

THE MODERATING EFFECT OF WITHIN-TEAM
TRUST ON EMPLOYEE ENGAGEMENT AND
WORKGROUP OUTCOMES

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Abstract: This study explored daily variability of employee engagement. The study used daily measures of hindrance demands, challenge demands, and employee engagement to examine the relationship between these constructs as well as for their influence on outcomes of job satisfaction, productivity, and safety for workgroup members. Additionally, I explored high-involvement management as an antecedent of employee engagement. The main area of interest was evaluating the influence of within-team trust as a potential modifier of the relationship between employee engagement and job satisfaction, safety, and productivity. While not a consistent occurrence across all days of the survey period in this study, there were days when a statistically significant conditional indirect effect was found in the relationship between employee engagement and job satisfaction when within-team trust was incorporated as a modifier in the model. This influence was observed on Day 1 for the indirect path of hindrance demands through employee engagement to job satisfaction and on both Day 3 and Day 4 for the indirect path of high-involvement management through employee engagement to job satisfaction. This implies that the potential role of within-team trust as a modifier of an employee's level of engagement on employee perception measures such as job satisfaction.

Keywords: Employee Engagement, Hindrance Demands, Challenge Demands, High Involvement Management, Low Skilled Employees, conditional indirect effects.

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CHAPTER I

INTRODUCTION

How many times today have you really been engrossed in what you were doing, only to be interrupted by a phone call or a colleague asking a question? Or how often have you had a day where you just could not get the productive juices flowing? We have all experienced these episodes where we are not as engaged, our minds just aren't completely in our work, and consequently our output suffers.

Now, consider what it would take to stay engaged in a repetitive production line-type job for 8 to 10 hours a day...everyday. In this context, as one's engagement wanes during the repetition, will employee safety be compromised? What is it about daily work that may influence the degree of engagement in the job? Do supervisors or coworkers impact engagement and performance during the workday?

Heavy labor jobs are necessary to produce and move items in many aspects of the U.S. economy, but many of these workers are reported to be migrating to service-sector jobs (Lee & Mather, 2008). Recruitment and retention continues to be a challenge for companies that rely upon a steady supply of labor for production jobs. Research has shown that work environment facilitates an engaged workforce because the work environment can help or hinder the cognitive, emotional, and behavioral engagement of employees (e.g., Christian, Garza, & Slaughter, 2011). However, the engagement literature has focused more frequently on skilled labor and/or professionals (Bakker, Albrecht, & Leiter, 2011; Schaufeli & Bakker, 2004; Rich, LePine, & Crawford, 2010; Sawang, 2012; Sonnentag, Mojza, Demerouti, & Bakker, 2012). For the

purpose of this paper, we use the term “production-level worker” for the unskilled and semi-skilled labor categories as outlined by the U.S. Department of Labor (45 CFR 404.1568). In the skilled/professional employee context, designing work for engagement may be easier than in the low-skilled labor population (Macey & Schneider, 2008). Consider the construction worker, the farm worker, or a worker in a railway switchyard. Their work day is likely outside in the weather and their job tasks are very strenuous, repetitive, and monotonous. The job characteristics model posits that higher levels of autonomy, task significance, task identity, feedback, and skill variety lead to increased motivation and satisfaction (Fried & Ferris, 1987). Because professional skilled laborers have more control in job crafting (Bakker, 2011; Wrzesniewski & Dutton, 2001), it is easier to manipulate these job characteristics than for low-skilled jobs. However, heavy labor jobs rarely contain job characteristics such as autonomy and task significance, typically considered important for motivation and engagement (Fried & Ferris, 1987). Yet there is variance in productivity within production-level labor.

Research suggests that employee engagement may be a key variable necessary to recruit and keep employees in the workforce (Harter, Schmidt, & Hayes, 2002; Saks, 2006). Engagement is also a significant predictor of productivity and employee well-being (Bakker, 2011; Christian et al., 2011; Nahrgang, Morgeson, & Hofmann, 2011; Sonnentag et al., 2012). And this may be especially true among production-level employees. In fact, a primary consideration of management includes turning the more productive workers into career employees – not just someone “there for the check.” However, we are still learning about what conditions contribute to and influence employee engagement and job satisfaction on a daily basis, especially for front-line, low-skilled, heavy labor jobs.

The present research addresses this gap in the literature by investigating daily variation in selected antecedents of employee engagement and the potential moderating role of within-team trust as I examine relationships between employee engagement and outcomes of job satisfaction, productivity, and safety. The research questions I ask include: (a) Do varying daily challenge and

hindrance demands affect employee engagement over time? (b) Will increasing high-involvement management yield an increase in employee engagement and output? (c) Does within-team (horizontal) trust moderate the effect of employee engagement on workgroup outcomes of job satisfaction, productivity, and safety?

Theoretical Lens

I address these research questions through the lens of affective events theory (Weiss & Cropanzano, 1996) and the contingency perspective of strategic human resource management (Bowen & Ostroff, 2004). According to Weiss and Cropanzano (1996) affective events theory suggests that employees' positive emotional states are immediate responses to (un)pleasant events at work. I extend this theory to the episodic nature of engagement within and across work days for production-level employees as hypothesized in the present study. Specifically, Ouweneel, LeBlanc, Schaufeli, and Wijhe (2012) suggest that positive experiences at work one day can set a positive expectation for the following day. For instance, a call from a panicked customer needing an unexpected priority load shipped today is an example of a job demand. Therefore, we posit that perceptions of engagement fluctuate based on episodic changes in the work environment (e.g., job demands). Further, an employee may perceive this as either a motivation (a challenge demand) – stepping up to get the job done – or as a roadblock to going home (hindrance demand) and complain about the extra work load, poor planning, etc. Either perception likely has an influence on how that particular employee will approach the following workday as well.

Based on the contingency perspective of human resource management (e.g., Schuler & Jackson, 1987, 1995), it has been proposed that business practices as set forth by management are implemented to achieve specific organizational strategies. The literature confirms that the workgroup supervisor is the primary filter employees use to assimilate information and formulate their perspectives of their work environments (Richardson & Vandenberg, 2005; Ostroff & Bowen, 2000). This may be of particular significance in production-level employees with limited autonomy or other job influence.

Perhaps the only interface employees at this level have with the “company” is through their immediate supervisors. Thus, we also posit that high-involvement management behaviors will influence employee work engagement.

Many aspects of an employee’s work life well-being can be thought of as transient states (episodes) that can and will likely vary within each work day and across work days (Xanthopoulou, Bakker, & Ilies, 2012; Ouweneel et al., 2012). The challenge this creates for managers of production workers is understanding whether (or anticipating how) they respond to changes in job stressors. Due to the repetitive, monotonous task-oriented nature of their job roles, will they:

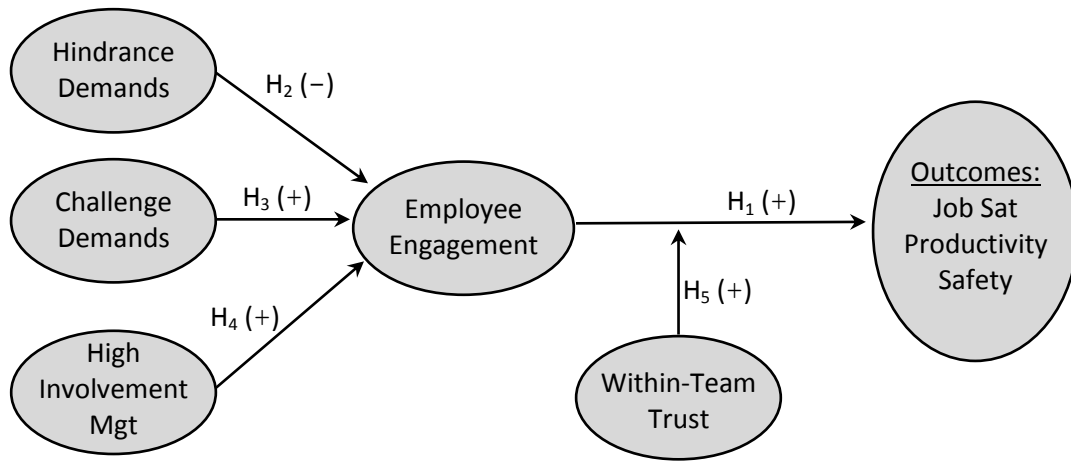
1. be more sensitive to even minor changes in job stressors and/or manager behaviors?
2. suppress engagement across the board, becoming insensitive to influencing events?
3. become sensitive to any number of more concrete or cyclical changes?

Consequently, I propose to pursue engagement from a state perspective using daily measures.

Contribution to Literature

Distinguishing features of my study and existing literature include incorporation of high-involvement management as an antecedent of employee engagement and exploration of within-team trust as a modifier of the relationship between employee engagement and the outcome variables of job satisfaction, productivity, and safety. Additionally, my approach to measuring hindrance demands, challenge demands, and employee engagement on a daily basis may offer a unique view into workgroup dynamics. Challenge and hindrance demands are likely to fluctuate over time; because they are related to engagement, I posit that fluctuation in demands explain variation in engagement. My target sample of front-line, heavy labor workers is also unique to many of the samples in the existing literature. The model in Figure 1 illustrates my primary research questions.

