.305	.273
ES4	317	1	5	3.53	1.092	-.436	.137	-.436	.273
ES5	317	1	5	3.48	1.143	-.275	.137	-.849	.273
ES6	317	1	5	3.50	1.203	-.543	.137	-.627	.273
ES7	317	1	5	4.22	1.027	-1.343	.137	1.177	.273
ES8	317	1	5	2.93	1.374	-.014	.137	-1.278	.273
ES9	317	1	5	4.01	1.099	-.904	.137	-.099	.273
ES10	317	1	5	4.13	1.023	-1.090	.137	.414	.273
ES11	317	1	5	4.40	.842	-1.508	.137	2.050	.273
ES12	317	1	5	3.85	1.201	-.726	.137	-.612	.273

Item	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
LC1	317	1	5	4.21	.860	-1.219	.137	1.591	.273
LC2	317	1	5	3.10	1.251	-.114	.137	-.924	.273
LC3	317	1	5	4.17	.762	-1.038	.137	2.097	.273
LC4	317	1	5	2.91	1.288	.029	.137	-1.000	.273
LC5	317	1	5	3.49	1.104	-.462	.137	-.407	.273
LC6	317	1	5	4.14	.704	-1.028	.137	3.010	.273
LC7	317	1	5	4.44	.807	-2.004	.137	5.242	.273
LC8	317	1	5	4.17	.868	-1.265	.137	1.995	.273
BW1	317	1	5	3.76	1.040	-.713	.137	.246	.273
BW2	317	1	5	3.61	1.003	-.492	.137	-.051	.273
BW3	317	1	5	3.62	.985	-.482	.137	-.003	.273
BW4	317	1	5	3.61	.967	-.416	.137	-.195	.273
JW1	317	1	5	2.89	1.075	.037	.137	-.331	.273
JW2	317	1	5	3.38	1.001	-.369	.137	-.063	.273
JW3	317	1	5	3.07	.996	.002	.137	-.256	.273
JW4	317	1	5	3.69	.889	-.576	.137	.384	.273
JW5	317	1	5	3.30	1.054	-.222	.137	-.562	.273
JW6	317	1	5	3.15	1.029	-.395	.137	-.460	.273
JW7	317	1	5	3.61	.986	-.565	.137	-.072	.273
JW8	317	1	5	2.71	1.012	.043	.137	-.466	.273
BP1	317	1	5	3.76	1.054	-.640	.137	-.107	.273
BP2	317	1	5	3.68	.884	-.759	.137	1.056	.273
BP3	317	1	5	3.34	1.023	-.197	.137	-.493	.273
BP4	317	1	5	3.56	.910	-.497	.137	.125	.273
TR1	317	1	5	3.12	1.016	.024	.137	-.276	.273
TR2	317	1	5	3.66	.818	-.662	.137	.797	.273
TR3	317	1	5	2.46	1.112	.489	.137	-.469	.273
TR4	317	1	5	3.87	.813	-.724	.137	.868	.273
TR5	317	1	5	3.48	1.163	-.493	.137	-.684	.273
TR6	317	1	5	3.37	1.119	-.412	.137	-.625	.273
TR7	317	1	5	3.67	.883	-.484	.137	.195	.273
TR8	317	1	5	3.70	.900	-.375	.137	-.100	.273

Item	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
				Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
TC1	317	2	5	4.05	.911	-.789	.137	-.109	.273
TC2	317	1	5	3.64	1.198	-.639	.137	-.578	.273
TC3	317	1	5	3.44	1.136	-.328	.137	-.746	.273
TC4	317	1	5	3.95	1.006	-.885	.137	.299	.273
SC1	317	1	5	2.92	1.088	-.014	.137	-.487	.273
SC2	317	1	5	2.93	1.133	.248	.137	-.592	.273
SC3	317	1	5	2.95	1.176	.004	.137	-.805	.273
SC4	317	1	5	3.34	1.138	-.070	.137	-.785	.273
SC5	317	1	5	3.10	1.146	-.186	.137	-.632	.273
SC6	317	1	5	2.62	1.220	.266	.137	-.824	.273

