

Predictors and Outcomes of Engagement and Embeddedness Among Unskilled
Production Line Employees

by

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ABSTRACT

Over the past several years, engagement and embeddedness have become popular research topics for academics and practitioners alike. Research has demonstrated associations between these constructs and a variety of predictors and outcomes. Prior research has not, however, placed enough emphasis on the roles of employee type, industry type, and work setting in determining predictors and outcomes. Additionally, the relative roles of engagement and embeddedness in predicting outcomes have not been thoroughly investigated. This study investigated the predictors and outcomes of engagement and embeddedness among unskilled, production line employees working in food processing in the agricultural industry by conducting a survey of employees and their supervisors. Employees answered questions about personality, motivation, satisfaction, engagement, and embeddedness while supervisors answered questions about each employee's performance. Results suggest that both engagement and embeddedness predict employee satisfaction and that engagement does so more strongly, both of which support prior research. However, results contradict prior research by suggesting that embeddedness is strongly predicted by traits internal to the employee while engagement is not, and neither engagement nor embeddedness significantly predicts employee performance. Further, the findings suggest that employees working in different settings and industries may experience work differently, and the measurements used to understand their experiences should reflect these differences.

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Predictors and Outcomes of Engagement and Embeddedness Among Unskilled Production Line Employees

In recent years, engagement and embeddedness have become topics of considerable interest for both academic and practitioner researchers. Engagement can be understood as a positive and fulfilling state of mind at work (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002), while embeddedness can be understood as job stability, or the reasons that individuals stay in their jobs (Mitchell, Holtom, Lee, Sablynski, & Erez, 2001). While the two concepts have been shown to be distinct, research lacks consensus on the most significant predictors of each, as well as their relative roles in predicting various outcomes.

Additionally, most research that has been done in this area has focused primarily on mid- to high-level employees working in a variety of service industries (e.g., sales, nursing). For manufacturing industries, production line employees often represent a large portion of a company's human capital costs, making it valuable and necessary to investigate whether the predictors and outcomes of engagement and embeddedness are unique for this group. This study examined these concepts among 665 unskilled, production line laborers and their supervisors working in food processing for a large agricultural company.

Background

Engagement

Definition. The term *engagement* has become prevalent among human resource professionals, consultants, and practitioners but is only recently being

studied within the academic world. The term itself purports numerous definitions, many of which in the past were simply reused from other similar constructs such as job satisfaction or organizational commitment (Macey & Schneider, 2008). To date, engagement has been conceptualized in a variety of ways, five of which remain accepted definitions and modes of measurement. Each of these five conceptualizations is briefly described below, with greater attention paid to the definition used for this study, which is described last.

Personal Engagement. Kahn (1990) introduced the concept of personal engagement as the first construct of engagement at work. He conceptualized personal engagement and disengagement as how much an employee expresses him or herself physically, cognitively and emotionally at work. When an employee is engaged, he or she is physically involved, cognitively focused, and emotionally tied to his or her job (Kahn, 1990; Simpson, 2009).

Work Engagement/Burnout. Maslach, Schaufeli, and Leiter (2001) were the first to re-address the concept of engagement after Kahn (1990). After several studies focused on the concept of job burnout, Maslach and Leiter (1997) extended the construct of burnout to include a lack of engagement in one's work. Engagement and burnout exist on the same continuum, they argued, with engagement positioned as the positive opposite of burnout (Maslach & Leiter, 1997). Engagement was later defined more specifically as "a persistent, positive affective-motivational state of fulfillment in employees that is characterized by high levels of activation and pleasure" (Maslach et al., 2001, p. 417). This

conceptualization adds energy and efficacy to the emphasis on involvement with work that was put forth by Kahn.

Employee Engagement. Harter, Schmidt, and Hayes (2002) focused on interpersonal relationships, satisfaction, and enthusiasm as the most critical components of engagement. Like Kahn (1990), they suggested that employee engagement occurs when employees are emotionally connected to others and cognitively focused, but expanded the definition to include an individual's involvement, satisfaction, and enthusiasm for his or her job as critical components of engagement (Harter et al., 2002).

Trait, State, and Behavioral Engagement. Most recently, Macey and Schneider (2008) proposed a new conceptualization of employee engagement, stating that it develops from trait engagement, state engagement, and behavioral engagement. Trait engagement represents engagement as a disposition, and is characterized by positive views of life and work. State engagement is defined by feelings of energy and absorption, while behavioral engagement is defined in terms of discretionary efforts and extra-role behaviors (Macey & Schneider, 2008). This newer conceptualization attempted to clarify the previous definitions by breaking down engagement into distinct parts and steps, though less research exists that confirms this approach as ideal for understanding engagement at work.

Work Engagement. Work engagement, which is the conceptualization used in this study, is defined as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002, p. 74). These three dimensions of work engagement are described below.

Vigor is characterized by high levels of energy and mental resilience at work, the willingness to invest time and effort into one's job, and persistence through challenging situations (Schaufeli et al., 2002). Because focus and persistence are the basic characteristics of this area of engagement, Mauno, Kinnunen, and Ruokolainen (2007) suggest that this component is very similar to the concept of intrinsic motivation. Intrinsic motivation is an employee's need and desire to perform an activity based on its intrinsic rewards, such as pleasure and satisfaction, rather than any extrinsic goals, such as a promotion or salary increase (Deci & Ryan, 1985; Mauno et al., 2007). This dimension of work engagement, then, seems to be highly related to intrinsic motivation.

Dedication occurs when an employee is strongly involved in his or her work and experiences feelings of significance, enthusiasm, inspiration, pride, and challenge (Schaufeli et al., 2002). This component of engagement is similar to job involvement or commitment, which has been defined as the degree to which an employee psychologically relates to his or her job and to the work he or she performs (Mauno et al., 2007). However, dedication seems to encompass more than just job involvement in that dedication includes feelings of enthusiasm, inspiration, pride, and challenge, while job involvement and commitment focus only on the importance of the job in an individual's life (Mauno et al., 2007).

Absorption, the final dimension of engagement, occurs when an employee is fully concentrated on his or her job, whereby time passes quickly and the individual has trouble detaching from work (Schaufeli et al., 2002). This component of work engagement has been compared to flow (Mauno et al., 2007),

which is a state of mind in which employees are completely engrossed in their work and enjoy their work to the extent that they would do it simply for the sake of doing it (Csikszentmihalyi, 1990). Such experiences at work are most likely to occur when an employee experiences a good balance between a job's requirements and his or her own skills (Bakker, 2005; Csikszentmihalyi, 1990; Mauno et al., 2007). Therefore, the concepts of person-job fit and person-organization fit seem to be included within this dimension of work engagement.

The comparisons between the dimensions described by Schaufeli et al. (2002) and existing work-related psychological concepts provide support for the idea that work engagement is a construct that encompasses more elements of the employee's experience in the workplace than any other conceptualization of engagement does, lending support for the use of this construct. Additionally, of the five definitions of engagement described, Simpson (2009) suggests that work engagement should be used to understand employee engagement because of its focus and measurement. Specifically, Simpson (2009) argued that because work engagement focuses on the affective nature of employees' perceptions of themselves and their work experiences, and because its measurement is consistent with its three defining characteristics and therefore allows the predictors and outcomes to be independently measured, it is the ideal conceptualization to be used when studying engagement at work.

Predictors of Engagement. Factors internal and external to the employee have both been found to significantly predict engagement, with the most predictive factors remaining a point of contention.

Internal factors. Research has found strong relationships between individual factors and engagement. Kim, Shin and Swanger (2009), for example, suggested that if burnout can be predicted by personality traits then it is reasonable to assume that personality traits can also predict employee engagement. In testing this theory, they found that personality significantly predicts engagement and that the most significantly predictive personality traits are conscientiousness and neuroticism (Kim et al., 2009).

Similarly, Type A personality (Ganster, 1986; Kirmeyer, 1988), and extraversion (Iverson, Olekains, & Erwin, 1998; Kahn, Schneider, Jenkins-Henkelman, & Moyle, 2006), have been shown to predict burnout. Hallberg, Schaufeli, and Johansson (2007) focused on the same traits as predictors but on engagement instead of burnout as the outcome and found that Type A behavior and engagement are related, though not strongly. Langelaan, Bakker, Van Doornen, and Schaufeli (2006), in contrast, found a strong relationship between personality traits and engagement. Specifically, and similar to the findings of Kim et al. (2009), employees low in neuroticism and high in extraversion were found to experience higher levels of work engagement (Langelaan et al., 2006).

External factors. Other research has focused on organizational factors as predictors of engagement and suggests that these factors are actually more predictive of engagement than individual traits (Duran, Extremera, & Rey, 2004; Gonzalez-Roma, Schaufeli, Bakker, & Lloret, 2006; Schaufeli et al., 2002; Simpson, 2009). Amongst these organizational factors are an organization's level of innovation, effective change management, an employee's belief in the

organization's mission and values, satisfaction with rewards and recognition, achieving organizational objectives, participation in decision-making, career advancement opportunities, communication with leadership, and perceptions of customer satisfaction (Parkes & Langford, 2008). While many of these organizational factors impact engagement through the employee's subjective, internal interpretation, they remain under the control and provision of the employer.

Similarly, Mauno et al. (2007) found that higher engagement is more likely to occur in organizations in which the employees feel they are respected and valued as members of the group. Cathcart et al. (2004) suggest that maintaining smaller spans of control by managers is related to higher engagement, suggesting that feedback and supervisor relationships are important contributors to engagement. Both studies lend support to the idea that an organization's activities, policies, and methodologies, as well as its leadership, can greatly influence the level of engagement experienced by its employees.

Other researchers have proposed theories for understanding how the work environment contributes to an employee's experience of work. Among these approaches are the Job Demands-Resources Model and Social Exchange Theory.

According to the Job Demands-Resources Model, job demands and job resources influence engagement through the motivational process (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Salanova, Agut, & Peiro, 2005; Schaufeli & Bakker, 2004). Job demands are the aspects of a job that require physical and/or psychological effort from an employee (Mauno

et al., 2007). In contrast, job resources are the aspects of a job that help an employee to achieve work goals, reduce job demands and pressures and the physical and/or psychological costs associated with them, and stimulate personal growth and development (Mauno et al., 2007).