Figure 1: Overall Model



CHAPTER II

REVIEW OF THE LITERATURE

Explanation of Model and Proposed Hypotheses

Employee Engagement

The core construct of my model is employee engagement. The concept of workplace engagement is defined as people using varying degrees of their selves – physically, cognitively, and emotionally – in their work-role performances (Kahn, 1990). Kahn describes engaged employees as those who are fully “there,” attentive and integrated in their work. A leading premise of Kahn’s work is that given appropriate work conditions, employees will express their selves in their work roles. Whereas in the absence of these appropriate conditions employees will withdraw as a means of protecting their “selves.” Further, Kahn believes that momentary rather than static circumstances of an employee’s experiences are what shapes the employee’s behavior. He found this to be the case whether working alone or with others – engaged employees are physically involved in the tasks at hand, cognitively heedful of the processes involved and focused on task completion. Kahn refers to these engaged employees as emotionally connected to their work – in other words, their work – or at least the immediate task – has become a part of them. Rich et al. (2010) summarizes this view of engagement as a multidimensional motivational concept which incorporates synchronized investment of the employee’s physical, cognitive, and emotional resources in active, full work performance.

Outcome Variables

Research supports a relationship between employee engagement and several work-related outcomes such as self-efficacy, leadership effectiveness, intrinsic motivation, job demands and resources, and safety, (Gottschalg & Zollo, 2007; Harter et al., 2002; Nahrgang et al., 2011; Pillai & Williams, 2004; Rich et al., 2010; Saks, 2006; Schaufeli & Bakker, 2004; Tuckey, Bakker, & Dollard, 2012). As such, I believe we can extend the conversation by further investigating features of the work environment that influence engagement. I posit that engagement is a key explanatory variable that links work characteristics (e.g., demands, manager behaviors) to the valued outcomes of job satisfaction, productivity, and safety (Saks, 2006).

In this focal context, three of the priority outcomes for firms are workgroup job satisfaction, productivity, and safety. I posit that engagement is positively related to each of these outcomes because engagement is defined by intense task focus, concentration, and motivation. Another reason to expect a positive relationship between job satisfaction and engagement is that both are indicators of work-related activity and well-being (Xanthopoulou et al., 2012). In sum, employees engaged in their job tasks are more likely to report satisfaction with their jobs.

Logically, an engaged employee should be more productive because engagement is defined by task focus and concentration. When employees are engaged in their work, they have invested of their selves in the task. This investment creates an emotional link encouraging not only completion of the task but a desire on the part of the employee to contribute. Rich et al. (2010) believes that engagement reflects human agency. Since being engaged is largely under the volitional control of the employee, engaged employees are more willing to invest their time/effort as a contribution to the output of the firm in exchange for benefits from the company (George, 2011). Kahn (1990) likens this to fleeting contracts between the employee and the job – when the proper conditions are met, the employee engages. He states (pg. 73) “People vary their personal engagements according to their perceptions of the benefits, or the meaningfulness, and the guarantees, or the safety, they perceive in situations.” Luthans & Peterson (2002) report Gallop results indicating engagement to be a significant predictor

of productivity. Harter et al. (2002) also report that engagement has a positive relationship to productivity. Employee engagement can also be recognized by the engaged employees' coworkers. Bakker, Demerouti, and Verbeke (2004) found that other workgroup members ranked employees they perceived as engaged higher on both in-role and extra-role performance.

Employees motivated to engage in intense task focus are more likely to concentrate on following safety rules and more likely to notice potential safety hazards (Wallace & Chen, 2006). In contrast, employees who are disengaged from the task at hand are not concentrating on the specific work tasks, may not follow all safety rules, and may not notice potential safety violations. As such, engaged employees will be more likely to follow safety rules and procedures and carry out the behaviors that support the technical core of the organization, which cumulatively should lead to both higher job satisfaction and improved productivity. Bakker et al. (2011) suggests a carry-over effect of engagement, stating that engaged employees can influence their coworkers and as a result enhance the overall workgroup performance.

Therefore, as the foundation of my model, I hypothesize a positive relationship between employee engagement and the outcomes of job satisfaction, productivity, and safety.

H₁: There is a positive relationship between employee engagement and (a) job satisfaction, (b) safety, and (c) productivity.

Model Antecedents

Job Demands (Hindrances and Challenges)

Job demands can influence employee engagement by either hindering or promoting task focus. The stress literature distinguishes job demands into two types of job stressors: hindrance demands and challenge demands (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Crawford, LePine, & Rich, 2010; Lazarus & Folkman, 1984). A hindrance demand is perceived by the employee as creating obstacles that interfere with the employee's task focus and concentration. Ultimately this hampers the employee's ability to perform assigned job task and has a negative effect on motivation (LePine, Podsakoff, & LePine, 2005) and productivity (Tuckey et al., 2012; Crawford et al., 2010).

Specifically, employees should be less willing to invest themselves when responding to hindrance demands because negative experiences will make them feel that they may not be able to handle the demands (Crawford et al., 2010). In a meta-analysis, Crawford et al. (2010) summarize numerous cross-sectional studies reporting a relationship between hindrance demands (negative) and challenge demands (positive) with employee engagement and burnout. (Both hindrance and challenge demands were positively related to burnout.) Because hindrance demands interfere with attention and task focus, hindrance demands should be negatively related to employee engagement. As such, I present this hypothesis.

H₂: Hindrance demands will be negatively related to employee engagement.

In contrast to a hindrance demand, a challenge demand may be viewed by the employee as a source of motivation or inspiration and actually yield a higher level of engagement, consequently improving output (Crawford et al., 2010). Specifically, challenge demands increase performance because they lead to an increase in task focus (Wallace, Edwards, Arnold, Frazier, & Finch, 2009) and motivation (LePine et al., 2005) to overcome associated strains and build employee self-efficacy. As stated earlier, employee engagement directs attention and resources to the immediate task. Therefore, engagement should be positively related to challenge demands.

H₃: Challenge demands will be positively related to employee engagement.

High-Involvement Management

I posit that high-involvement management (HIM) plays a role as an antecedent of employee engagement. Ostroff and Bowen (2000) note that high-performance work systems foster employee development and involvement through the use of practices such as teams, job enrichment, participation, communication, empowerment, and contingent rewards. I expect that employee attitudes and performance are influenced by a strong climate because climate strength motivates employees to contribute to organizational performance by aligning employees' goals with the organization's strategic goals. The development of work-unit climates is influenced by managers because the manager or immediate supervisor sets the tone for climate (Schneider & Paul, 2011). That

is, employees interpret manager behaviors to make sense of their work environments. This climate will then contribute to personal engagement facilitated by high-involvement management. Kahn (1990) suggests that a supportive managerial environment enables employees to try and fail without the looming threat of consequences. An involved manager who fosters an environment supporting employees to feel safe in expressing their selves through their job roles will promote this expression throughout the workgroup (Kahn, 1990). While there may be a group-level climate influence of HIM on employee engagement, the focus of my model is at the individual employee level. I want to understand whether those immediate supervisors who consistently express the characteristics/behaviors of high-involvement management to their workgroup have an effect on the level of employee engagement. Hence, I have selected high-involvement management as an antecedent of engagement in this model.

Lawler (1986) champions the concept of high-involvement work processes and promoting the idea of employee involvement. By soliciting employee input, leveraging employee knowledge and abilities, he believed that better decisions could be made, facilitating the autonomy to act on those decisions; finally, the employee would be positioned to visualize the outcomes and/or measure the rewards. There are four synergistically related attributes of high-involvement work processes (HIWP, sometimes referred to as high involvement work systems).

- Power: to act and make decisions about the work in all its aspects
- Information: about business results and goals
- Rewards: tied to performance and growth in capability
- Knowledge: relevant to the work and the business gained from training and support development

Subsequent research stresses the importance that all four of these attributes must be present and working synergistically. The influence is not due to any one of the individual attributes, but rather all four must be present and working in concert for the benefit of HIWP to be manifest (Richardson &

Vandenberg, 2005; Kizilos, Cummings, & Cummings, 2013; Riordan, Vandenberg, & Richardson, 2005; Vandenberg, Richardson, & Eastman, 1999). Lawler himself (1986, p. 42) perhaps summed this interdependent relationship best.

Power without knowledge, information, and rewards is likely to lead to poor decisions.

Information and knowledge without power leads to frustration because people cannot use their expertise. Rewards for organizational performance without power, knowledge, and information lead to frustration and lack of motivation because people cannot influence the rewards. Information, knowledge, and power without rewards for organizational performance are dangerous because nothing will ensure that people will exercise their power in ways that will contribute to organizational effectiveness.