APPENDIX D: MODEL MODIFICATION STEPS FOR CORE-SELF EVALUATION AS A SECOND-ORDER CONSTRUCT

Table 29: Model Modification Steps for Core Self-Evaluation

Step	Action	Chi-Square	RMSEA	CFI	SRMR	Problem
1	Hypothesized model with all survey items retained	NPD Matrix: Non-interpretable				SE has a nonsignificant negative residual variance (-0.002, p = 0.683) and correlates with CSE 1.010
2	Set variance of SE to zero	1616.234	0.067	0.727	0.078	ES8, LC2, LC4 nonsig loadings
3	Drop ES8, LC2, LC4	1375.966	0.068	0.752	0.075	SE 10 crossloaded onto ES
4	Drop SE10	1209.98	0.064	0.0771	0.071	SE9 crossloaded onto ES
5	Drop SE9	1086.251	0.062	0.79	0.069	MI indicate that SE5 & SE3 have residual covariances – the items in the scale, although worded differently, ask essentially the same question (Byrne, 2012)
6	Covary SE5 with SE3	1035.132	0.059	0.808	0.068	SE8 crossloaded onto ES
7	Drop SE8	947.458	0.058	0.821	0.066	MI indicate that SE6 & SE7 have residual covariances – the items in the scale, although worded differently, ask essentially the same question (Byrne, 2012)
8	Covary SE6 & SE7	921.63	0.056	0.83	0.066	MI indicate that ES1 & ES2 have residual covariances – the items in the scale, although worded differently, ask essentially the same question (Byrne, 2012)

Step	Action	Chi-Square	RMSEA	CFI	SRMR	Problem
9	Covary ES1 & ES2	891.701	0.055	0.84	0.065	MI negligible. Looking at standardized factor loadings. Several have low loadings – start removing by lowest value
10	Drop LC5 (0.239)	813.758	0.053	0.854	0.064	Low factor loadings
11	Drop ES6 (0.255)	737.988	0.052	0.866	0.063	Low factor loadings
12	Drop ES1 (0.306) &	696.167	0.052	0.867	0.063	Low factor loadings
13	Drop ES2 (0.317)	651.525	0.053	0.87	0.062	Low factor loadings
14	Drop LC1 (0.393)	601.335	0.053	0.875	0.061	Low factor loadings
15	Drop SE3 (0.407) &	533.236	0.05	0.888	0.057	Low factor loadings
16	Drop SE5 (0.407)	486.914	0.05	0.896	0.055	Low factor loadings
17	Drop LC7 (0.427)	457.769	0.052	0.897	0.055	Low factor loadings
18	Drop LC8	408.687	0.05	0.906	0.054	

File name: Data_Ind_2nd Order CFA for CSE.inp

APPENDIX E: MODEL MODIFICATION STEPS FOR CORE-EXTERNAL EVALUATION AS A SECOND-ORDER CONSTRUCT

Table 30: Model Modification Steps for Core External-Evaluation

Step	Action	Chi-Square	RMSEA	CFI	SRMR	Problem
1	Hypothesized model with all survey items retained	NPD Matrix: Non-interpretable				BP has a nonsignificant negative residual variance (-0.013, p = 0.403) and correlates with CSE 1.035 and TR 1.021
2	Respecify to a 3-factor model, with all items from BP	564.952	0.063	0.801	0.078	JW8 nonsig loading
3	Drop JW8	491.411	0.061	0.826	0.073	MI indicate that BP3 & TR5 have residual covariances
4	Covary BP3 & TR5	465.427	0.058	0.843	0.071	Low factor loadings
5	Drop JW4 (0.199)	414.456	0.057	0.859	0.068	Low factor loadings
6	Drop JW6 (0.283)	361.602	0.055	0.877	0.062	Low factor loadings
7	Drop JW2 (0.213)	303.302	0.051	0.9	0.058	Low factor loadings
8	Drop TR3 (0.297)	258.318	0.048	0.916	0.055	Low factor loadings
9	Drop TR1 (0.342)	232.14	0.049	0.92	0.054	Low factor loadings
10	Drop TR5 (0.379)	212.558	0.051	0.92	0.05	Low factor loadings
11	Drop BP1 (0.392)	175.4	0.048	0.934	0.046	Low factor loadings
12	Drop BW1 (0.393)	150.734	0.048	0.94	0.044	Low factor loadings
13	Drop TR4 (0.461)	129.539	0.049	0.945	0.043	Low factor loadings
14	Drop BP3 (0.462)	116.324	0.053	0.943	0.043	

File name: Data_Ind_2nd Order CFA for CEE.inp

APPENDIX F: MODEL MODIFICATION STEPS FOR TASK AND SOCIAL COHESION

Table 31: Model Modification Steps for Task & Social Cohesion

Step	Action	Chi-Square	RMSEA	CFI	SRMR	Problem
1	Hypothesized model with all survey items retained	115.454	0.087	0.824	0.07	SC4 crossloaded onto TC
2	Drop SC4	76.553	0.078	0.868	0.062	MI indicate that SC6 has residual covariances with SC1, SC3 and SC5
3	Drop SC6	22.366	0.024	0.989	0.033	Low factor loadings
4	Drop SC5 (0.389)	7.515	0.000	1.000	0.023	