Researchers have found that job resources significantly predict work engagement, while job demands do not (Hakenen, Bakker, & Schaufeli, 2006; Llorens, Bakker, Schaufeli, & Salanova 2006; Mauno et al., 2007; Schaufeli & Bakker, 2004). Specifically, job control as a resource was the best predictor of work engagement (Mauno et al., 2007). Additionally, employees with stronger work-life experiences were also more engaged (Koyuncu, Burke, & Fiksenbaum, 2006). Together these findings suggest that the resources provided both in and out of work that affect an employee's experience on the job are more influential of an employee's level of engagement than the challenges and stressors experienced in the workplace. Further, this work suggests that a key component to understanding engagement is to understand the work environment itself.

Another theory that has been proposed as a model for understanding employee engagement is Social Exchange Theory (SET). SET asserts that in the employment context, there is a relationship between employer and employee and only through reciprocity and repayment does employee engagement develop (Cropanzano & Mitchell, 2005). Employees are more likely to exchange their engagement for resources and benefits provided by their employer (Saks, 2006). Therefore, in this model, employee engagement is best predicted by the amount of economic and socioemotional resources that an organization provides (Saks,

2006). That being said, there is a lack of consensus as to which of these resources is most predictive of engagement.

Impact of employee level and industry type. Little work has investigated potential variations in the predictive nature of internal and external factors by employee level, work setting, or industry type. According to some researchers, professional white-collar workers often have more challenging jobs and greater organizational commitment and identification than do lower-level employees (Karasek & Theorell, 1990; Lee, Carswell, & Allen, 2000; Mathieu & Zajac, 1990). Mauno et al. (2007) assert that these factors may contribute to higher work engagement, and thus employees of this type are more likely to be engaged than lower-level employees. However, the data to support this assertion is lacking; only one dimension of work engagement was experienced more often among professionals than non-professionals (dedication), and the strength of this relationship was weak and questionable (Mauno et al., 2007).

Similarly, Mauno, Leskinen, and Kinnunen (2005) assert that the predictors of work engagement can vary by industry type, and found industry differences through their investigation of three different organizations. Time demands at work were related to higher levels of work engagement for healthcare workers and information technology workers, but not for factory workers. Work-to-family conflict was associated with lower work engagement for healthcare workers only (Mauno et al., 2005). These findings suggest that the predictors of engagement differ by industry type, and perhaps vary by employee type as well.

However, these results were collected abroad and little work has been done to try to confirm these findings as generalizable to other locations or industries.

Outcomes Associated with Engagement. Both practitioner and academic research suggest that the outcomes of engagement are identical to those sought by most employers. Many studies indicate that engaged employees are more productive, profitable, safer, healthier, less likely to leave or be absent, and more willing to contribute positively to the organization in ways that are outside the scope of their job description (Buchanan, 2004; Fleming & Asplund, 2007; Harter et al., 2002; Shuck & Wollard, 2010; Wagner & Harter, 2006).

Studies also suggest that there is a direct link between an individual's level of engagement and organizational profit (Czarnowsky, 2008; Ketter, 2008), customer satisfaction ratings, increased revenue (Vance, 2006; Harter et al., 2002; Wagner & Harter, 2006), and his or her level of job involvement (May, Gibson, & Harter, 2004). Additionally, engagement has been shown to positively affect turnover intention (Schaufeli & Bakker, 2004; Harter et al., 2002; Koyuncu et al., 2006), though recent research has questioned the extent of this relationship. Specifically, Halbesleben and Wheeler (2008) discovered a significant relationship between engagement and turnover intention, but when they accounted for other variables (satisfaction, commitment, and embeddedness), the contribution of engagement was weak.

Engagement was also found to be a predictor of performance in various theoretical and empirical studies (Kahn, 1990; Leiter & Maslach, 2004; Schaufeli et al., 2002). Performance can be categorized into task performance and

organizational citizenship behaviors (OCBs) (Williams & Anderson, 1991). Task performance is usually based on formal job requirements and involves a set of behaviors that are directly involved in fulfilling one's job description or are indirectly supportive of the organization's core technical processes (Van Scotter, Motowidlo, & Cross, 2000). OCBs, on the other hand, are similar to contextual performance, and are more discretionary behaviors that are not part of an employee's job description but that support a more effective and efficient functioning of an organization (Organ, 1997). These behaviors enhance the organizational environment and support task performance (Organ, 1997).

Using these categorizations as the framework, several researchers have argued that engagement is more predictive of task performance than OCBs. Specifically, although engaged employees may be involved with extra-role behaviors, engagement is focused on an employee's actions as they pertain to their role's core responsibilities and how they adapt their behavior within their position to better meet organizational goals (Shuck & Wollard, 2010). As such, while research has demonstrated that engagement is related to all performance measures, it has been argued that engagement is most strongly tied to task performance and in-role behaviors in particular.

In another study, work engagement was found to predict service climate, which in turn predicts employee performance and customer loyalty (Salanova et al., 2005). While this study supports prior research suggesting that there is a relationship between engagement and performance, this study also suggests that a direct relationship, as shown previously, may not always exist (Simpson, 2009).

In addition to positive organizational-level outcomes, research suggests that engagement is related to positive individual-level outcomes as well. Specifically, research has demonstrated that engagement predicts psychological well-being, job satisfaction, and organizational commitment (Hakenen et al., 2006; Koyuncu et al., 2006).

Embeddedness

Definition. Compared with engagement, *embeddedness* is a newer theoretical concept and has received far less attention from both academic researchers and practitioners. Embeddedness was first introduced more than a decade after engagement as a concept focused narrowly on job stability and why individuals stay in their jobs (Mitchell et al., 2001). Unlike engagement, which is understood as an overall positive experience for employees, embeddedness can be viewed as negative or positive. While stability is positive for an employee, constraints on mobility can be seen as a pitfall, particularly when an employee is less likely to discover and take advantage of other career opportunities (Ng & Feldman, 2007).

Embeddedness was conceptualized as encompassing the totality of factors that keep employees in their jobs, which can be categorized into links, investments, and appraisals (Mitchell et al., 2001; Sekiguchi, Burton, & Sablinski, 2008). Individuals experiencing more types of restraining factors are more embedded within their jobs and are less likely to voluntarily leave (Sekiguchi et al., 2008). Because embeddedness is focused more on objective factors external to the employee and not the employee's interpretation of them, it

is a relatively non-affective construct, particularly when compared with engagement (Sekiguchi et al., 2008).

Mitchell et al. (2001) asserted that embeddedness is characterized by three dimensions: (1) links to people, groups and activities of the job; (2) perceptions of person-job and person-organization fit; and (3) sacrifices involved in leaving the job. Links are the formal and informal ties an individual has with other employees, groups, and activities on the job; as the number of links increases, so does the employee's level of embeddedness (Holtom, Mitchell & Lee, 2006). Person-job fit is the extent to which an individual's talents and skills match those required by their job (Sekiguchi et al., 2008), while person-organization fit is the degree to which an employee's goals and values match those of his or her organization (Holtom et al., 2006). Greater fit of both types results in greater embeddedness. Lastly, sacrifice represents what an employee perceives the costs of leaving his or her job to be, with higher perceived costs resulting in greater embeddedness (Holtom et al., 2006).

Each of these three dimensions exists within the context of an individual's job as well as within an individual's community (Mitchell et al., 2001). So, there are six sets of factors that determine embeddedness, three representing on-the-job embeddedness and three representing off-the-job embeddedness. That being said, on-the-job embeddedness is the focus of most organizational research, as this is the area most influenced by an employer (Sekiguchi et al., 2008).

Additionally, in some research, embeddedness has been subcategorized into organizational embeddedness and occupational embeddedness, based on the

argument that employees can become embedded in their occupation just as easily as they can become embedded in their organization (Ng & Feldman, 2007; Feldman, 2002). Organizational embeddedness is considered a more broad construction than occupational embeddedness, and while the two types of embeddedness are distinct, they affect one another (Ng & Feldman, 2007). Organizational embeddedness impacts occupational embeddedness more strongly than vice versa, mostly because organizational embeddedness typically requires an employee to remain in the same occupation, while occupational embeddedness does not require an employee to remain in the same organization (Ng & Feldman, 2007).

In addition to various categorizations of embeddedness, research has also focused on distinguishing embeddedness from related psychological concepts, the most studied of which is job commitment. Allen and Meyer (1990) define commitment in three ways: affective, normative, and continuance. Ng and Feldman (2007) distinguish commitment and embeddedness as follows. Affective commitment represents an affective state, while the dimensions of embeddedness, and sacrifice in particular, represent non-affective, cognitive factors. Normative commitment addresses the nature of links, rather than the number of links, which is the focus of the links dimension of embeddedness. Finally, continuance commitment focuses on a lack of alternatives as definitive of sacrifice, which is not part of the sacrifice dimension of embeddedness (Ng & Feldman, 2007). Therefore, distinguishing embeddedness from job commitment is appropriate.

Predictors of Embeddedness. Given the factors and dimensions definitive of embeddedness described previously, it is not surprising that the predictors of embeddedness are generally agreed to be more external to the employee than internal.

Embeddedness is thought to develop slowly over time and remain stable (Halbesleben & Wheeler, 2008). Even when job conditions change, whether they be demands or resources, embeddedness changes slowly in response and sometimes may even require radical events to impact its level (Mitchell et al., 2001; Halbesleben & Wheeler, 2008). This suggests that the employee's perception of external organizational factors seems to be less determinative of embeddedness than the factors themselves (Halbesleben & Wheeler, 2008).

Ng and Feldman (2007) argue that the factors that promote embeddedness are likely to be different depending on an employee's career stage. As employees progress through the stages of their career, the number and types of roles an individual plays tend to contribute to his or her level of embeddedness (Super, 1990; Ng & Feldman, 2007). In the earliest stage, organizational socialization factors, work hours, social ties, and mentorship all promote embeddedness. In the middle stage, management and leadership responsibilities, career attainments, the plateau of one's career, and family status all may affect embeddedness. At the final career stage, pensions and retirement funds, leadership roles, and risk aversion all contribute to an employee's level of embeddedness (Super, 1990; Ng & Feldman, 2007).

Regardless of the career stage, this research suggests that the predictors of embeddedness are a product of the employee's environment rather than traits unique to the employee, and are not the employee's subjective interpretation of conditions but are the objective conditions themselves. The factors that embed employees in their current jobs, then, can be individual, organizational, or occupational in nature, and in many cases are under the direct control of managers and organizations (Ng & Feldman, 2007; Allen, 2006).