Empirically, relationships between HIWP and numerous workgroup outcomes have been reported. Among these are improved employee satisfaction, reduced organizational turmoil, and decreased service delivery costs (Hamon, Scotti, & Behson, 2003). Kizilos et al. (2013) report relationships between HIWP and increased organizational effectiveness, increased returns on investment (ROI), decreased turnover, increased job performance, and reduced work stress. Guthrie (2001) also reports a link to employee retention and firm productivity. Similarly, Riordan et al. (2005) report a positive relationship with financial performance of the firm and a negative relationship with employee turnover. The Riordan et al. measure of perceived employee involvement is also positively related to organizational commitment.

Konrad (2006) suggests a positive relationship between HIWP and the beliefs and attitudes associated with employee engagement. Further he suggests that HIWP can generate discretionary behaviors among workgroup members that ultimately lead to enhanced performance. Advocated as part of the sense-making process within (among) workgroup members, Richardson & Vandenberg (2005) explain that leadership of the immediate supervisor is the key filter through which employees interpret their work environments. They emphasize the value of this point, stating that what occurs at the unit level of an organization may be equally (if not more) important than what takes place at the

organizational level in determining the employees' perceptions of involvement. The collective recognition of involvement by workgroup members should result in stronger units as well (Richardson & Vandenberg, 2005). In what they qualify as post-hoc multi-level analysis, Richardson & Vandenberg (2005) also report a substantial unit-level relationship between leadership and climate of involvement.

Thus, I want to explore in the context of a production worker sample whether high-involvement management, as perceived by the workgroup members, will have a positive relationship with employee engagement.

H₄: High-involvement management will be positively related to level of employee engagement.

Employee Engagement as a Mediator

Research supports positioning employee engagement as a mediator in my model. For example, Rich et al. (2010) find that engagement mediates the relationship between value congruence, perceived organizational support, and core self-evaluations with the outcomes of task performance and organizational citizenship behaviors. They also test job involvement, intrinsic motivation, and job satisfaction as mediators but find these to all be much less effective in explaining the relationship than employee engagement. Bakker et al. (2011) suggest that engagement is a key mediating variable explaining how, in the work context, variables such as work climate and job resources influence organizational outputs. Podsakoff, LePine, & LePine (2007) demonstrate a positive relationship between challenge demands and job satisfaction. Anticipating employee engagement to mediate this relationship as presented in my model, I believe that, motivated to that extra degree by a challenge demand, an employee will in turn become more engaged in the job task. This enhanced engagement will manifest in a more meaningful work experience and therefore reported levels of job satisfaction.

I posit that the relationship between hindrance demands and performance/outcomes will be explained through employee engagement. Furthermore, the job-demands-resources model suggests that challenge demands will be positively related to motivation and performance (Cavanaugh et al.,

2000; LePine et al., 2005), and I posit that this relationship will be explained through employee engagement.

Moderator Variable

Within-Team Trust

Trust has been referred to as an important facilitator of our social system and of coordinated actions among individuals (Costa, 2003). If individual employees perceive that they can trust their coworkers, they will invest more physical, cognitive, and emotional energy and will focus this energy on driving performance (Mayer & Gavin, 2005). Trust involves a person's positive expectations toward the behavior of another and the willingness to become vulnerable to another (Costa, 2003). The foundational trust literature describes trust as an exchange relationship – trust develops through the repeated exchange of benefits between individuals (Blau, 1964). Blau (1964) contends that trust is generated in two ways: first through the regular discharge of obligations, including reciprocating for benefits received from others, and second as cultivated through the gradual expansion of these exchanges over time.

Trust in coworkers also fosters openness in communication and perceived accuracy of information (Benton, Gelber, Kelley, & Leibling, 1969). The importance of trust in/among coworkers may be related to the diverse composition of workgroups that are expected to interact and cooperate in a collective manner to achieve designated task and/or organizational goals (Ladebo, 2005). I define within-team, horizontal trust as a situation in which workgroup members rely upon each other to accomplish necessary duties or tasks across the workday. Costa, Roe, & Taillieu (2001) find support that trust has a multi-component structure with elements including propensity to trust, perceived trustworthiness, cooperative behaviors, and monitoring behaviors. Considering these components, Costa and colleagues (p. 228) distill a definition of trust that they feel is applicable to work relationships: "Trust is a psychological state that manifests itself in the behaviors towards others, is based on the expectations made upon behaviors of these others, and on the perceived motives and intentions in situations entailing risk for the relationship with those others."

In exploring the literature, I found numerous references describing the role vertical trust (trust in supervisors) plays within different contexts (Colquitt, Scott, & LePine, 2007; Tan & Lim, 2009); however, to my knowledge there has been very little study of within-workgroup or horizontal trust (DeJong & Elfring, 2010). This is especially true for the focal context of low-skilled, front-line, heavy labor employees. I aspire to extend theory into this context with this current study. My model (Figure 1) proposes that within-team trust moderates the relationship between employee engagement and the outcome variables of job satisfaction, productivity, and safety.

Dirks and Ferrin (2001) state that trust shapes the response elicited, which supports the proposed placement of within-team trust as a modifier in my model. They explain that higher levels of trust increase the likelihood that determinants of cooperation will actually result in predicted favorable outcomes. They also acknowledge that the dominant perspective of trust in the literature is as a main or direct effect. However, they present two propositions as alternatives for consideration when evaluating effects of trust within the workplace that imply that trust is a boundary condition (or moderator) on the engagement-outcome relationship. First, the level of trust affects how one assesses the future behavior of another party with whom he/she is interdependent. Second, trust affects how one interprets the past (or present) actions of the other party and the motives underlying those actions (Dirks & Ferrin, 2001). Further supporting the view of trust as a modifier of workgroup outcomes, Jehn & Thatcher (2010) summarize their work stating that the potential for members to perceive a positive work climate erodes when group members are unable to trust others. This lack of a positive climate interferes with the functioning of the workgroup members.

It is my belief that the relationship between engagement and the outcomes of job satisfaction, productivity, and safety will be further influenced by within-team (horizontal) trust. Specifically, a high level of within-team trust among workgroup members allows for already engaged employees to be more satisfied with their jobs and to be more productive and safety conscious. In contrast, the relationships between engagement and satisfaction, productivity, or safety will be weaker when within-team trust is low.

H₅: There will be a statistically significant interaction between engagement and within-team trust such that the relationship between engagement and (a) job satisfaction, (b) safety, and (c) productivity is stronger for high horizontal trust than low horizontal trust.

CHAPTER III

METHODOLOGY

Participants and Procedures

The focal context for the present study is front-line production workers in heavy labor job roles. These workers are foundational to many organizations. To improve the generalizability of the data, I surveyed production workers from a variety of industries. These industries included production agriculture, steel fabrication, lumber by-products, and packaged goods production. Organizations were recruited through existing relationships. My perception of employee engagement is that of a transient state in that employee engagement fluctuates throughout any given work day and across work days (Xanthopoulos et al., 2012) and that this fluctuation is influenced by changes in job demands. Diary studies have proven effective as a method of data collection to measure daily variation of constructs such as engagement (Demerouti, Bakker, Sonnentag, & Fullagar, 2012). Therefore, to measure variability, I distributed survey packets to employees to collect multiple daily end-of-day responses (Tims, Bakker, & Xanthopoulos, 2011). Using this within-person approach is recognized as allowing a closer evaluation of potential temporal patterns of work-related experiences and behaviors (Bakker et al. 2011). Sonnentag, Dormann, & Demerouti (2010) discouraged averaging across these situations by assessing a general level of work engagement in that this ignores much of the dynamic and potentially structural components of employee engagement. Sonnentag et al. (2010) reported 30% to 40% of

the overall variance to be found at the within-person, day-level.

At any time through the course of the day, employees experience unexpected demand changes in their job roles. These unexpected demand changes can potentially be perceived by employees as a hindrance or a challenge to completing their daily routines (Podsakoff et al., 2007; Sonnentag et al., 2012). Therefore, I measured stressors on each of five work days spread across a two-week survey period in addition to engagement to increase the likelihood that I captured job demands as they occur over time (Tims et al., 2011).

The survey protocol included an initial survey to capture measures for high-involvement management and within-team trust constructs as well as simple demographics. Daily survey forms captured daily measures of employee engagement, challenge demands, hindrance demands, and job satisfaction. Respondents each received a packet containing an invitation to participate, related surveys, and postage paid return envelopes for each survey. Participating supervisors were also asked to complete paper surveys one time at the end of the survey period to define outcome variables of productivity and safety for each of the participating employees on their teams. Supervisors each received pre-labeled surveys for each of the members of their workgroups and postage paid return envelopes.

