

## **Sources of Motivation and Work Engagement: A Cross-Industry Analysis of Differentiated Profiles**

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*This cross-industry study tested four theoretical propositions derived from a meta-theory of motivation. Multidimensional assessment utilized to deconstruct five self-based sources of motivation predicted engagement among employees in two disparate industries. Significant differences emerged on four of five motivational sources, and predicted levels of engagement among educators and manufacturing employees. Covariate analysis explored the impact of gender, educational attainment and industry tenure as moderating factors. Dominant source analysis was introduced as an alternative approach to exploring workers' dispositional sources of motivation. Results substantiate the predictive utility of differential motivational profiles and the stability of motivational sources over years of tenure.*

### **INTRODUCTION**

Motivation and engagement have long captivated the attention of leadership scholars and human resource managers because of the tangible implications each affords for increasing productivity in the workplace (Pinder, 2008). Clarifying the relationship between these affective dimensions of workers' psychosocial experience holds particular interest because of the potential to impact the quality and quantity of products and services generated. A recent industry-wide study conducted by the American Society for Training and Development (ASTD) concluded "employee engagement is one of the most important workplace issues of the day" (ASTD, 2008, p. 4), while results of a Gallup survey estimated American companies lose \$250-\$350 billion annually due to disengaged employees (Attridge, 2009). There is wide spread agreement that "engaged workers contribute to their employers in many ways, all of which support organizational effectiveness and long-term success" (ASTD, 2008, p.4).

While various theories have been advanced to account for situational variations in worker motivation (Latham, 2012; Latham & Pinder, 2005), little is known about how dispositional differences in motivation impact work engagement across different types of industries (Boswell, Colvin & Darnold, 2008; Ryan, 2014). As a result human resource professionals have limited knowledge to inform their efforts to attract and retain workers best suited to particular work environments, and to provide employees with industry-specific motivational incentives that foster high levels of work engagement. We address this gap in cross-industry research by conducting a comparative analysis of motivational sources, exploring moderating factors and testing theoretical tenets derived from a meta-theory of motivation. Dominant source analysis

is introduced as an alternative approach to exploring covariate differences among workers' dispositional sources of motivation.

This study continues a line of research initiated two decades ago by Leonard, Beauvais & Scholl, (1999), who articulated of a dispositional, self-based theory of work-related sources of motivation that was subsequently operationalized by Barbuto and Scholl (1998), and Ryan (2011). Building on the pioneering work of Ryan (2014) who recently documented the distinctive motivational profile of research scientists, a comparative study was conducted to examine differences in sources of motivation and engagement among employees in two different industries. A multidimensional measure was utilized to deconstruct motivation into five constituent facets, each representing a different source of motivational impetus (Leonard, Beauvais & Scholl, 1999). This measure was selected because of its potential to yield a distinct motivational profile of workers in each industry, providing clues into the dispositional differences that may account for levels of engagement in disparate organizational settings. The results point to the possibility that different motivational profiles tied to industry may account for employee engagement based on individual-organization fit (Foster, 2013). Such findings, if replicated and extended to other contexts, could lead to the creation of a taxonomy of motivational differences across industries to inform human resource practices respecting the recruitment and retention of an engaged workforce.

## **THEORETICAL FRAMEWORK**

### **Motivation**

Leonard, Beauvais & Scholl (1999) proposed an integrated meta-theory of work-related motivation that offers a fuller explanation for variations in organizational behavior compared to traditional models emphasizing the exchange of incentives and rewards for employee contributions and commitment. According to Leonard, *et al.* (1999), employees derive motivational impetus from five independent self-based sources, and differ in the amount of motivation derived from each. Theoretically, such differences dictate the types of activities and experiences individuals find most gratifying, and account for why employees respond differently to environmental stimuli and incentives in the workplace. We argue these unique motivational profiles may additionally explain why individuals gravitate to particular occupational pursuits, and achieve higher levels of organizational commitment and engagement in those contexts.

Leonard, *et al.* (1999) differentiate five self-based sources of work-related motivation: intrinsic process motivation, extrinsic/instrumental motivation, external self-concept motivation, internal self-concept motivation, and goal internalization motivation. Theoretically, employees derive a portion of their overall motivational impulse from each of these motivational sources. Yet according to Leonard, *et al.* (1999), within each individual's unique motivational profile "there is a dominant source of motivation that acts as a focus or lens by which they make decisions and channel behavior [and] when two or more sources of motivation within an individual conflict, the dominant source will prevail" (p. 988). Leonard, *et al.* (1999), provide the following conceptual definitions for the five sources of work-related motivation delineated in their meta-theory:

- *Intrinsic Process Motivation* – Individuals dominated by intrinsic process motivation will choose the task that is more enjoyable and the behavior will be sustained until the task is no longer enjoyable (p. 989).
- *Extrinsic/Instrumental Motivation* – Individuals dominated by extrinsic/instrumental motivation will engage in the task that provides the greatest potential for extrinsic rewards, and the behavior will be sustained as long as the likelihood of attaining those rewards remains (p. 989).
- *External Self-Concept Motivation* – Individuals dominated by external self-concept motivation will engage in tasks that provide them with affirmative social feedback relative to others, [and the] behavior will be sustained as long as relative, positive social feedback is forthcoming, and if affirming social feedback relative to others is not received, the behavior will end (p. 990).
- *Internal Self-Concept Motivation* – Individuals dominated by internal self-concept-based motivation will engage in tasks that provide them with affirmative task feedback, [and the]

behavior will be sustained as long as positive task feedback is forthcoming, and if affirming feedback is not received, the behavior will end (p. 990f).