Outcomes Associated with Embeddedness. Job embeddedness has been most consistently studied in the context of employee retention. A number of studies document a strong, positive effect of job embeddedness on employee retention in a variety of settings, including retail stores, hospitals (Holtom & O'Neill, 2004; Mitchell, Holtom, Lee, & Sablinski, 2001) and financial institutions (Allen, 2006; Lee, Mitchell, Sablinski, Burton, & Holtom, 2004). Further, when job relocation is not a factor, on-the-job embeddedness better predicts retention and job stability than off-the-job embeddedness (Allen, 2006).

Embeddedness has also been found to predict employee performance. As described previously, performance can be categorized into task performance and organizational citizenship behaviors (OCBs) (Williams & Anderson, 1991). Like engagement, while embeddedness has been shown to be related to both task performance and OCBs (Lee et al., 2004), it is more predictive of task performance than OCBs (Sekiguchi et al., 2008).

A theory for why embeddedness better predicts task performance than OCBs is that a highly embedded employee may believe that he or she can reduce

OCBs without these actions being seen as withdrawal by his or her supervisor (Sekiguchi et al., 2008). However, if an employee were to reduce his or her level of task performance, the withdrawal would be quite apparent (Sekiguchi et al., 2008). As such, high embeddedness remains strongly related to task performance and less related to OCBs.

Sekiguchi et al. (2008) provide another explanation for why embeddedness is positively related to performance. Highly embedded employees, they argue, are less likely to withdraw from both in-role and extra-role behaviors than those who are less embedded. Therefore, it is the anti-withdrawal mechanism that is definitive of embeddedness, and not a motivational mechanism like with engagement, that leads to improved employee performance (Sekiguchi et al., 2008). This explanation suggests that while higher embeddedness leads to improved employee performance, such improvements may be less than those found with more motivational influences, like engagement (Sekiguchi et al., 2008).

Present Study

The present study focused on understanding the experience of work and if that experience differs by employee and industry type. Specifically, this research sought to extend and clarify prior research by investigating the predictors and outcomes of engagement and embeddedness for a specific type of employee and work setting.

Though the nature of engagement as an affective and subjective state suggests that it may be more determined by individual factors than organizational

factors, research has shown that both are highly predictive. This study sought to understand how well internal traits actually predict engagement, and in doing so, provide clarification for existing research about the strongest predictors of engagement. In contrast, embeddedness research has paid little attention to the predictive nature of internal traits, focusing primarily on organizational factors as predictors. This study sought to confirm that internal traits do not play a significant role in predicting embeddedness, and therefore that their omission from research is appropriate.

This study also aimed to extend and clarify prior research about the relative roles of engagement and embeddedness in predicting the outcomes of performance and satisfaction. Both engagement and embeddedness have been shown to be related to performance, both being more predictive of task performance than organizational citizenship behaviors, though rarely have their relative roles been investigated. While it has been suggested that engagement may be more predictive of performance than embeddedness, it remains an understudied topic. Additionally, although engagement and satisfaction have been shown to be strongly related, little research has focused on satisfaction as an outcome of embeddedness. This study sought to gain a better understanding of the relative roles of both constructs in predicting these two outcomes in particular.

Each of these goals was set within the framework of understanding the experience of work for a particular type of employee working in a particular type of industry. Most research has either focused on mid- to upper-level employees only, or grouped all employee types into a single analysis, usually to provide

support for generalizability. Consequently, little attention has been paid to the potential impact of industry type on an employee's experience of work. This study sought to understand whether prior research generalizing the predictors and outcomes of engagement and embeddedness from a handful of industries and employee types was justified, or if understanding these constructs as unique by industry and/or employee type is more appropriate.

Hypotheses

Hypothesis 1. Engagement will be strongly predicted by factors under the control of the employee. Specifically, personality traits and intrinsic motivation will both be highly predictive of engagement. Of the big five personality traits, conscientiousness and extraversion will be the most predictive of engagement.

Hypothesis 2. Embeddedness will not be strongly predicted by factors under the control of the employee. Therefore, personality traits will not be related to, and intrinsic motivation will be only slightly related to, embeddedness.

Hypothesis 3. Both engagement and embeddedness will significantly predict task performance and organizational citizenship behaviors, though both will better predict task performance than organizational citizenship behaviors. Additionally, each of the performance measures will be better predicted by engagement than embeddedness.

Hypothesis 4. Both engagement and embeddedness will significantly predict both positive and negative affect at work, though both will be better predicted by engagement than embeddedness.

Method

Procedure and Participants

The participating organization was one operating company of a national processor and supplier of fresh produce. The participants were hourly, seasonal employees working in an unskilled, production line setting in the company's two Yuma, Arizona processing plants. The plants are located a few miles apart, and though each plant is a location for a different product line for the company, the work in the plant is nearly identical. The season in Arizona typically runs from November through March, with most employees working in the Arizona plants only and not traveling to any of the company's other plants in different states during the off-season. Employees work six days per week under direct management of a supervisor in a variety of roles, including chopping, washing, drying, and packaging the product.

After receiving approval from the operating company's president and director of human resources, the researcher traveled to Yuma to administer the two types of surveys. The first survey was completed by the non-supervisor employees and included questions related to engagement, embeddedness, personality, motivation, satisfaction, and background information. Supervisors completed surveys for each employee they managed, which included questions about the employee's performance.

Employee surveys were distributed via the supervisors. Surveys were translated into Spanish in their entirety and introduced in English by the researcher, whose directions and comments were translated into Spanish by a

human resources representative. All instructions and surveys were given to the supervisors, who were tasked with distributing the surveys and providing instructions to their employees. The company uses their supervisors in this way for nearly all company business, including distributing paychecks, and so it was considered appropriate for this study.

Employee envelopes included a consent form, survey, and blank return envelope. The distribution envelopes were labeled with the employee's company-assigned number so that supervisors could deliver each survey to the specific employee. Employees discarded the exterior envelopes and submitted the completed survey in the return envelope provided. The employee surveys were assigned a random code by the researcher prior to distribution. These codes were recorded alongside the company-assigned employee numbers on a list that was maintained and viewed by the researcher only. Supervisors also received an envelope full of surveys for them to complete about the employees they supervise, as well as an envelope to be used to return all completed surveys. Each survey had a cover sheet displaying the name of the employee to be evaluated. This allowed the supervisor to evaluate each employee and the researcher to match supervisor surveys to employee surveys.

All employees and supervisors on the company's payroll were provided with surveys. In the first plant, 446 surveys were distributed to employees and 21 supervisors received surveys to complete. In the second plant, 1035 surveys were distributed to employees and 40 supervisors received surveys to complete. So, a total of 1481 surveys were distributed to employees, and 61 supervisors received

corresponding surveys. A total of 665 employee surveys (45% response rate) were returned and usable. Only employee surveys whose corresponding supervisor surveys were returned were used in performance analyses, which included 614 of the 665 employee surveys.

Of the employee participants, 56.2% ($n = 374$) were male and 41.4% ($n = 275$) were female. The majority of participants was married ($n = 496$, 74.6%) and had children ($n = 594$, 89.3%). The respondents' ages ranged from 18 to 76 years with a mean age of 43.61 years ($SD = 12.06$ years). The length of employment ranged from 1 season (the current season at the time of research) to 17 seasons, with an average tenure of 5.61 seasons ($SD = 3.66$ seasons).¹

Measures

Work engagement. Engagement was measured using the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003). It contained 17 items designed to assess the three components of engagement: vigor, dedication, and absorption. Sample items include “When I get up in the morning, I feel like going to work” (vigor), “To me, my job is inspiring” (dedication), and “When I am working, I forget everything else around me” (absorption). Items were scored on a five-point, Likert-type scale from strongly disagree (1) to strongly agree (5).

Job embeddedness. Job embeddedness was measured using Ng and Feldman's (2009) adapted version of the organizational embeddedness items

¹ Demographic data was collected from the supervisors as well. However, the translation into Spanish seemed to generate confusion as to whether the questions were asking about the supervisor or the employee they were evaluating. As such, there is no reportable demographic data from this portion of the sample.

published by Mitchell et al. (2001). This version contained 15 items, though only 11 were used in this study (see below). The 15 items assess the three components of embeddedness: fit, links, and sacrifice, and only those 11 measuring fit and sacrifice were used. Sample items include “I fit with the company’s culture” (fit) and “The health-care benefits provided by this organization are outstanding” (sacrifice). The fit and sacrifice items were scored on a five-point Likert-type scale from strongly disagree (1) to strongly agree (5).

The omitted four items came from the links section of questions. These four items were omitted because several questions did not apply to this group (e.g., “How many work teams or committees are you on?”), and for other questions, little or no variability was likely to result because of the nature of the structure and type of work. For example, “How many coworkers do you interact with regularly?” would be a consistent answer for everyone – the number of employees within their group on the production line.

Job performance. Task performance and organizational citizenship behaviors were measured via three types of job performance, through 21 items total. Employee performance of in-role behaviors (IRB) was measured using Williams and Anderson’s (1991) scale. It is a seven-item measure using a five-point Likert-type scale scored from strongly disagree (1) to strongly agree (5), with a sample item being “Adequately completes assigned duties.” Performance of organizational citizenship behaviors that have a specific individual as a target (OCBI) was measured using Williams and Anderson’s (1991) scale. It is a seven-item measure using a five-point Likert-type scale scored from strongly disagree

(1) to strongly agree (5), with a sample item being “Helps others who have been absent.” Performance of organizational citizenship behaviors that focus primarily on benefiting the organization (OCBO) was measured using Williams and Anderson’s (1991) scale. It is a seven-item measure using a five-point Likert-type scale scored from strongly disagree (1) to strongly agree (5), with a sample item being “Gives advance notice when unable to come to work.”

Affect at Work. Satisfaction can be understood as affective or cognitive (Williams & Anderson, 1991). Because of its use in prior research, only affective satisfaction was measured in this study. Affective satisfaction in this study was measured by an employee’s feelings at work, captured here using the Positive and Negative Affect Scale (PANAS) (Watson, Clark, & Tellegen, 1988). There were 20 adjectives describing positive and negative emotions and feelings that participants rated using a Likert-type scale, from very slightly or not at all (1) to extremely (5), with the number representing the extent to which the word described how they generally feel at work.