The survey period was originally proposed to be five consecutive work days (Tims et al., 2011). However, data from two pilot studies revealed limited variation in daily engagement in this context. After discussion with my dissertation committee, I decided to spread the five survey days out across two work weeks rather than collecting on consecutive days. Committee members felt this may enhance the variation by enabling respondents to have a day off or a weekend off during the survey period. Each of the participating firms operate seven days a week, so their employees rotate days off across weeks. Supervisors were asked to designate the days on which to complete the respective daily surveys as they distributed the survey packets to their employees. This allowed for a more random distribution of the daily surveys across days of the week and across the two-week survey period.

Participants were asked to complete their respective surveys upon completion of each work day (Demerouti et al., 2012).

Employee survey packets contained the invitation/introduction letter with participant signature page along with copies of the initial survey and the five daily surveys. Each paper survey had a label affixed that identified the survey participant, his/her immediate supervisor, the department in which he or she worked, and a company code. The participating companies provided the “language preference” for each employee. Based upon this preference, employees were provided with either English or Spanish translations of the respective surveys. To insure accuracy of the survey instrument across both language groups, each survey was back-translated (English to Spanish as well as Spanish to English). Each individual survey also had a postage paid return envelope so that respondents could seal the survey in the envelope upon completion as a means to maintain confidentiality. Respondents were allowed to either return their sealed envelopes to their central office to be mailed or to mail on their own. Surveys were sent to 127 employees; 76 responded for a response rate of 60%.

Supervisors were also provided a packet that contained a productivity and safety survey for each of their respective team members. These surveys were also pre-labeled for the supervisor’s convenience. Each label identified the employee, the supervisor, department name, and company code. A postage-paid return envelope was provided within the supervisor packet. The supervisors were asked to complete these forms at the end of the survey period. Seventeen of nineteen supervisors returned completed surveys for a response rate of 89%. Team size ranged from one subordinate to 15.

Measures

Internal consistency estimates for the scores on each measure are provided on the diagonal in Table 4.

Initial Survey

The following measures make up my initial survey to be completed by respondents on the first day of the survey period. My view is that these constructs are relatively stable and will not be subject

to measureable daily variation. Unless otherwise specified, all items will be measured on a five-point, Likert-type scale (5 = strongly agree; 1 = strongly disagree).

High-involvement management. For high-involvement management, I used an 18-item measure (Riordan et al., 2005). Example items include: “My manager/supervisor listens to me and values my perspective,” “My manager/supervisor encourages the free exchange of ideas and opinions,” and “My manager/supervisor provides updates regarding the status of the ideas that have been represented to upper-management.”

Within-team trust. I selected the five-item measure of De Jong & Elfring (2010) to evaluate within-team (horizontal) trust. Example items include: “I can rely on my team members to keep their word” and “I am confident that my team members will take my interests into account when making work-related decisions.” Two control items were also collected on the initial survey. These were respondent’s age and the number of years they had worked for their company.

Daily Surveys

Employee engagement. For the daily surveys I measured employee engagement, hindrance demands, challenge demands, and job satisfaction. It is my view that these items are capable of varying within and across work days for individual employees. I chose the six-item measure of employee engagement (Rich et al., 2010). This measure captures all three elements of engagement: physical, cognitive, and emotional (Kahn, 1990). For use in a daily context, concern has been raised as to the appropriateness of the item wording to capture day-to-day variation (e.g., Bakker, 2011). Therefore, I slightly modified each item to specify “today” as the referent context for participants completing each survey. Example items include; “Today I really threw myself into my work” and “I felt a sense of pride today for performing my job well.”

Hindrance demands and challenge demands. To evaluate hindrance demands, we slightly modified the five-item measure developed by Cavanaugh et al. (2000) to specify the context of the measurement reference to “today.” Example items include: “Politics rather than performance affected organizational decisions today” and “Today I was unable to clearly understand what was expected of

me on the job.” I also added one item to capture environmental stressors. This item was: “The environmental conditions (e.g., heat, cold, rain, sun, adverse weather) interfered with my job today.” For challenge demands we selected the six-item Cavanaugh et al. (2000) measure and again slightly modified the wording to target responses for each specific day. Example items include: “My workload challenged me to do more today” and “There was pressure to get things done by a certain time today.”

Job satisfaction. I used a three-item measure of job satisfaction developed by Cammann, Fichman, Jenkins, & Klesh (1983). These items were also slightly modified to elicit a daily response. Example items include: “I enjoyed my job today” and “I like doing the things I did at work today.”

Supervisor-Reported Outcomes

Productivity and safety. I measured productivity and safety with supervisor ratings of performance. I provided supervisors with pre-labeled forms for each member of their respective workgroups. This was a 14-item measure developed by one of my committee members. Supervisors were asked to complete the surveys toward the end of the survey period. Instructions were for supervisors to base their responses on employee performance during the survey period. Example items include: “Uses appropriate personal protective equipment as indicated by the site health and safety plan” and “Completes work efficiently.”

CHAPTER IV

RESULTS

In this study, I collected repeated measures of daily hindrance demands, challenge demands, employee engagement, and job satisfaction for all employees. Thus, our daily measures (Level 1) are nested within individual employees (Level 2) and the employees are nested within their respective workgroups (Level 3). My daily measures were centered to the workgroup means. This removed Level 3 variance (Aguinis, Gottfredson, & Culpepper, 2013; Tims et al., 2011). I estimated the model for each of the five days in my survey period so I looked at Level 2 variance. The first task in my analysis was to determine whether we were able to capture sufficient variability in our dependent variables at both levels of analysis to justify multi-level analysis.

The first research question I asked in this present study was whether varying daily challenge and hindrance demands affect employee engagement over time. In this sample of employees, I found very little variation within employees across the five days of the survey period for my model antecedents of hindrance demands, challenge demands, or for employee engagement. The within-person standard deviation for hindrance demands across all five days was 0.32, which is only about 35% of the range of standard deviations across respondents (between-group variance) for each of the five survey days (0.84 to 0.95). Similarly, the standard deviation for challenge demands within-person across days was 0.39, or roughly 50% of the range for across respondents for each of the five survey days (0.73 to 0.82). The same pattern was also observed for employee

engagement. Within-person, across-days standard deviation for employee engagement was 0.29, again about 50% of the across-person, within-day standard deviation range of 0.56 to 0.63. I also ran an unconditioned growth model whereby I estimate the slope and intercept for the five days of engagement, challenge demands, hindrance demands, and job satisfaction. There was no statistically significant variance in slopes for engagement or for job satisfaction. Due to this lack of variability, I could not directly test this first research question. Nevertheless, the lack of variability is quite interesting and suggests that challenge demands, hindrance demands, and employee engagement are relatively stable over a short period of time (two weeks). This lack of variability does imply an answer to my research question that daily employee engagement was not influenced in this sample by daily variation in either hindrance demands or challenge demands. I was able to address research questions two and three by assessing moderated mediation in all five days.

Testing Moderation in the Model

By definition, moderation implies that the causal relationship between two variables changes as a function of the moderating variable (Baron & Kenny, 1986). This has also been referred to as “conditional indirect effects” (Preacher, Rucker, and Hayes, 2007). In the context of this study, I believe that within-team trust will modify the relationship between employee engagement and the outcome variables job satisfaction, productivity, and safety. I posit that in workgroups where within-team trust is high, the relationship between employee engagement and these outcomes will be magnified more than when within-team trust is low.

Preacher et al. (2007) suggest that the indirect effect of X on Y through a mediator (M) at a level of the moderator (W) can be expressed as $f(\theta | W) = a_1(b_1 + b_3W)$ where W is any value of the moderator variable observed in the data. The authors also advocate using bootstrapping to generate confidence intervals for the standard error of the indirect effect for hypothesis testing. Preacher et al. (2007) state that for hypothesis testing, the null hypothesis of no indirect effect can be rejected when zero is not contained within the 95% confidence interval.

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) demonstrated poor model fit when challenge demands and hindrance demands were included in the model (Table 1). In this sample, participants were apparently not consistently able to discern a difference between hindrance demands and several of the challenge demand items. Excluding hindrance and challenge demands, the factor loadings for remaining daily measures (employee engagement and job satisfaction) and single-time measures (high-involvement management and within-team trust, safety, and productivity) loaded as expected (Table 2).

Table 1: Measurement Models of Daily Surveys

Variables	N	χ^2 Test of Fit		RMSEA of Approximation				
		χ^2 Value	df	RMSEA	LCI	UCI	CFI	TLI
JS, EE, CH, and HD Day 1	80	387.566	183	.12	.10	.14	.79	.76
JS, EE, CH, and HD Day 2	76	387.305	183	.12	.10	.14	.79	.76
JS, EE, CH, and HD Day 3	73	465.726	183	.15	.13	.16	.74	.70
JS, EE, CH, and HD Day 4	72	417.744	183	.13	.12	.15	.77	.74
JS, EE, CH, and HD Day 5	73	461.587	183	.14	.13	.16	.71	.67

RMSEA = root mean square error of approximation, LCI = lower confidence interval, UCI = upper confidence interval, CFI = comparative fit index, TLI = Tucker-Lewis index, JS = job satisfaction; EE = employee engagement; CH = challenge demands; HD = hindrance demands.