File name: Data_Ind_CFA Cohesion.inp

APPENDIX G: ALTERNATE MODEL MODIFICATION STEPS FOR CORE-SELF EVALUATION AS A SECOND-ORDER CONSTRUCT

Table 32: Alternate Model Modification Steps for Core Self-Evaluation

Step	Action	Chi-Square	RMSEA	CFI	SRMR	Problem
1	Hypothesized model with only Self-Esteem, Generalized Self-Efficacy, & Emotional Stability	NPD Matrix: Non-interpretable				SE has a nonsignificant negative residual variance (-0.003, p = 0.692) and correlates with CSE 1.015
2	Set variance of SE to zero	1057.282	0.072	0.776	0.075	ES8 nonsig loading
3	Drop ES8	978.573	0.071	0.787	0.074	SE 10 crossloaded onto ES
4	Drop SE10	856.863	0.068	0.8	0.07	SE9 crossloaded onto ES
5	Drop SE9	749.944	0.065	0.82	0.068	SE8 crossloaded onto ES
6	Drop SE8	683.812	0.064	0.83	0.066	SE3 crossloaded onto ES
7	Drop SE3	567.651	0.058	0.862	0.062	ES2 crossloaded onto SE and had low factor loading (0.341)
8	Drop ES2	488.973	0.055	0.881	0.058	SE4 crossloaded onto GSE
9	Drop SE4	438.123	0.054	0.89	0.056	SE2 crossloaded onto GSE and ES
10	Drop SE2	384.541	0.052	0.9	0.055	ES6 crossloaded onto SE and GSE and had low factor loading (0.261)
11	Drop ES6	350.271	0.052	0.905	0.054	Low factor loadings
12	Drop ES1 (0.310)	321.165	0.054	0.907	0.054	Low factor loadings
13	Drop SE5 (0.457)	291.992	0.055	0.91	0.053	Low factor loadings

File name: Data_Ind_2nd Order CFA for CSE_no LC.inp

APPENDIX H: r_{wg} VALUES BY TEAM

APPENDIX H: r_{wg} VALUES BY TEAM

Table 33: r_{wg} Values by Team

Team	Task Cohesion	Social Cohesion
1	0.90	0.05
2	0.97	0.42
3	0.74	0.18
4	0.72	0.46
5	0.91	0.83
6	0.85	0.28
7	0.74	0.12
8	0.86	0.47
9	0.92	0.27
10	0.73	0.92
11	0.68	-0.54
12	0.90	0.43
13	0.83	0.57
14	0.70	0.69
15	0.93	-0.21
16	0.94	0.85
17	0.78	0.33
18	0.82	0.65
19	0.91	0.45
20	0.60	0.70
21	0.36	0.06
22	0.80	-0.03
23	0.77	0.67
24	0.77	0.55
25	0.83	0.83
26	0.74	0.44
27	0.92	0.72
28	0.86	0.90
29	0.92	0.78
30	0.87	0.42
31	0.17	0.35
32	0.65	0.67
33	0.82	0.54
34	0.89	0.35
35	0.69	0.18

Team	Task Cohesion	Social Cohesion
36	0.77	-0.22
37	0.96	0.50
38	0.81	0.62
39	-0.14	0.53
40	0.59	0.12
41	1.00	0.87
42	0.94	0.72
43	0.92	0.52
44	0.79	0.42
45	0.90	0.75
46	0.92	0.50
47	0.77	0.40
48	0.36	0.45
49	0.76	0.78
50	0.92	0.83
51	0.68	0.79
52	0.72	0.40
53	-9.33	0.28
54	0.87	0.50
55	-0.94	0.30
56	0.73	-0.06
57	0.62	0.50
58	0.24	-0.01
59	0.91	0.56
60	0.97	0.69
61	0.71	0.39
62	0.93	0.68
63	0.97	0.52
64	0.95	0.67
65	0.81	0.03
66	0.95	0.65
67	0.41	0.14
68	0.95	-0.50
69	0.95	0.25
70	0.75	0.46

Team	Task Cohesion	Social Cohesion
71	0.84	0.58
72	-1.71	0.83
73	0.80	0.56
74	0.97	0.83
75	0.89	0.76
76	0.95	0.22

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170

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