Motivation. Task-oriented intrinsic achievement motivation and success-oriented intrinsic achievement motivation were both measured using The Ray-Lynn Achievement Orientation (AO) Scale (Ray, 1980). Participants answered “yes,” “no,” or “not sure” to 26 items, including 16 items measuring task-oriented motivation and 10 items measuring success-oriented motivation. A sample task-oriented motivation item was “Does inefficiency make you angry?” whereas a sample success-oriented motivation item was “Are you an ambitious person?”

Personality. Personality was measured using the ten-item personality inventory (TIPI). Participants used a Likert-type scale (from disagree strongly (1) to agree strongly (7)) to indicate the extent to which they agreed or disagreed with how well the listed adjectives described themselves. This scale consisted of two items corresponding to each of the Big 5 personality traits. For example, extraversion was assessed via self-ratings on both “extraverted/enthusiastic” and “reserved/quiet” (reverse-coded).

Demographic variables. Participants answered questions about their gender, age, marital status, whether or not they had children, the number of children, their children’s ages, and their tenure with the company.

Results

Correlations Among Study Variables

Descriptive statistics among all study variables are shown in Table 1 and pairwise correlations among the study variables are shown in Tables 2a – 2f. Among the significant relationships, a few are worth noting. While engagement and embeddedness were moderately correlated ($r = .444, p < .01$), the strength of the relationship supports prior research stating that they are distinct constructs. Similarly, while engagement was moderately related to positive affect at work ($r = .378, p < .01$) and negative affect at work ($r = -.183, p < .01$), the strength of these relationships supports prior research asserting that engagement and affect at work are distinct constructs.

Several personality traits were significantly correlated with engagement and embeddedness. Conscientiousness and emotional stability were the most

strongly related to both engagement (conscientiousness: $r = .115, p = .013$; emotional stability: $r = .138, p = .003$) and embeddedness (conscientiousness: $r = .187, p < .01$; emotional stability: $r = .210, p < .01$). Interestingly, and contrary to predictions, neither engagement nor embeddedness was significantly correlated with any dimension of performance as an outcome variable.

Demographic Characteristics and Outcome Variables

Data was collected regarding each employee's gender, age, tenure with the organization, marital status, and whether or not the employee has children. A series of ANOVAs, correlations, and regression analyses were performed to detect the effects of these five demographic variables on the study's outcome variables (engagement and each of its three dimensions, embeddedness and each of its two dimensions, overall performance and each of its three sub-types, and both positive and negative affect at work).

A one-way ANOVA showed that compared to males, females reported significantly higher levels of engagement ($F(1, 557) = 4.323, p = .038$), significantly higher levels of absorption ($F(1, 580) = 5.147, p = .024$), and significantly lower levels OCBO performance ($F(1, 531) = 8.180, p = .004$). Correlations revealed that age was significantly related to embeddedness ($r = .146, p = .001$), fit ($r = .161, p < .01$), sacrifice ($r = .143, p = .001$), engagement ($r = .184, p < .01$), vigor ($r = .130, p = .001$), absorption ($r = .164, p < .01$), dedication ($r = .171, p < .01$), OCBI performance ($r = .105, p = .012$), IRB performance ($r = .100, p = .016$), and marginally related to negative affect at work

($r = .087, p = .063$). Correlation also revealed that tenure was significantly related to negative affect at work ($r = .096, p = .040$).

A one-way ANOVA revealed that employees with children were more dedicated than employees without children, though only marginally ($F(2, 610) = 2.751, p = .065$). Finally, marital status was converted into a series of dummy variables representing the five possible responses (single, married, separated, divorced, and widowed) and a series of linear regression analyses were conducted between these marital statuses and each of the study variables. While none of the overall models were significantly predictive of any of the outcome variables, a few of the individual marital statuses were independently predictive of outcome variables.

Specifically, being single was significantly related to IRB performance ($\beta = .090, p = .032$; overall model: $R^2 = .013, F(4, 580) = 1.846, p = .118$), positive affect ($\beta = .113, p = .013$; overall model: $R^2 = .014, F(4, 489) = 1.770, p = .134$) and marginally related to negative affect ($\beta = .081, p = .085$; overall model: $R^2 = .013, F(4, 460) = 1.465, p = .085$). Being separated was significantly related to overall performance ($\beta = -.086, p = .050$; overall model: $R^2 = .017, F(4, 519) = 2.242, p = .063$) and OCBI performance ($\beta = -.083, p = .047$; overall model: $R^2 = .012, F(4, 579) = 1.760, p = .135$). Being divorced was significantly related to vigor ($\beta = .102, p = .013$; overall model: $R^2 = .012, F(4, 602) = 1.786, p = .130$), fit ($\beta = -.080, p = .050$; overall model: $R^2 = .011, F(4, 607) = 1.644, p = .161$), and marginally related to OCBO performance ($\beta = .081, p = .063$; overall model: $R^2 =$

.015, $F(4, 530) = 2.022, p = .090$). Neither being married nor being widowed was significantly related to any of the outcome variables.

The demographic variables with significant ANOVA, correlation, or regression results were used as control variables for the hierarchical regression analyses evaluating the applicable outcome variables (Table 3).

Hypotheses Testing

Hypothesis 1. *Engagement will be strongly predicted by factors under the control of the employee. Specifically, personality traits and intrinsic motivation will both be highly predictive of engagement. Of the big five personality traits, conscientiousness and extraversion will be the most predictive of engagement.*

Internal and dispositional factors were measured as potential predictors of engagement to understand how predictive internal traits really are. Hierarchical regression revealed that control variables, motivation, and personality traits together explained 11.7% of the variability in overall engagement ($F(9, 344) = 5.058, p < .01$). Of the three dimensions of engagement, vigor was much more strongly predicted by these internal traits than absorption or dedication. Specifically, control variables, personality traits, and motivation together explained 13.7% of the variability in vigor ($F(9, 360) = 6.349, p < .01$).

While these findings seem to lend support for prior research asserting that employee-controlled, dispositional traits are highly predictive of engagement, the relationships among individual traits and engagement cast doubt. Not one personality trait was independently related to engagement in this model, though task-oriented motivation was very strongly related ($\beta = .174, p < .01$). While

intrinsic motivation is certainly more internally-driven than externally-driven, it is considered a result of interplay between personal and environmental factors as opposed to resulting only from traits internal to the employee.

Based on these findings, it seemed possible that environmental conditions were more predictive of engagement than traits intrinsic to the employee. To begin to determine if this was the case, the sacrifice dimension of embeddedness, which measured an employee's feelings about their compensation, benefits, and other organizationally controlled factors, was added as an additional predictive level (Table 4). Results revealed that control variables, personality traits, motivation, and sacrifice together explained 20.4% of the variability in engagement, ($F(10, 327) = 8.367, p < .01$), and that by adding sacrifice as a predictor, the model explained 7.9% more of the variability in engagement ($\Delta R^2 = .079, p < .01$).

Further, while task-oriented motivation remained independently related to overall engagement ($\beta = .184, p < .01$), sacrifice was a stronger independent predictor of engagement ($\beta = .292, p < .01$). Together these findings suggest that both internal and external factors significantly predict engagement. However, it appears that contrary to the stated hypothesis, factors internal to the individual (e.g., personality traits) may not be strongly predictive of engagement, at least for this type of employee and industry. Further, factors external to the individual (e.g., the components of sacrifice) may be more predictive of engagement than internal factors.

Hypothesis 2. *Embeddedness will not be strongly predicted by factors under the control of the employee. Therefore, personality traits will not be related to, and intrinsic motivation will be only slightly related to, embeddedness.*

Contrary to prior research and to the stated hypothesis, embeddedness was significantly related to personality traits and intrinsic motivation (Table 5). Specifically, hierarchical regression with embeddedness as the outcome variable revealed that the control variable, personality traits, and motivation together explained 11.3% of the observed variability in overall embeddedness ($F(8, 342) = 5.469, p < .01$). Of the two dimensions of embeddedness, fit was more strongly predicted by these internal traits than sacrifice. Specifically, control variables, personality traits, and motivation together explained 14.4% of the observed variability in the fit dimension of embeddedness ($F(9, 360) = 6.755, p < .01$).

Surprisingly, the only independently significant relationships were found between personality traits and embeddedness, and not between motivation and embeddedness. The only significant independent predictors of embeddedness within the model were extraversion ($\beta = .128, p = .018$), agreeableness ($\beta = .131, p = .026$) and emotional stability ($\beta = .143, p = .017$). These findings directly contradict the stated hypothesis.

Hypothesis 3. *Both engagement and embeddedness will significantly predict task performance and organizational citizenship behaviors, though both will better predict task performance than organizational citizenship behaviors. Additionally, each of the performance measures will be better predicted by engagement than embeddedness.*

IRB performance. Hierarchical regression was conducted with IRB performance as the outcome variable, age and being single as the level 1 predictors (based on the demographic variables analyses described previously), embeddedness as the level 2 predictor, and engagement as the level 3 predictor (Table 6). Together the variables significantly predicted IRB performance ($R^2 = .033$, $F(4, 429) = 3.625$, $p = .006$). However, there was not a significant change in the variability in IRB performance that was explained by adding engagement as a predictor ($\Delta R^2 = .006$, $p = .112$). This finding does not support the hypothesis that IRB performance will be better predicted by engagement than embeddedness. Furthermore, the only independently predictive variables were the control variables (age: $\beta = -.098$, $p = .052$; single: $\beta = .100$, $p = .045$), suggesting that contrary to predictions, neither engagement nor embeddedness was predictive of IRB performance.

Additional regression analyses were conducted with the individual dimensions of embeddedness and engagement serving as the level 2 and level 3 predictors of IRB performance, respectively (Table 7). Similar to the results for the composite scores of engagement and embeddedness, while the overall model was significantly predictive of IRB performance ($R^2 = .042$, $F(7, 433) = 2.652$, $p = .011$), adding engagement to the model did not significantly increase the amount of variability in IRB performance that was explained by these predictors ($\Delta R^2 = .014$, $p = .096$). That being said, in addition to the control variables, the vigor dimension of engagement was independently predictive of IRB performance ($\beta = -.140$, $p = .035$). This suggests that while the overall model does not support

the hypothesis, perhaps engagement is a bit more predictive of IRB performance than embeddedness. However, this negative relationship between vigor and IRB performance is surprising and contradictory to prior research.