Table 2: Measurement Models for Daily, One-Time, and Outcome Variables

Variables	N	χ^2 Test of Fit		RMSEA Approximation				
		χ^2 Value	df	RMSEA	LCI	UCI	CFI	TLI
JS and EE Day 1	80	53.47	26	.12	.07	.16	.92	.92
JS and EE Day 2	76	76.97	26	.16	.12	.20	.91	.88
JS and EE Day 3	73	62.29	26	.14	.09	.18	.92	.89
JS and EE Day 4	72	69.39	26	.15	.11	.20	.92	.89
JS and EE Day 5	73	46.71	26	.10	.05	.15	.94	.92
HIM and WIT	80	428.31	229	.10	.09	.12	.84	.82
SAFE and PROD	94	184.55	76	.12	.10	.15	.90	.89

RMSEA = root mean square error of approximation, RMSEA LCI = lower confidence interval, RMSEA UCI = upper confidence interval, CFI = comparative fit index, TLI = Tucker-Lewis index, JS = job satisfaction, EE = employee engagement, HIM = high involvement management, WIT = within-team trust, SAFE = safety, PROD = productivity.

Bivariate Relationships

To comply with the independence assumption, all independent variables were centered on workgroup means. Correlations for all variables for each respective day of the survey period are presented in Tables 3 through 7. Overall, bivariate relationships between all variables are in the hypothesized direction. I first evaluated the hypotheses based only on the bivariate relationships. The results of the full hypothesized moderated mediation model are presented in the next section.

Table 3: Intercorrelations, Reliability Estimates, and Descriptive Statistics for Day 1

	<i>M</i>	<i>SD</i>	ENG_D1	HD_D1	CH_D1	JS_D1	HIM	WIT	SAFE	PROD
ENG_D1	4.13	.63	<i>.89</i>							
HD_D1	2.30	.90	-.10	<i>.86</i>						
CH_D1	3.43	.67	.16	.41	<i>.71</i>					
JS_D1	4.17	.77	.53	-.09	.12	<i>.90</i>				
HIM	3.96	.62	.30	.00	.12	.24	<i>.94</i>			
WIT	3.99	.70	.27	.06	.04	.06	.40	<i>.90</i>		
SAFE	4.15	.51	.09	.13	.14	.24	.11	-.05	<i>.94</i>	
PROD	3.99	.62	-.01	.08	.28	.18	.19	.12	.57	<i>.93</i>

Note: $N = 80$. Correlations in bold are statistically significant bivariate relationships ($p < .05$). Cronbach's alpha values are displayed in italics on the diagonal. Mean (*M*) and standard deviation (*SD*) are on uncentered values. Employee engagement (ENG), hindrance demands (HD), and challenge demands (CH) are centered on workgroup means. JS = job satisfaction, HIM = high involvement management, WIT = within-team trust, SAFE = safety, PROD = productivity.

Table 4: Intercorrelations, Reliability Estimates, and Descriptive Statistics for Day 2

	<i>M</i>	<i>SD</i>	ENG_D2	HD_D2	CH_D2	JS_D2	HIM	WIT	SAFE	PROD
ENG_D2	4.16	.59	<i>.89</i>							
HD_D2	2.30	.84	-.10	<i>.83</i>						
CH_D2	3.50	.64	.04	.45	<i>.66</i>					
JS_D2	4.10	.71	.44	-.01	.10	<i>.91</i>				
HIM	3.96	.62	.30	.15	.24	.34	<i>.94</i>			
WIT	3.99	.70	.30	.06	.08	.16	.41	<i>.90</i>		
SAFE	4.15	.51	.01	.12	.24	.10	.12	-.08	<i>.94</i>	
PROD	3.99	.62	-.10	.11	.31	.09	.20	.09	.59	<i>.93</i>

Note: $N = 76$. Correlations in bold are statistically significant bivariate relationships ($p < .05$). Cronbach's alpha values are displayed in italics on the diagonal. Mean (*M*) and standard deviation (*SD*) are on uncentered values. Employee engagement (ENG), hindrance demands (HD), and challenge demands (CH) are centered on workgroup means. JS = job satisfaction, HIM = high involvement management, WIT = within-team trust, SAFE = safety, PROD = productivity.

Table 5: Intercorrelations, Reliability Estimates, and Descriptive Statistics for Day 3

	<i>M</i>	<i>SD</i>	ENG_D3	HD_D3	CH_D3	JS_D3	HIM	WIT	SAFE	PROD
ENG_D3	4.13	.56	<i>.83</i>							
HD_D3	2.22	.95	.03	<i>.89</i>						
CH_D3	3.50	.68	.11	.48	<i>.70</i>					
JS_D3	4.15	.83	.45	-.06	-.01	<i>.93</i>				
HIM	3.96	.62	.40	.17	.37	.32	<i>.94</i>			
WIT	3.99	.70	.19	.13	.04	.05	.42	<i>.90</i>		
SAFE	4.15	.51	.15	.14	.03	.10	.07	-.09	<i>.94</i>	
PROD	3.99	.62	.07	.10	.08	.04	.15	.10	.57	<i>.93</i>

Note: $N = 73$. Correlations in bold are statistically significant bivariate relationships ($p < .05$). Cronbach's alpha values are displayed in italics on the diagonal. Mean (M) and standard deviation (SD) are on uncentered values. Employee engagement (ENG), hindrance demands (HD), and challenge demands (CH) are centered on workgroup means. JS = job satisfaction, HIM = high involvement management, WIT = within-team trust, SAFE = safety, PROD = productivity.

Table 6: Intercorrelations, Reliability Estimates, and Descriptive Statistics for Day 4

	<i>M</i>	<i>SD</i>	ENG_D4	HD_D4	CH_D4	JS_D4	HIM	WIT	SAFE	PROD
ENG_D4	4.06	.60	<i>.84</i>							
HD_D4	2.23	.91	-.07	<i>.88</i>						
CH_D4	3.44	.67	.11	.36	<i>.70</i>					
JS_D4	4.17	.97	.53	-.15	-.19	<i>.96</i>				
HIM	3.96	.62	.29	.13	.30	.28	<i>.94</i>			
WIT	3.99	.70	.07	-.03	-.04	.06	.39	<i>.90</i>		
SAFE	4.15	.51	.09	.04	.12	.13	.04	-.10	<i>.94</i>	
PROD	3.99	.62	.03	.09	.11	.07	.15	.12	.57	<i>.93</i>

Note: $N = 72$. Correlations in bold are statistically significant bivariate relationships ($p < .05$). Cronbach's alpha values are displayed in italics on the diagonal. Mean (M) and standard deviation (SD) are on uncentered values. Employee engagement (ENG), hindrance demands (HD), and challenge demands (CH) are centered on workgroup means. JS = job satisfaction, HIM = high involvement management, WIT = within-team trust, SAFE = safety, PROD = productivity.

Table 7: Intercorrelations, Reliability Estimates, and Descriptive Statistics for Day 5

	<i>M</i>	<i>SD</i>	ENG_D5	HD_D5	CH_D5	JS_D5	HIM	WIT	SAFE	PROD
ENG_D5	4.05	.62	<i>.84</i>							
HD_D5	2.16	.70	-.02	<i>.89</i>						
CH_D5	3.53	.50	.32	.47	<i>.72</i>					
JS_D5	4.13	.87	.49	-.10	.12	<i>.91</i>				
HIM	3.96	.62	.40	.05	.38	.44	<i>.94</i>			
WIT	3.99	.70	.20	.01	.07	.03	.42	<i>.90</i>		
SAFE	4.15	.51	.02	.20	.09	.24	.07	-.09	<i>.94</i>	
PROD	3.99	.62	.12	.08	.07	.11	.15	.09	.57	<i>.93</i>

Note: $N = 73$. Correlations in bold are statistically significant bivariate relationships ($p < .05$). Cronbach's alpha values are displayed in italics on the diagonal. Mean (*M*) and standard deviation (*SD*) are on uncentered values. Employee engagement (ENG), hindrance demands (HD), and challenge demands (CH) are centered on workgroup means. JS = job satisfaction, HIM = high involvement management, WIT = within-team trust, SAFE = safety, PROD = productivity.

Hypothesis 1 predicted a positive relationship between employee engagement and (a) job satisfaction, (b) safety, and (c) productivity. These data supported Hypothesis 1(a) across all five work days measured. However, the hypothesized relationship for both H1(b) (safety) and H1(c) (productivity) were not supported on any of the five workdays.

A test of the measurement model revealed that the measures for challenge and hindrance demands may not have been good measures in the present sample. Hypothesis 2 posited a negative relationship between hindrance demands and employee engagement. Although there were small negative correlations for each of the five workdays in the survey period, none was statistically significant. Consequently, these data did not support Hypothesis 2. Hypothesis 3 posited a positive relationship between challenge demands and employee engagement. There were small positive correlations for the relationship between challenge demands and employee engagement, but they were not statistically significant for Days 1-4. The relationship was statistically significant for Day 5.