OCBI performance. Hierarchical regression was conducted with OCBI performance as the outcome variable, age and being separated as the level 1 predictors, embeddedness as the level 2 predictor, and engagement as the level 3 predictor (Table 8). Together the variables significantly predicted OCBI performance ($R^2 = .033$, $F(4, 430) = 3.639$, $p = .006$). However, there was not a significant change in the variability in OCBI performance that was explained by adding engagement as a predictor ($\Delta R^2 = .000$, $p = .882$). This finding does not support the hypothesis that OCBI performance will be better predicted by engagement than embeddedness. Furthermore, the only independently predictive variable was the control variable (age: $\beta = -.139$, $p = .004$), suggesting that neither engagement nor embeddedness is predictive of OCBI performance.

Additional regression analyses were conducted with the individual dimensions of embeddedness and engagement serving as the level 2 and level 3 predictors of OCBI performance, respectively (Table 9). While the overall model was significantly predictive of OCBI performance ($R^2 = .036$, $F(7, 427) = 2.265$, $p = .028$), adding engagement to the model did not significantly increase the amount of variability in OCBI performance that was explained by the predictors ($\Delta R^2 = .002$, $p = .818$). Further, none of the individual dimensions (aside from age ($\beta = -.143$, $p = .003$)) were independently predictive, suggesting again that neither engagement nor embeddedness is predictive of OCBI performance.

OCBO performance. Hierarchical regression was conducted with OCBO performance as the outcome variable, gender and being divorced as the level 1 predictors, embeddedness as the level 2 predictor, and engagement as the level 3 predictor (Table 10). Together the variables significantly predicted OCBO performance ($R^2 = .055$, $F(4, 399) = 5.762$, $p < .01$). However, there was not a significant change in the variability in OCBO performance that was explained by adding engagement as a predictor ($\Delta R^2 = .000$, $p = .795$). This finding does not support the hypothesis that OCBO performance will be better predicted by engagement than embeddedness. Furthermore, the only independently predictive variables were the control variables (gender: $\beta = -.193$, $p < .01$; divorced: $\beta = .152$, $p = .002$), suggesting that neither engagement nor embeddedness is predictive of OCBO performance.

Additional regression analyses were conducted with the individual dimensions of embeddedness and engagement serving as the level 2 and level 3 predictors of OCBO performance, respectively (Table 11). Similar to the results for the composite scores of engagement and embeddedness, while the overall model was significantly predictive of OCBO performance ($R^2 = .057$, $F(7, 403) = 3.416$, $p = .001$), adding engagement to the model did not significantly increase the amount of variability in OCBO performance that was explained by these predictors ($\Delta R^2 = .002$, $p = .790$). Further, none of the individual dimensions (aside from the control variables of gender ($\beta = -.193$, $p < .01$) and being divorced ($\beta = .154$, $p = .002$)) were independently predictive, suggesting again that neither engagement nor embeddedness is predictive of OCBO performance.

Overall performance. Hierarchical regression was conducted with overall performance as the outcome variable, being separated as the level 1 predictor, embeddedness as the level 2 predictor, and engagement as the level 3 predictor (Table 12). Together the variables did not significantly predict overall performance ($R^2 = .014$, $F(3, 395) = 1.929$, $p = .124$) and there was not a significant change in the variability in overall performance that was explained by adding engagement as a predictor ($\Delta R^2 = .003$, $p = .298$). This finding does not support the hypothesis that overall performance will be better predicted by engagement than embeddedness. Furthermore, the only independently predictive variable was the control variable (being separated: $\beta = -.104$, $p = .039$), suggesting that neither engagement nor embeddedness is predictive of overall performance.

Additional regression analyses were conducted with the individual dimensions of embeddedness and engagement serving as the level 2 and level 3 predictors of overall performance, respectively (Table 13). Similar to the results for the composite scores of engagement and embeddedness, the overall model was not significantly predictive of overall performance ($R^2 = .016$, $F(6, 392) = 1.068$, $p = .381$), nor did adding engagement to the model significantly increase the amount of variability in overall performance that was explained by these predictors ($\Delta R^2 = .004$, $p = .635$). Further, none of the individual dimensions (aside from the control variable of being separated ($\beta = -.101$, $p = .045$)) were independently predictive, suggesting again that neither engagement nor embeddedness is predictive of overall performance.

In these results, neither engagement nor embeddedness was found to significantly predict any of the four types of performance. Potential reasons for the lack of relationships are presented in the discussion.

Hypothesis 4. *Both engagement and embeddedness will significantly predict both positive and negative affect at work, though both will be better predicted by engagement than embeddedness.*

Positive affect at work. Hierarchical regression was conducted with positive affect at work as the outcome variable, being single as the level 1 predictor, embeddedness as the level 2 predictor, and engagement as the level 3 predictor (Table 14). Together the variables significantly predicted positive affect at work ($R^2 = .222$, $F(3, 406) = 38.508$, $p < .01$). Further, there was a significant change in the variability in positive affect at work that was explained by adding engagement as a predictor ($\Delta R^2 = .087$, $p < .01$). Additionally, both embeddedness ($\beta = .221$, $p < .01$) and engagement ($\beta = .321$, $p < .01$) independently predicted positive affect at work. These findings support the hypothesis that positive affect is better predicted by engagement than embeddedness.

Additional regression analyses were conducted with the individual dimensions of embeddedness and engagement serving as the level 2 and level 3 predictors of positive affect at work, respectively (Table 15). Similar to the results for the composite scores of engagement and embeddedness, the overall model was significantly predictive of positive affect at work ($R^2 = .245$, $F(6, 403) = 21.836$, $p < .01$) and adding engagement to the model significantly increased the

amount of variability in positive affect at work that was explained by these predictors ($\Delta R^2 = .098, p < .01$). In addition to the control variables, the fit dimension of embeddedness ($\beta = .194, p = .002$), the vigor dimension of engagement ($\beta = .253, p < .01$), and the absorption dimension of engagement ($\beta = .143, p = .007$) were all independently predictive of positive affect at work. These findings lend additional support for the hypothesis.

Negative affect at work. Hierarchical regression was conducted with negative affect at work as the outcome variable, age, tenure, and being single as the level 1 predictors, embeddedness as the level 2 predictor, and engagement as the level 3 predictor (Table 16). Together the variables significantly predicted negative affect at work ($R^2 = .084, F(5, 367) = 6.753, p < .01$). Further, there was a significant change in the variability in negative affect at work that was explained by adding engagement as a predictor ($\Delta R^2 = .020, p = .004$). Additionally, both embeddedness ($\beta = -.108, p = .048$) and engagement ($\beta = -.157, p = .004$) independently predicted negative affect at work. These findings support the hypothesis that negative affect is better predicted by engagement than embeddedness.

Additional regression analyses were conducted with the individual dimensions of embeddedness and engagement serving as the level 2 and level 3 predictors of negative affect at work, respectively (Table 17). Similar to the results for the composite scores of engagement and embeddedness, the overall model was significantly predictive of negative affect at work ($R^2 = .116, F(8, 364) = 5.992, p < .01$) and adding engagement to the model significantly increased the

amount of variability in negative affect at work that was explained by these predictors ($\Delta R^2 = .048, p < .01$). Aside from the control variables, only the vigor dimension of engagement was independently predictive of negative affect at work ($\beta = -.256, p < .01$). These findings lend additional support for the hypothesis.

Affect at work as a potential moderator between engagement/embeddedness and performance. Because prior research has consistently shown performance to be an outcome variable of engagement and often embeddedness, it was surprising that this was not the case in this study. Engagement and embeddedness both strongly predicted positive and negative affect at work as outcome variables, so it seemed possible that for this specific employee type and industry type, affect at work may moderate the relationship between engagement or embeddedness and performance. To test this possibility, hierarchical regression analyses were performed on each of the four types of performance, using applicable control variables as level 1 predictors, either engagement or embeddedness and either positive or negative affect as level 2 predictors, and the appropriate interaction term between engagement or embeddedness and positive or negative affect as the level 3 predictor.

Results revealed that positive affect at work significantly moderated the relationships between embeddedness and OCBI performance (Figure 1), embeddedness and OCBO performance (Figure 2), and embeddedness and overall performance (Figure 3). Specifically, in the third steps of the regression analyses, the interaction term between embeddedness and positive affect at work explained a significant increase in variance in OCBI performance ($\Delta R^2 = .018, p = .007; R^2 =$

.054, $F(5, 382) = 4.386, p = .001$), OCBO performance ($\Delta R^2 = .018, p = .010; R^2 = .064, F(5, 355) = 4.822, p < .01$), and overall performance ($\Delta R^2 = .020, p = .008; R^2 = .037, F(4, 352) = 3.407, p = .009$). Further, the interaction term between embeddedness and positive affect at work was independently predictive of OCBI performance ($\beta = .137, p = .007$), OCBO performance ($\beta = .135, p = .010$), and overall performance ($\beta = .143, p = .009$).

Additionally, negative affect at work significantly moderated the relationship between embeddedness and overall performance ($R^2 = .043, F(4, 328) = 3.705, p = .006$), (Figure 4). Specifically, in the third step of the regression analysis, the interaction term between embeddedness and negative affect at work explained a significant increase in variance in overall performance ($\Delta R^2 = .012, p = .048$). Further, the interaction term between embeddedness and negative affect at work was independently predictive of overall performance ($\beta = -.110, p = .048$).

The interactions suggest that higher levels of embeddedness were related to higher levels of OCBI, OCBO, and overall performance, but only for employees high in positive affect. For employees low in positive affect, lower levels of embeddedness were related to higher levels of OCBI, OCBO, and overall performance. The interaction between negative affect and embeddedness on overall performance presented a similar, inverse relationship. Together these results suggest that embeddedness and performance are related but are moderated by affect at work, whereas engagement and performance remain unrelated.

Discussion

Purpose and Conclusions

The purpose of this study was to better understand the predictors and outcomes of engagement and embeddedness, and to determine if these relationships differed by type of employee and industry. Results suggest that this employee group is unique and that attempting to study various types of employees and industries at once, as has been done in most prior research, is likely to generate confused results. Results suggest that there are unique predictors and outcomes of engagement and embeddedness for this employee and industry type, and that different measures of various constructs should perhaps be developed and used.

Predictors of engagement. While personality traits and motivation together predicted engagement, they were the most predictive of the vigor dimension. However, no personality traits were independently predictive of engagement, which is contrary to prior research. Further, when the sacrifice element of embeddedness, which includes questions of compensation and benefits provided by the employer, was included as a predictor, the model explained significantly more variability in engagement. These findings together suggest that factors internal to the individual are not very predictive of engagement. Further, these findings suggest that engagement may be more under the control of factors provided by the employer than traits internal to the employee, though future research that deliberately measures and compares internal and external factors would be required to confirm this comparative statement. These findings support

some prior research and contradict other research. Future research should continue to investigate the factors most predictive of engagement, and how the impact of these factors may vary by employee and industry type.

Predictors of embeddedness. Personality traits and motivation predicted slightly more variability in embeddedness than in engagement, and predicted the most variability in the fit dimension of embeddedness. Unlike engagement, personality traits were significantly predictive of embeddedness. Extraversion, agreeableness, and emotional stability were all found to be predictive of embeddedness. Together these findings suggest that embeddedness is more determined by traits internal to and under the control of the employee than previously thought.

Affect as an outcome of engagement and embeddedness. Correlational data provided support for prior research suggesting that engagement and affect are distinct and separate constructs. Overall, positive affect and negative affect were significant outcomes of both engagement and embeddedness, which supported prior research. Further, engagement better predicted both positive and negative affect than embeddedness, which was consistent with prior research. It was surprising, however, that embeddedness was as strongly predictive as it was, given that it is not considered a particularly affective construct.

Performance as an outcome of engagement and embeddedness. Contrary to past research, results showed a complete lack of direct relationships between engagement or embeddedness and any of the four performance measures. While it is possible that the supervisor data collected was not completed honestly

or diligently and therefore lacked enough variability to find relationships, several demographic variables were significantly related to the various performance measures, which suggests that there was enough variability in the performance measures to detect relationships.

Despite the lack of direct relationships, results suggest that affect moderates the relationship between embeddedness and performance, with higher levels of embeddedness relating to organizational citizenship behaviors and overall performance for employees high in positive affect. This relationship suggests that embeddedness and OCB performance are more strongly related than embeddedness and task performance, which contradicts prior research. Additionally, the lack of any direct or moderated relationships between engagement and performance was contrary to previous work. Taken together, these results suggest that for this type of employee in this type of work, performance may not be strongly related to embeddedness or engagement.

Limitations

While this sample was very large ($N = 665$), this study had several limitations. This study was dependent on self-report data from the employees, and was collected at a single time rather than longitudinally. Additionally, in some cases, the measures used were unsuitable (e.g., the links dimension of embeddedness). Also, in the interest of minimizing participant fatigue, a few measures that would have been ideal to study were not included.

The fact that all the data came from a single industry should not be considered a limitation, as the data suggests that generalizing across industries on

these constructs is not ideal. However, the fact that the data came from a single employer may be a limitation. It is possible that this organization is unique and therefore the results cannot generalize to similar lines of work. However, because the work is very similar to other unskilled, production line, manufacturing work, the findings are likely to apply to similar organizations.

Future Research Directions

Results suggest that unskilled, production line laborers have a different experience of work than the types of employees generally studied in this area of research. Based on these results, developing measures for engagement, embeddedness, and performance that may be better suited for this type of employee could be valuable. Specifically, engagement seems to require a dimension more reflective of the impact of the employer, similar to the sacrifice dimension of embeddedness.

Additionally, the sacrifice dimension of embeddedness, which includes elements of compensation and benefits, does not seem to encompass all that should be measured as sacrifice for this type of employee. While community embeddedness has been proposed as a measure of the types of community ties that an employee would give up by leaving his or her job to relocate for another job, this construct does not address the missing measures. Instead, a dimension that is reflective of an employee's personal situation outside of work seems important to include. For this employee type and work setting in particular, it is possible that personal circumstances and responsibilities (e.g., providing for

family) are stronger reasons why an employee might remain at a specific organization than because he or she is a good fit for his or her work, for example.

Finally, the performance measures used did not produce as much variability as expected, and the anticipated relationships between engagement and performance, and embeddedness and performance, were not found. Because supervisors were asked to complete performance surveys for each of their employees, who totaled between 17 and 65 employees, it is possible that supervisors experienced fatigue and did not diligently complete the surveys for each individual employee. However, because there was enough variability to reveal relationships between demographic variables and performance, it seems that the measures themselves may be the issue.

In this line of work, if an employee remains in a supervisor's crew, it is safe to assume that the employee has not frequently been written up for arriving late, taking extra breaks, being lazy, or not doing their job because they would have been terminated. If an employee is still a member of a supervisor's crew, then the supervisor is likely to believe that the employee fulfills the measures of IRB performance well (e.g., they adequately perform their assigned duties). Further, as production line work, many of the OCBs measured may not be great measures of employees going above and beyond their job descriptions. For example, in this type of work, when an employee fails to show up to work, other employees on the production line are expected to fill in for a missing employee. This action, then, is less a reflection of an employee's OCBs and more a reflection of the employee's job description in this type of work setting.

Keeping these characteristics in mind, it seems that developing different performance measures for this type of employee working in this type of setting would be beneficial. For most job types studied in this area of research, there are a number of variables that determine performance and separate exemplary employees from mediocre employees. For this type of employee, however, fewer variables separate the good and bad performers. It seems that it would be worthwhile to incorporate performance measures that would better measure behaviors relevant to performance for employees of this type, the results of which would better separate the good and bad employees. In developing and using these new measures when appropriate and existing measures when appropriate, future research will better be able to confirm the predictors and outcomes of engagement and embeddedness for various types of employees and industries.

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Tables

Table 1
Descriptive Statistics for Study Variables

	Mean	Std. Deviation	N
Embeddedness	4.1958	.69221	543
Fit	4.4029	.67740	624
Sacrifice	4.0061	.82259	556
Engagement	5.4863	.74389	572
Vigor	5.6710	.79437	620
Absorption	5.1902	.94261	595
Dedication	5.6275	.92704	626
Positive affect at work	3.9821	.67535	504
Negative affect at work	1.4777	.52205	475
Motivation	.5208	.23765	480
Task-oriented motivation	.5783	.25688	535
Success-oriented motivation	.4222	.32479	554
Extraversion	7.7830	2.12468	530
Agreeableness	10.6752	3.61550	508
Conscientiousness	12.0992	2.40253	524
Emotional stability	11.1784	2.61294	527
Openness to new experiences	11.2655	2.66098	516
Overall performance	4.1330	.54533	537
OCBO performance	4.2534	.70612	548
OCBI performance	4.1385	.73771	597
IRB performance	4.0165	.50501	599

Table 2a
Correlations Between Performance Measures and Other Study Variables

	Overall performance	IRB performance	OCBI performance	OCBO performance
Embeddedness	-.024	.010	-.067	.032
Fit	-.004	.038	-.027	.038
Sacrifice	-.026	.020	-.073	.021
Engagement	-.020	-.049	.004	.001
Vigor	-.016	-.037	.008	-.011
Absorption	-.014	-.033	.002	.009
Dedication	-.027	-.057	-.009	-.009
Positive affect at work	-.016	-.062	.037	-.006
Negative affect at work	-.122*	-.111*	-.061	-.116*
Motivation	-.001	-.004	-.008	.026
Task-oriented motivation	-.035	-.050	-.040	.013
Success-oriented motivation	.040	.039	.028	.036
Extraversion	-.021	-.044	.044	-.041
Agreeableness	.063	.037	.083	.027
Conscientiousness	-.011	.039	-.049	.005
Emotional stability	-.001	.028	.013	-.007
Openness to new experiences	.043	.074	.059	.008

* $p < .05$, ** $p < .01$

Table 2b
Correlations Between Engagement Measures and Other Study Variables

	Engagement	Vigor	Absorption	Dedication
Embeddedness	.444**	.388**	.375**	.347**
Fit	.443**	.351**	.385**	.332**
Sacrifice	.372**	.329**	.307**	.309**
Positive affect at work	.378**	.404**	.317**	.257**
Negative affect at work	-.183**	-.215**	-.134**	-.102*
Motivation	.296**	.300**	.235**	.204**
Task-oriented motivation	.265**	.291**	.196**	.188**
Success-oriented motivation	.214**	.203**	.185**	.141**
Extraversion	.065	.047	.073	.042
Agreeableness	.039	.068	.020	.012
Conscientiousness	.115*	.177**	.106*	.024
Emotional stability	.138**	.155**	.093*	.110*
Openness to new experiences	.067	.122**	.033	.047
Overall performance	-.020	-.016	-.014	-.027
IRB performance	-.049	-.037	-.033	-.057
OCBI performance	.004	.008	.002	-.009
OCBO performance	.001	-.011	.009	-.009

* $p < .05$, ** $p < .01$

Table 2c
Correlations Between Embeddedness Measures and Other Study Variables

	Embeddedness	Fit	Sacrifice
Engagement	.444**	.443**	.372**
Vigor	.388**	.351**	.329**
Absorption	.375**	.385**	.307**
Dedication	.347**	.332**	.309**
Positive affect at work	.340**	.341**	.273**
Negative affect at work	-.161**	-.160**	-.143**
Motivation	.181**	.177**	.128**
Task-oriented motivation	.149**	.158**	.103*
Success-oriented motivation	.144*	.125**	.094*
Extraversion	.026	.042	-.010
Agreeableness	.096*	.078	.102*
Conscientiousness	.187**	.179**	.145**
Emotional stability	.210**	.252**	.148**
Openness to new experiences	.072	.129**	.019
Overall performance	-.024	-.004	-.026
IRB performance	.010	-.004	.020
OCBI performance	-.067	-.027	-.073
OCBO performance	.032	.038	.021

* $p < .05$, ** $p < .01$

Table 2d
Correlations Between Personality Measures and Other Study Variables

	Extraversion	Agreeableness	Conscientiousness	Emotional stability	Openness to new experiences
Embeddedness	.026	.096*	.187**	.210**	.072
Fit	.042	.078	.179**	.252**	.129**
Sacrifice	-.010	.102*	.145**	.148**	.019
Engagement	.065	.039	.115*	.138**	.067
Vigor	.047	.068	.177**	.155**	.122**
Absorption	.073	.020	.106*	.093*	.033
Dedication	.042	.012	.024	.110*	.047
Positive affect at work	.121**	.044	.258**	.185**	.193**
Negative affect at work	.017	-.187**	-.320**	-.308**	-.126**
Motivation	.131**	.115*	.284**	.162**	.305**
Task-oriented motivation	.097*	.127**	.319**	-.174**	.261**
Success-oriented motivation	.108*	-.042	.138**	.075	.248**
Overall performance	-.021	.063	-.011	-.001	.043
IRB performance	-.044	.037	.039	-.028	.074
OCBI performance	.044	.083	-.049	.013	.059
OCBO performance	-.041	.027	.005	-.007	.008