Hypothesis 4, which predicted a positive relationship between high-involvement management and employee engagement was consistently supported across all five workdays.

Full Model Testing

Although bivariate relationships may be used to test hypotheses, a stronger test is the simultaneous assessment of the full mediated moderation model (presented in Figure 1). In this model, I posited hindrance demands, challenge demands, and high-involvement management all as antecedents of employee engagement. Employee engagement is positioned as a mediator of the relationship between these antecedents and the outcome variables of job satisfaction, safety, and productivity. I also posited that within-team trust would moderate the relationship between employee engagement and the outcome variables of job satisfaction, safety, and productivity – thus creating a moderated mediation model.

An initial evaluation of the full model analysis was conducted using MPlus with the data for each respective day (Day 1 through Day 5). Figures 2 through 6 display the unstandardized path coefficients for the structural equation modeling analysis. These figures concisely illustrate all of the relationships. I will elaborate on the statistically significant moderated mediation relationships in the next section. On Figures 2 through 6, a solid bold arrow indicates a statistically significant relationship ($p < .05$), whereas a dashed arrow represents a non-significant relationship.

Figure 2: Day 1 Unstandardized Results

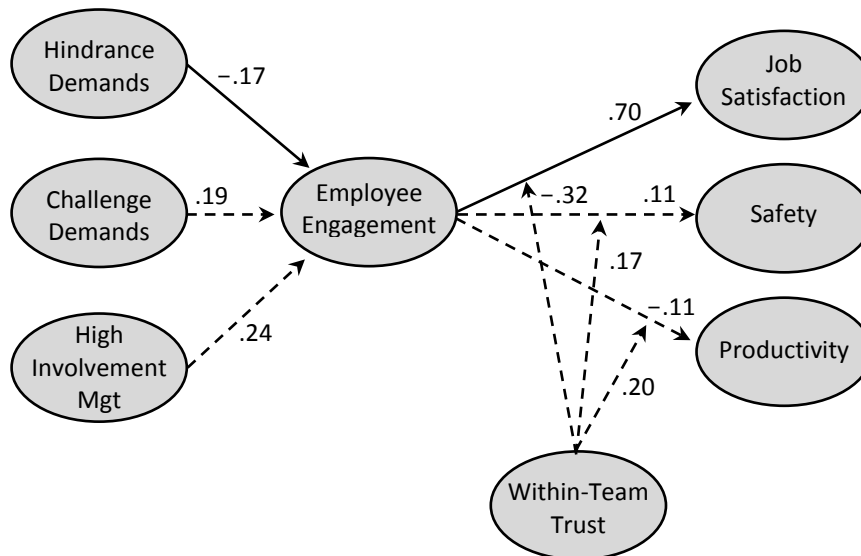


Figure 3: Day 2 Unstandardized Results

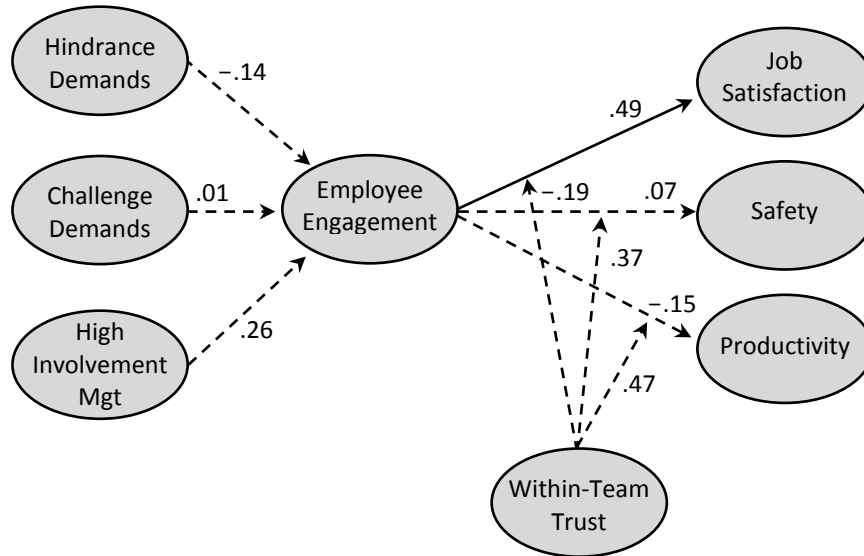


Figure 4: Day 3 Unstandardized Results

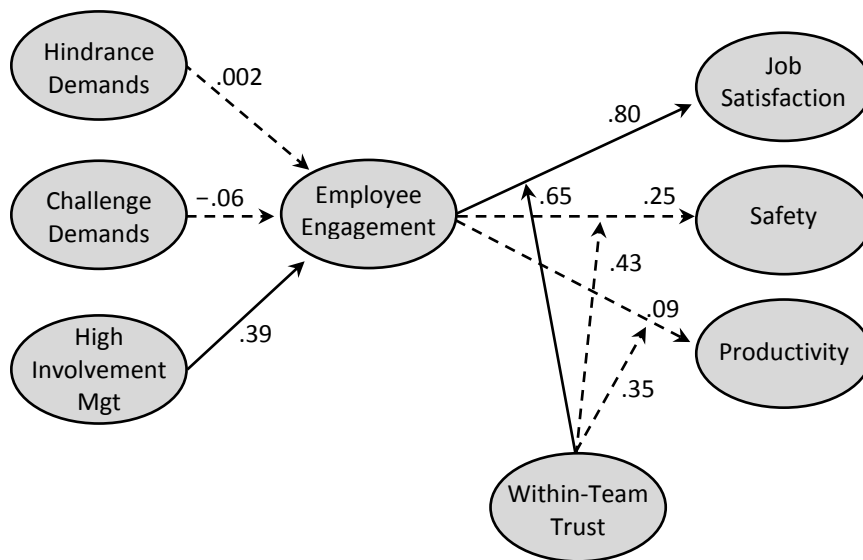


Figure 5: Day 4 Unstandardized Results

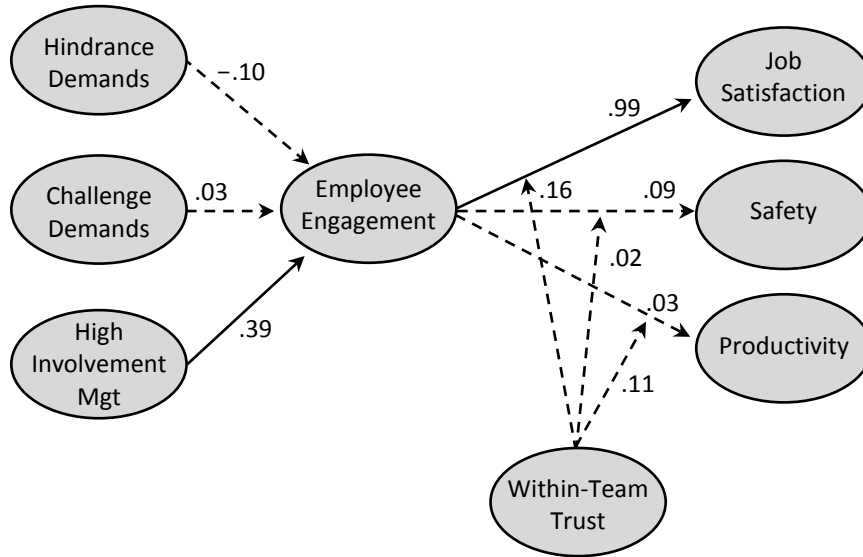
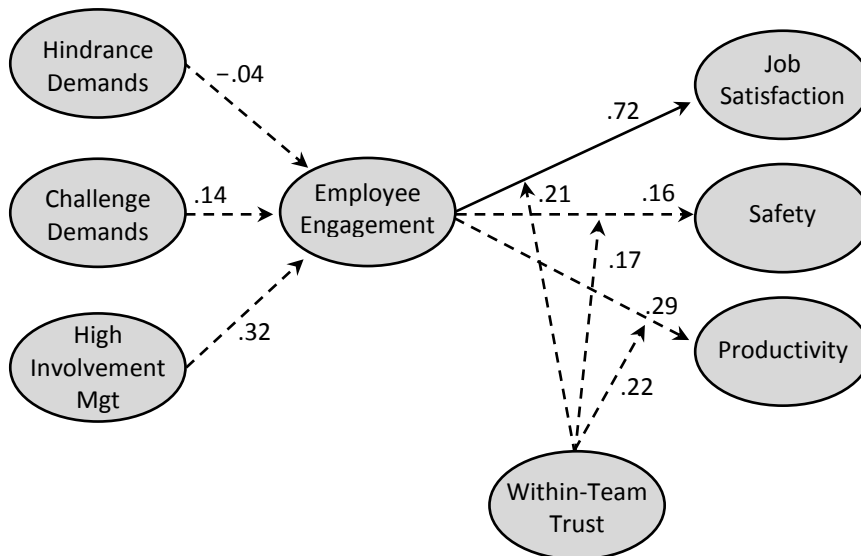


Figure 6: Day 5 Unstandardized Results



The only consistently significant relationship across all five workdays recorded in these data is between employee engagement and job satisfaction. Thus, Hypothesis 1a is supported. I did not find evidence to support either Hypothesis 1b, a positive relationship between employee engagement and safety, or Hypothesis 1c, a positive relationship between employee engagement and productivity. Specifically, looking at the model antecedents, hindrance demands had a statistically significant negative relationship with employee engagement on Day 1. This provides tentative support for Hypothesis 2. No evidence was obtained to support Hypothesis 3 – a positive relationship between challenge demands and employee engagement. As previously mentioned, cross-loading in my factor analysis suggested that survey participants did not readily distinguish between challenge and hindrance demands. High-involvement management showed a significant positive relationship with employee engagement on Day 3 and Day 4, providing partial support for Hypothesis 4. The full Day 3 model also demonstrated a significant positive moderating effect for within-team trust on the relationship between employee engagement and job satisfaction in partial support of Hypothesis 5a.