* $p < .05$, ** $p < .01$

Table 2e
Correlations Between Affect at Work and Other Study Variables

	Positive affect at work	Negative affect at work
Embeddedness	.340**	-.161**
Fit	.341**	-.160**
Sacrifice	.273**	-.143**
Engagement	.378**	-.183**
Vigor	.404**	-.215**
Absorption	.317**	-.134**
Dedication	.257**	-.102*
Motivation	.277**	-.324**
Task-oriented motivation	.278**	-.310**
Success-oriented motivation	.182**	-.171**
Extraversion	.121**	.017
Agreeableness	.044	-.187**
Conscientiousness	.258**	-.320**
Emotional stability	.185**	-.308**
Openness to new experiences	.193**	-.126**
Overall performance	-.016	-.122*
IRB performance	-.062	-.111*
OCBI performance	.037	-.061
OCBO performance	-.006	-.116*

* $p < .05$, ** $p < .01$

Table 2f
Correlations Between Motivation Measures and Other Study Variables

	Overall motivation	Task-oriented motivation	Success-oriented motivation
Embeddedness	.181**	.149**	.144**
Fit	.177**	.158**	.125**
Sacrifice	.128**	.103*	.094*
Engagement	.296**	.265**	.214**
Vigor	.300**	.291**	.203**
Absorption	.235**	.196**	.185**
Dedication	.204**	.188**	.141**
Positive affect at work	.277**	.278**	.182**
Negative affect at work	-.324**	-.310**	-.171**
Extraversion	.131**	.097*	.108*
Agreeableness	.115*	.127**	-.042
Conscientiousness	.284**	.319**	.138**
Emotional stability	.162**	.174**	.075
Openness to new experiences	.305**	.261**	.248**
Overall performance	-.001	-.035	.040
IRB performance	-.004	-.050	.039
OCBI performance	-.008	-.040	.028
OCBO performance	.026	.013	.036

* $p < .05$, ** $p < .01$

Table 3
Demographic Variables to be used as Controls for Analyses of Outcome Variables

	Engagement	Absorption	Vigor	Dedication	Embeddedness	Fit	Sacrifice	Overall perf.	IRB	OCBI	OCBO	Pos. affect	Neg. affect
Gender	X	X									X		
Age	X	X	X	X	X	X	X		X	X			X
Tenure													X
Has kids				X									
Single									X			X	X
Married													
Divorced			X			X					X		
Separated								X		X			
Widowed													

Table 4

Summary of Hierarchical Regression Model with Personality, Motivation, and Sacrifice as Predictors of Engagement

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Age	.077	.003	.118*
Gender	.062	.079	.043
Step 2			
Age	.006	.003	.100
Gender	.059	.076	.041
Task-oriented motivation	.547	.164	.202**
Success-oriented motivation	.218	.123	.102
Extraversion	.034	.020	.097
Agreeableness	-.009	.017	-.032
Conscientiousness	.025	.018	.085
Emotional stability	.026	.017	.094
Openness to experience	-.014	.016	-.050
Step 3			
Age	.005	.003	.081
Gender	.054	.073	.038
Task-oriented motivation	.500	.157	.184**
Success-oriented motivation	.176	.118	.083
Extraversion	.025	.019	.070
Agreeableness	-.016	.016	-.057
Conscientiousness	.018	.017	.060
Emotional stability	.017	.016	.061
Openness to experience	-.004	.015	-.016
Sacrifice	.241	.042	.292**

$R^2 = .018$ for Step 1; $\Delta R^2 = .106^{**}$ for Step 2; $\Delta R^2 = .079^{**}$ for Step 3. * $p < .05$ ** $p < .01$

Table 5

Summary of Hierarchical Regression Model with Personality and Motivation as Predictors of Embeddedness

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Age	.005	.003	.091
Step 2			
Age	.004	.003	.063
Extraversion	.046	.019	.128*
Agreeableness	.037	.017	.131*
Conscientiousness	.026	.018	.083
Emotional Stability	.041	.017	.143*
Openness to Experience	-.019	.016	-.066
Task-oriented Motivation	.272	.167	.097
Success-oriented Motivation	.155	.125	.071

$R^2 = .008$ for Step 1; $\Delta R^2 = .105^{**}$ for Step 2. * $p < .05$ ** $p < .01$

Table 6

Summary of Hierarchical Regression Model with Engagement and Embeddedness as Predictors of IRB Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Single	.150	.074	.101*
Age	-.004	.002	-.101*
Step 2			
Single	.150	.074	.101*
Age	-.004	.002	-.105*
Embeddedness	.017	.035	.024
Step 3			
Single	.149	.074	.100*
Age	-.004	.002	-.098*
Embeddedness	.042	.038	.057
Engagement	-.061	.038	-.083

$R^2 = .026$ for Step 1; $\Delta R^2 = .001$ for Step 2; $\Delta R^2 = .006$ for Step 3. * $p < .05$ ** $p < .01$

Table 7

Summary of Hierarchical Regression Model with Dimensions of Engagement and Embeddedness as Predictors of IRB Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Single	.150	.074	.101*
Age	-.004	.002	-.101*
Step 2			
Single	.150	.074	.100*
Age	-.004	.002	-.105*
Fit	-.010	.048	-.014
Sacrifice	.024	.040	.039
Step 3			
Single	.157	.074	.105*
Age	-.004	.002	-.105*
Fit	.009	.050	.013
Sacrifice	.033	.040	.053
Absorption	.036	.035	.064
Vigor	-.114	.054	-.140*
Dedication	-.013	.032	-.025

$R^2 = .026$ for Step 1; $\Delta R^2 = .001$ for Step 2; $\Delta R^2 = .014$ for Step 3. * $p < .05$ ** $p < .01$

Table 8

Summary of Hierarchical Regression Model with Engagement and Embeddedness as Predictors of OCBI Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Age	-.009	.003	-.147**
Separated	-.276	.166	-.079
Step 2			
Age	-.008	.003	-.139**
Separated	-.268	.165	-.077
Embeddedness	-.064	.050	-.061
Step 3			
Age	-.008	.003	-.139**
Separated	-.270	.166	-.077
Embeddedness	-.060	.054	-.058
Engagement	-.008	.055	-.008

$R^2 = .029$ for Step 1; $\Delta R^2 = .004$ for Step 2; $\Delta R^2 = .000$ for Step 3. * $p < .05$ ** $p < .01$

Table 9

Summary of Hierarchical Regression Model with Dimensions of Engagement and Embeddedness as Predictors of OCBI Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Age	-.009	.003	-.147**
Separated	-.276	.166	-.079
Step 2			
Age	-.008	.003	-.140**
Separated	-.267	.166	-.076
Fit	.010	.068	.010
Sacrifice	-.066	.057	-.076
Step 3			
Age	-.009	.003	-.143**
Separated	-.259	.167	-.074
Fit	.016	.071	.015
Sacrifice	-.063	.057	-.072
Absorption	.028	.050	.035
Vigor	-.073	.077	-.063
Dedication	.008	.045	.011

$R^2 = .029$ for Step 1; $\Delta R^2 = .005$ for Step 2; $\Delta R^2 = .002$ for Step 3. * $p < .05$ ** $p < .01$

Table 10

Summary of Hierarchical Regression Model with Engagement and Embeddedness as Predictors of OCBO Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Gender	-.280	.072	-.190**
Divorced	.554	.182	.149**
Step 2			
Gender	-.285	.072	-.194**
Divorced	.562	.182	.151**
Embeddedness	.050	.050	.049
Step 3			
Gender	-.284	.072	-.193**
Divorced	.563	.182	.152**
Embeddedness	.056	.055	.055
Engagement	-.014	.054	-.014

$R^2 = .052$ for Step 1; $\Delta R^2 = .002$ for Step 2; $\Delta R^2 = .000$ for Step 3. * $p < .05$ ** $p < .01$

Table 11

Summary of Hierarchical Regression Model with Dimensions of Engagement and Embeddedness as Predictors of OCBO Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Gender	-.280	.072	-.190**
Divorced	.554	.182	.149**
Step 2			
Gender	-.285	.072	-.194**
Divorced	.562	.182	.151**
Fit	.024	.068	.024
Sacrifice	.026	.058	.030
Step 3			
Gender	-.283	.073	-.193**
Divorced	.574	.183	.154**
Fit	.025	.072	.024
Sacrifice	.029	.058	.034
Absorption	.036	.047	.048
Vigor	-.024	.073	-.022
Dedication	-.031	.046	-.042

$R^2 = .052$ for Step 1; $\Delta R^2 = .002$ for Step 2; $\Delta R^2 = .002$ for Step 3. * $p < .05$ ** $p < .01$

Table 12

Summary of Hierarchical Regression Model with Engagement and Embeddedness as Predictors of Overall Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Separated	-.262	.128	-.102*
Step 2			
Separated	-.259	.128	-.101*
Embeddedness	-.027	.038	-.036
Step 3			
Separated	-.266	.128	-.104*
Embeddedness	-.009	.042	-.012
Engagement	-.043	.041	-.057

$R^2 = .010$ for Step 1; $\Delta R^2 = .001$ for Step 2; $\Delta R^2 = .003$ for Step 3. * $p < .05$ ** $p < .01$

Table 13

Summary of Hierarchical Regression Model with Dimensions of Engagement and Embeddedness as Predictors of Overall Performance

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Separated	-.262	.128	-.102*
Step 2			
Separated	-.259	.128	-.101*
Fit	-.006	.052	-.008
Sacrifice	-.020	.045	-.030
Step 3			
Separated	-.259	.129	-.101*
Fit	.009	.055	.012
Sacrifice	-.015	.045	-.023
Absorption	.009	.036	.015
Vigor	-.042	.056	-.052
Dedication	-.019	.035	-.034

$R^2 = .010$ for Step 1; $\Delta R^2 = .001$ for Step 2; $\Delta R^2 = .004$ for Step 3. * $p < .05$ ** $p < .01$

Table 14

Summary of Hierarchical Regression Model with Engagement and Embeddedness as Predictors of Positive Affect at Work

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Single	.214	.088	.120*
Step 2			
Single	.244	.082	.137**
Embeddedness	.308	.041	.348**
Step 3			
Single	.269	.078	.151**
Embeddedness	.195	.042	.221**
Engagement	.291	.043	.321**

$R^2 = .014$ for Step 1; $\Delta R^2 = .121^{**}$ for Step 2; $\Delta R^2 = .087^{**}$ for Step 3. * $p < .05$ ** $p < .01$

Table 15

Summary of Hierarchical Regression Model with Dimensions of Engagement and Embeddedness as Predictors of Positive Affect at Work

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Single	.214	.088	.120*
Step 2			
Single	.239	.082	.134**
Fit	.281	.057	.318**
Sacrifice	.047	.049	.062
Step 3			
Single	.250	.078	.140**
Fit	.171	.056	.194**
Sacrifice	.029	.046	.038
Absorption	.097	.036	.143**
Vigor	.251	.057	.253**
Dedication	-.005	.034	-.008

$R^2 = .014$ for Step 1; $\Delta R^2 = .133^{**}$ for Step 2; $\Delta R^2 = .098^{**}$ for Step 3. * $p < .05$ ** $p < .01$

Table 16

Summary of Hierarchical Regression Model with Engagement and Embeddedness as Predictors of Negative Affect at Work

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Single	.096	.083	.062
Tenure	.023	.007	.162**
Age	-.005	.002	-.115*
Step 2			
Single	.090	.082	.058
Tenure	.023	.007	.163**
Age	-.004	.002	-.099
Embeddedness	-.125	.038	-.169**
Step 3			
Single	.088	.081	.057
Tenure	.022	.007	.156**
Age	-.004	.002	-.081
Embeddedness	-.080	.040	-.108*
Engagement	-.120	.042	-.157**

$R^2 = .035$ for Step 1; $\Delta R^2 = .028^{**}$ for Step 2; $\Delta R^2 = .020^{**}$ for Step 3. * $p < .05$ ** $p < .01$

Table 17

Summary of Hierarchical Regression Model with Dimensions of Engagement and Embeddedness as Predictors of Negative Affect at Work

Variable	<i>B</i>	<i>SE B</i>	β
Step 1			
Single	.096	.083	.062
Tenure	.023	.007	.162**
Age	-.005	.002	-.115*
Step 2			
Single	.096	.082	.058
Tenure	.023	.007	.162**
Age	-.005	.002	-.102
Fit	-.126	.051	-.172*
Sacrifice	-.009	.045	-.014
Step 3			
Single	.100	.080	.064
Tenure	.021	.007	.150**
Age	-.004	.002	-.102
Fit	-.072	.052	-.098
Sacrifice	.000	.044	.000
Absorption	-.019	.037	-.032
Vigor	-.220	.057	-.256**
Dedication	.050	.032	.095

$R^2 = .035$ for Step 1; $\Delta R^2 = .033^{**}$ for Step 2; $\Delta R^2 = .048^{**}$ for Step 3. * $p < .05$ ** $p < .01$

Figures

Figure 1

Impact of Interaction Between Embeddedness and Positive Affect on OCBI Performance

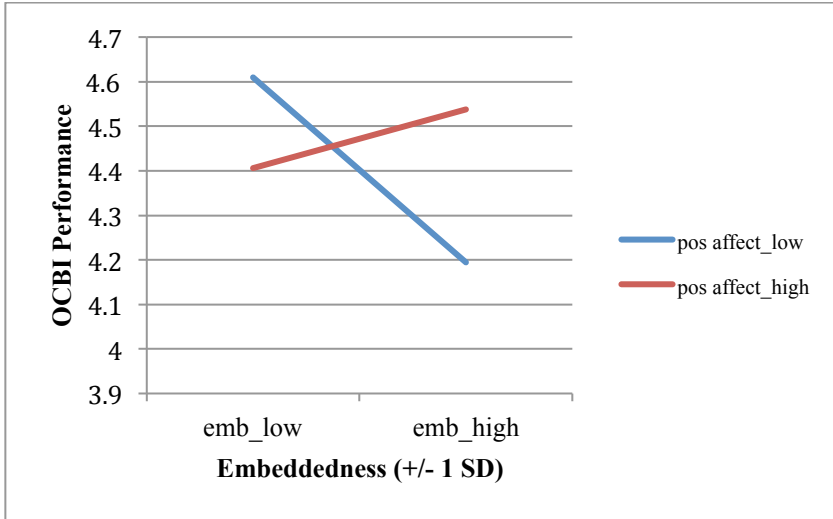


Figure 2

Impact of Interaction Between Embeddedness and Positive Affect on OCBO Performance

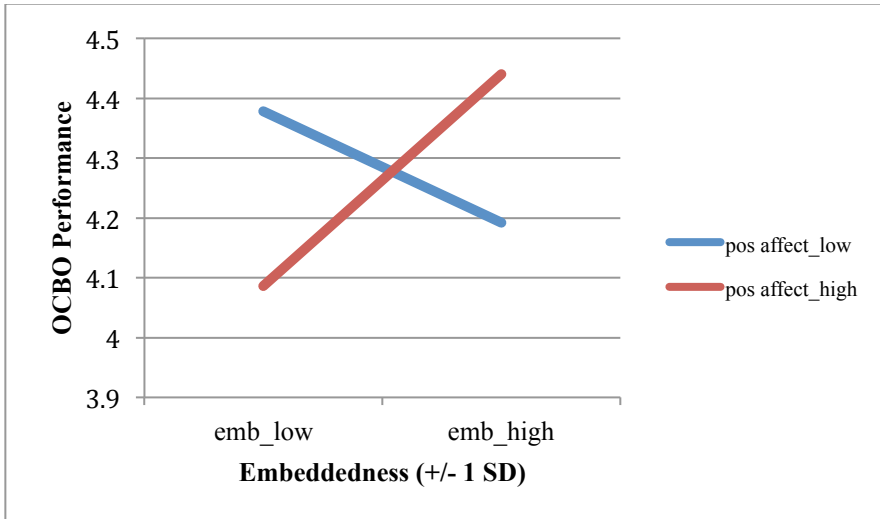


Figure 3

Impact of Interaction Between Embeddedness and Positive Affect on Overall Performance

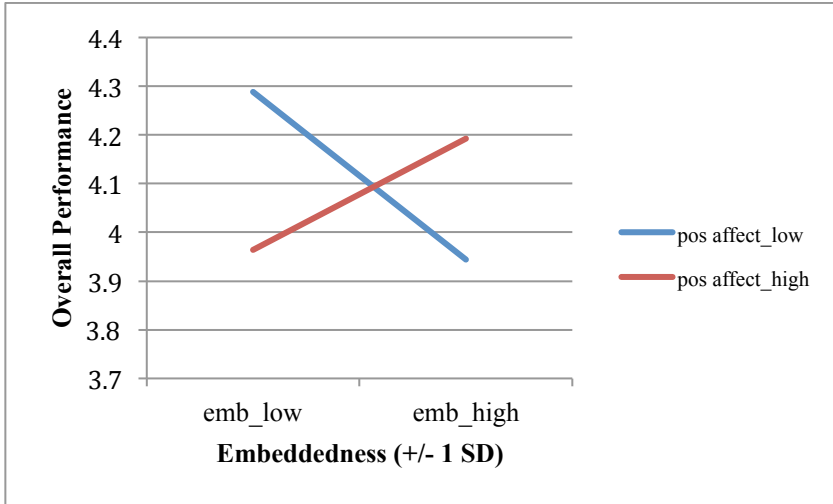
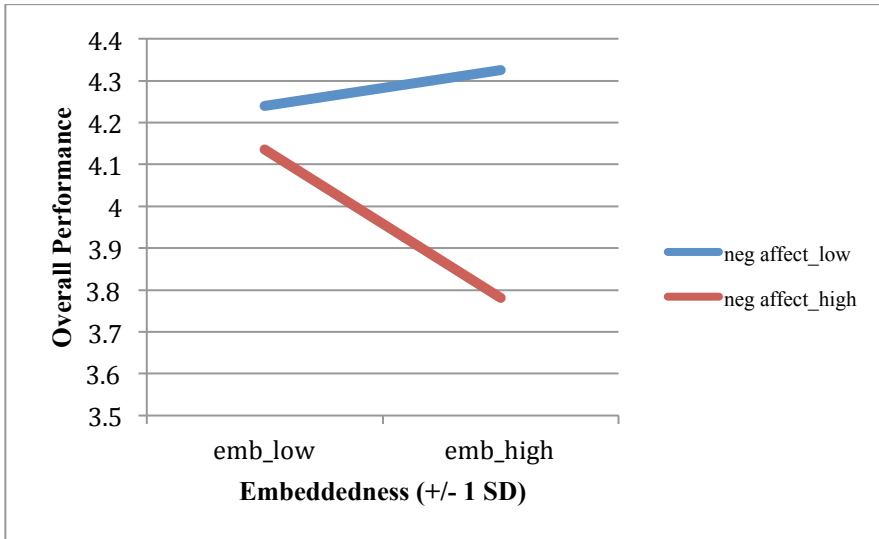
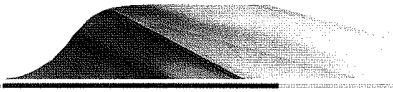


Figure 4

Impact of Interaction Between Embeddedness and Negative Affect on Overall Performance



APPENDIX A
INSTITUTIONAL REVIEW BOARD APPROVAL



To: Matt Newman
FACULTY/AD

fr **From:** Mark Roosa, Chair *SM*
Soc Beh IRB

Date: 11/05/2010

Committee Action: Expedited Approval

Approval Date: 11/04/2010

Review Type: Expedited F7

IRB Protocol #: 1010005663

Study Title: Predicting Job Performance in Manual Laborers in the Agricultural History: The Relative roles of Engagement, Embeddedness, and Internal and External Motivational Factors

Expiration Date: 11/03/2011

The above-referenced protocol was approved following expedited review by the Institutional Review Board.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date. You may not continue any research activity beyond the expiration date without approval by the Institutional Review Board.

Adverse Reactions: If any untoward incidents or severe reactions should develop as a result of this study, you are required to notify the Soc Beh IRB immediately. If necessary a member of the IRB will be assigned to look into the matter. If the problem is serious, approval may be withdrawn pending IRB review.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, or the investigators, please communicate your requested changes to the Soc Beh IRB. The new procedure is not to be initiated until the IRB approval has been given.

Please retain a copy of this letter with your approved protocol.