Moderated Mediation of Within-Team Trust

I utilized the Preacher et al. (2007) MPlus Model 3 syntax to test for moderated mediation with 1,000 bootstrap draws on the data. As recommended by Preacher et al. (2007), the moderator was set at the mean, at -1 SD below the mean, and again at +1 SD above the mean on consecutive runs for each of the five workdays. I tested each of the potential conditional indirect paths presented in the model, resulting in a total of 135 model runs. The remainder of this discussion will focus on those runs that generated a statistically significant 95% confidence interval.

A statistically significant conditional indirect effect was observed on Day 1 as the 95% confidence interval did not contain zero (95% CI: -0.285, -0.017) for hindrance demands through employee engagement on job satisfaction influenced by the mean level of within-team trust (Table 8).

**Table 8: Path Estimates and Indirect Effects for Day 1:
HD → EE → JS**

Mediator Variable Model - Employee Engagement				
Predictor	B	SE	R ²	
Constant	-0.019	0.055	0.118	
HD	-0.169*	0.079		
Dependent Variable Model - Job Satisfaction				
Predictor	B	SE	R ²	
Constant	4.200*	0.079	0.333	
HD	-0.105	0.121		
EE	0.698*	0.175		
WIT	-0.132	0.190		
EE*WIT	-0.316	0.339		
Conditional Effects at WIT = Mean & +/- 1 SD				
WIT (W)	$a_1(b_1+b_3W)$	SE	Lower CI	Upper CI
-1 SD	-0.171	0.110	-0.418	0.010
mean	-0.118*	0.070	-0.285	-0.017
+1 SD	-0.064	0.089	-0.302	0.053

Note: *($p < .05$). JS = job satisfaction, EE = employee engagement, HD = hindrance demands, WIT = within-team trust.

To illustrate differences observed between the five work days for the same variable relationship, a cross-section of the total results are presented in Tables 9 through 13. The relationship tested is the respective daily results for the path of high-involvement management through employee engagement on job satisfaction as conditionally influenced by within-team trust. No conditional indirect effect was observed for this path on either Day 1 (Table 9) or Day 2 (Table 10). A statistically significant conditional indirect effect was observed on Day 3 at both the mean of within-team trust (95% CI: 0.114, 0.648) and at +1 standard deviation above the mean (95% CI: 0.126, 1.093) (Table 11). Statistically significant conditional indirect effects were observed on Day 4 (Table 12) for the mean of within-team trust (95% CI: 0.078, 0.728) and for both the mean +1 standard deviation (95% CI: 0.041, 1.031) and the mean -1 standard deviation (95% CI: 0.034, 0.731). On Day 5, statistically significant conditional indirect effects were also observed (Table 13) for the mean of within-team trust (95% CI: 0.003, 0.634) and the mean +1 standard deviation (95% CI: 0.001, 0.974). No other significant conditional indirect effects were observed for this subset of the sample or for the balance of the moderated meditation model test runs that were conducted.

Thus Hypothesis 5a is partially supported in that on Days 1, 3, 4, and 5 a statistically significant conditional indirect effect of the modifier within-team trust was observed for the mediating relationship between employee engagement on job satisfaction. Hypotheses 5b (with safety) and 5c (with productivity) were not supported.

**Table 9: Path Estimates and Indirect Effects for Day 1:
HIM → EE → JS**

Mediator Variable Model - Employee Engagement				
Predictor	B	SE	R ²	
Constant	-0.019	0.055	0.118	
HIM	0.235	0.141		
Dependent Variable Model - Job Satisfaction				
Predictor	B	SE	R ²	
Constant	4.200*	0.079	0.333	
HIM	0.206	0.219		
EE	0.698*	0.175		
WIT	-0.132	0.190		
EE*WIT	-0.316	0.339		
Conditional Effects at WIT = Mean & +/- 1 SD				
WIT (W)	$a_1(b_1+b_3W)$	SE	Lower CI	Upper CI
-1 SD	0.238	0.162	-0.026	0.638
mean	0.164	0.111	-0.013	0.420
+1 SD	0.090	0.132	-0.042	0.487

Note: *($p < .05$). JS = job satisfaction, EE = employee engagement, HIM = high involvement management, WIT = within-team trust.

**Table 10: Path Estimates and Indirect Effects for Day 2:
HIM → EE → JS**

Mediator Variable Model - Employee Engagement				
Predictor	B	SE	R ²	
Constant	0.023	0.060	0.087	
HIM	0.261	0.151		
Dependent Variable Model - Job Satisfaction				
Predictor	B	SE	R ²	
Constant	4.188*	0.072	0.244	
HIM	0.351	0.217		
EE	0.488*	0.185		
WIT	-0.048	0.170		
EE*WIT	-0.188	0.287		
Conditional Effects at WIT = Mean & +/- 1 SD				
WIT (W)	$a_1(b_1+b_3W)$	SE	Lower CI	Upper CI
-1 SD	0.177	0.149	-0.017	0.623
mean	0.127	0.100	-0.003	0.399
+1 SD	0.078	0.111	-0.063	0.424

Note: *($p < .05$). JS = job satisfaction, EE = employee engagement, HIM = high involvement management, WIT = within-team trust.

Table 11: Path Estimates and Indirect Effects for Day 3:

HIM → EE → JS

Mediator Variable Model - Employee Engagement				
Predictor	B	SE	R ²	
Constant	-0.003	0.048	0.159	
HIM	0.387*	0.156		
Dependent Variable Model - Job Satisfaction				
Predictor	B	SE	R ²	
Constant	4.124*	0.092	0.331	
HIM	0.409	0.317		
EE	0.795*	0.232		
WIT	-0.212	0.235		
EE*WIT	0.654*	0.296		
Conditional Effects at WIT = Mean & +/- 1 SD				
WIT (W)	$a_1(b_1+b_3W)$	SE	Lower CI	Upper CI
-1 SD	0.055	0.143	-0.273	0.301
mean	0.308*	0.128	0.114	0.648
+1 SD	0.561*	0.246	0.126	1.093

Note: *($p < .05$). JS = job satisfaction, EE = employee engagement, HIM = high involvement management, WIT = within-team trust.

Table 12: Path Estimates and Indirect Effects for Day 4:

HIM → EE → JS

Mediator Variable Model - Employee Engagement				
Predictor	B	SE	R ²	
Constant	-0.004	0.058	0.124	
HIM	0.339*	0.151		
Dependent Variable Model - Job Satisfaction				
Predictor	B	SE	R ²	
Constant	4.172*	0.100	0.422	
HIM	0.499	3.180		
EE	0.994*	0.241		
WIT	-0.152	0.235		
EE*WIT	0.16	0.363		
Conditional Effects at WIT= Mean & +/- 1 SD				
WIT (W)	$a_1(b_1+b_3W)$	SE	Lower CI	Upper CI
-1 SD	0.283*	0.178	0.034	0.731
mean	0.337*	0.167	0.078	0.728
+1 SD	0.391*	0.241	0.041	1.031

Note: *($p < .05$). JS = job satisfaction, EE = employee engagement, HIM = high involvement management, WIT = within-team trust.

**Table 13: Path Estimates and Indirect Effects for Day 5:
HIM → EE → JS**

Mediator Variable Model - Employee Engagement				
Predictor	B	SE	R ²	
Constant	-0.005	0.049	0.181	
HIM	0.321	0.184		
Dependent Variable Model - Job Satisfaction				
Predictor	B	SE	R ²	
Constant	4.106*	0.083	0.417	
HIM	0.627*	0.281		
EE	0.716*	0.265		
WIT	-0.274	0.184		
EE*WIT	0.206	0.291		
Conditional Effects at WIT = Mean & +/- 1 SD				
WIT (W)	$a_1(b_1+b_3W)$	SE	Lower CI	Upper CI
-1 SD	0.163	0.121	-0.014	0.516
mean	0.229*	0.146	0.003	0.634
+1 SD	0.295*	0.218	0.001	0.974

Note: *($p < .05$). JS = job satisfaction, EE = employee engagement, HIM = high involvement management, WIT = within-team trust.

CHAPTER V

CONCLUSIONS

Discussion

My first research question asked whether varying daily challenge and hindrance demands affected employee engagement over time. In this sample of production employees, I was not able to measure enough variation within person across days to test this question. Perhaps this lack of variation in employee engagement suggests a short-term tolerance of employees to “weather the storm” of fluctuating job demands by simply completing the assigned job task/role for that day. Christian et al. (2011, p. 95) defined engagement as “a relatively enduring state of mind referring to the simultaneous investment of personal energies in the experience or performance of work.” Other authors have suggested that the context of the work may also influence engagement (Kahn, 1990; Macey & Schneider, 2008; Schaufeli, Bakker, & Salanova, 2006). If production employees perceive daily changes in, for example, hindrance demands as simply the normal ebb and flow of the job role, they are less likely to influence their perceptions of their personal level of engagement on those specific days. Perhaps production workers grow to expect a range in job demands, recognizing that the shortest path to the end of their day is completing the assigned task – consequently, limiting the effect on engagement.

I was surprised, though, that I did not demonstrate a statistically significant relationship between either hindrance demands and employee engagement or challenge demands and

employee engagement or challenge demands and employee engagement. One possible reason is that employees did not appear to distinguish a difference between challenge and hindrance demands. This was evident in my factor analysis as two to three of the challenge demand items loaded on hindrance demands. Although I slightly modified the Cavanaugh et al. (2000) measures to reflect a daily context for the purpose of the present study, the items are not substantially different from Cavanaugh et al. (2000). The Cavanaugh et al. (2000) measures were developed from a large sample of high-level managers and may not be directly applicable to production-level employees. The high-level managers would have the information necessary to understand the reason for the change in job demands. Additionally, they would have the autonomy and job crafting capabilities to inspire active problem solving as a means to cope with the demand changes (Lepine et al., 2005). Contrast that with the production-level employees in this present study who have limited autonomy and job crafting capabilities; the employee may not discern a difference between a challenge demand and/or a hindrance demand. Employees may perceive any change in the work routine as a potential hindrance to completing their day. Or perhaps in a production context, job demands such as hindrance demands or challenge demands are simply perceived by the worker as “part of the job.” Because production-level employees have very limited job-crafting ability, it is possible that they accept ranges in job demands as normal and simply complete a known task or quantity of work for that work day.

Another possibility may be that the real reason for job demand changes (modified customer order, management request, etc.) do not filter all the way down to the production worker. Consequently, the only difference production workers perceive is an increased requirement for them to invest more of their personal resources to complete the job tasks for that day – hence, they are more likely to perceive any job demand as a hindrance demand. Lepine et al. (2005) suggests that challenge demands and hindrance demands may influence motivation due to specific patterns of expectancies of the employee. When a stressor is considered by the employee to be “under their control,” a problem-solving mode of coping is invoked (i.e., positive response to a challenge demand). On the other hand, when the stressor is outside of their control, be it politics or role ambiguity as in hindrance demands,

employees are more likely to become cognitively distant and withdrawn. Consequently, the production employee may just do the work because they do not feel they have enough control to do anything else.

My second research question asked whether high-involvement management served as an antecedent in a positive relationship to employee engagement. Although the bivariate relationships were all positive and statistically significant, when all factors were simultaneously considered in the full structural equation model (SEM), the relationship between high-involvement management and employee engagement was found to be statistically significant only on Day 3 and Day 4. Perhaps in the workplace there are days that this relationship is more important than others. This partially supports Hypothesis 4.

In thinking about the role that supervisors fulfill, especially in the production context, this may be real. Some work days may be routine enough that only limited supervisor interaction is necessary. However, when “routine” needs to be modified, perhaps this is where high-involvement management shines. Those supervisors who have already established rapport within their workgroups are better equipped to navigate the modifications necessary to handle changes in job demands.

The title element of this project and my third research question was exploring the potential moderating effect of within-team trust on employee engagement. Worker trust of supervisors, management, and the organization has been explored in the literature. However, limited work has been done on how trust among workgroup members may influence the outcomes of their efforts. Albeit only on certain days within this sample, finding a statistically significant conditional mediating effect of employee engagement on job satisfaction due to level of within-team trust was exciting. This implies that already engaged employees become even more satisfied with their jobs when they have higher levels of trust with their teammates. Even for those employees with a low level of engagement, being part of a team where they trust their coworkers enhances their level of job satisfaction as well. Conversely, for highly engaged employees who are a part of team where they do not trust their coworkers, this lack of trust erodes their job satisfaction.

Results of this study imply that high-involvement management and within-team trust are important to enhancing employee job satisfaction. High-involvement management cultivates the opportunity for employees to feel safe in investing their personal resources in their job roles or tasks. It also enhances employees' ability to make sense of their job roles. These points are further supported when within-team trust is high. Trust is the fulfillment of positive expectations of the behavior of a coworker (Blau, 1964; Costa, 2003). When that exchange relationship is reciprocally positive, it can expand (Blau, 1964). This reinforces employees' sense of safety, thus facilitating continued investment of personal resources into their job roles, thus improving job satisfaction.

Limitations

The primary limitation of this present study was my inability to capture variability within individual employees across workdays for employee engagement and job satisfaction. While I still believe there is variation in employee engagement over time, it is either of shorter duration (minutes/hours) or a longer term effect (days/weeks) and perhaps context specific. A mixed-method, longitudinal study is likely necessary to more fully understand all of the related dynamics.

I acknowledge that due to the small sample size, I compromised statistical power in this study. I do have expressed interest from the firms that participated to repeat the study on an annual basis. I will explore that opportunity.

A stated objective of the project was to evaluate daily measures for variables that influence job performance such as job demands, employee engagement, and related outcomes. I choose to survey once a day, at the end of the workday, with paper surveys out of necessity. The employees in my sample did not have access to email. Given that I expected engagement to fluctuate across and between days, this was my best option for capturing variation between days. Some firms also expressed safety concerns for equipment operators if we were to use intermittent electronic solicitation of survey responses. Under these circumstances, presenting employees with paper surveys at the end of their day was the "best" option available to capture daily levels and related variation in employee engagement. However, this is an area that needs to be explored for a better process.

Data quality is an inherent challenge with survey studies. I did make a unique observation that came from entering a large portion of the data myself. Some respondents are very conscientious – to the point that if they made a selection change, they would put their initials next to the change on the survey form. Several participants voluntarily wrote comments in different places on the forms explaining their answers. Then there is the other extreme...those who appear to just fly through and mark the same box for every answer. I understand the imposition placed on the company and respondents in completing these surveys. I would like to explore making site visits to better inform the respondents of the purpose of the study and hopefully achieve better buy-in and higher quality responses. Many of the employees involved in the present study had never experienced the survey process. So, not only was the experience new, the concept of why was somewhat foreign to them. I relied upon management at the respective firms to convey the message, but I'm certain there were varying degrees of how completely that message was distributed. I also have concerns about language barriers and low reading levels for both language groups.

Implications

I recognize that employee engagement is an ongoing, long-term process that requires continuous interventions by supervisors (Saks, 2006). My hope is that this study will extend employee engagement literature and provide practitioners with insight to better support their supervisor corps as well as their production-level employees.

From an immediate supervisor's standpoint, this present study implies that there are payoffs for being a very involved manager and cultivating a climate of involvement within their workgroups. These efforts will enable workgroup members to more readily invest their personal resources into their job roles. Additionally, recognizing the impact of within-team trust on employee engagement and job satisfaction should incentivize supervisors to monitor for members of their workgroups who may not have earned the trust of the rest of the group. Working with these employees to assist them in earning that trust should result in improved job satisfaction for the entire workgroup.

Future Research

The production-level employee is still an integral piece of the puzzle of every economy in the world. For instance, as the United States works to recreate jobs and attract manufacturing jobs back to this country, we need to make certain we are properly supporting the resource needs of these employees. These employees have been underserved by the research community in recent years. In contemplating potential projects, there are generational as well as cultural differences to consider that create diverse perspectives within the workgroup on work ethic, respect, etc. that supervisors must become increasingly agile to manage. Future studies may explore how variables such as high-involvement management and within-team trust interplay with generational and cultural spectrums within both workgroups and supervisors. In light of the present study, perhaps a longer term evaluation of job demands is warranted in this context. Perhaps production employees are tolerant for a period of time to increases in job demands before employee engagement is affected. Related to this, a qualitative study may be in order involving a broad cross-section of production workers to explore what is truly important to today's front-line employees. Perhaps there are generational and/or cultural considerations to pass on to management here as well.

The results of such studies would assist management and supervisors in dealing with potential issues related to keeping diverse workgroups engaged and productive.

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