- *Goal Internalization Motivation* – Individuals dominated by goal-internalization motivation will choose to engage in tasks that have the greatest potential of achieving the group's or organization's goal, [and the] behavior will be sustained as long as progress toward the goal continues (p. 991).

## Engagement

The concept of work engagement is a relatively recent incarnation of a long standing concern among scholars and practitioners in the field of organizational behavior (Saks, 2006; Shroni, Shkoler & Tziner, 2015) that many scholars consider to be merely “old wine in new bottles” (Pinder 2008, p. 302). Regardless, conceptual formulations of engagement have gained traction among organizational researchers, spawning assessment instruments and intervention strategies aimed at optimizing levels of engagement in various types of organizations (Drake, 2012; Macey, Schneider, Barbera & Young, 2009). Recent studies have begun to quantify the benefits and pitfalls of fostering or hindering employee engagement in organizations (Schaufeli, Leiter & Maslach, 2009), and to explore relevant antecedents and consequences (Saks, 2006) of worker engagement or disengagement.

While various perspectives have been advanced, for purposes of organizational research, engagement has been defined as “a persistent, positive, affective-motivational state of fulfillment that is characterized by vigor, dedication and absorption” (Maslach, Schaufeli & Leiter, 2001, p. 417); “the extent to which employees are involved with, committed to, and enthusiastic and passionate about their work” (Macey & Schneider, 2008); and “the harnessing of organizational members’ selves to their work roles” (Kahn, 1990, p. 694). As conceptual definitions have evolved to encompass positive emotions towards one's work, finding personal meaning, and having hope in the future of one's work, construct clarification studies have “confirm[ed] the separate identity of...work engagement” (Pinder, 2008, p. 303), differentiating it from job involvement and organizational commitment (Hallberg & Schaufeli, 2006), organizational involvement (Saks, 2006), and workaholism (Schaufeli, Taris & Bakker, 2006). Work engagement and workaholism have subsequently been shown to predict different levels of job satisfaction, job performance and turnover intention, with the former being more associated with having a promotion as opposed to a prevention focus (van Beek, Taris, Schaufeli & Brenninkmeijer, 2014).

## RESEARCH HYPOTHESES

Four hypotheses derived from theoretical propositions stated in Leonard, *et al.*'s (1999) meta-theory of motivation guided this cross-industry study of motivational sources and work engagement. The first two hypotheses extend from Proposition 2, which asserts “individuals can be characterized by motivational profiles which reflect the relative strength of each of the five sources” of motivation (p. 988). Based on this, Ryan (2014) demonstrated empirically that groups of individuals working in the same industry (research sector) present characteristically similar motivational profiles. Our study extends their work in two ways by comparing the motivational sources profiles of individuals working in two different industries and exploring the predictive utility of these differential profiles:

*Hypothesis 1:* Groups of individuals employed in different industries are characterized by different motivational profiles.

*Hypothesis 2:* Employees' differential motivational profiles can be used to predict levels of work engagement in two dissimilar industries (education and manufacturing).

Two additional propositions in Leonard, *et al.*'s (1999) meta-theory of motivation make assertions about the dominant source of motivation in an individual's motivational sources profile: “for every individual, there is a dominant source of motivation that acts as a focus or lens by which they make decisions and channel behavior” and “when two or more sources of motivation within an individual

conflict, the dominant one will prevail” (p. 988). The third and fourth hypotheses addressed in this study derive from these theoretical propositions.

*Hypothesis 3:* The motivational sources profiles of educators and manufacturing employees will be dominated by different sources of motivation.

*Hypothesis 4:* Employees’ dominant source of motivation will be the best predictor of work engagement among individuals working in different industries.

This study breaks new methodological ground by introducing dominant source analysis as a means of testing these two hypotheses, an approach not previously utilized by researchers studying dispositional sources of motivation.

## **METHODS**

Data were collected from employees of two organizations in Northwestern Pennsylvania: a rural public school district and a national tool manufacturer. In the public school district, the target population consisted of classroom teachers and instructional aides at all grade levels. At the manufacturing plant, laborers throughout the organization were targeted regardless of specialization. The sampling frame in each organization established a pool of respondents that was heterogeneous with respect to length of employment in the industry and other demographic factors. Employees were given two weeks to respond to the survey, with one reminder being sent after the first week.

### **Operationalizing Constructs**

#### *Motivation*

Sources of motivation were assessed using Ryan’s (2011) *Measure of Motivational Sources (MMS)*, a self-report instrument designed to operationalize Leonard, *et al.*’s (1999) meta-theory of work-related motivation. The *MMS* is comprised of twenty-eight (28) statements scored on a 7-point Likert scale ranging from “strongly disagree” to “strongly agree”, each loading on one of five sources of motivation. All subscales are constituted of six items except goal internalization which consists of four. Sample items for each subscale include: “The best aspects of any job are the financial rewards and associated financial benefits” (instrumental); “When I have done a good job it is important to me that my contribution is recognized by others” (external self-concept); “It is important that the work I do gives me a sense of enjoyment” (intrinsic process); “I like to do work that challenges me and gives me a sense of personal achievement” (internal self-concept); “It is important to me that the goals of the organization I work for are congruent with my personal goals” (goal internalization). The *MMS* instrument was selected for this study because it represents an improvement over the earlier *Motivational Sources Inventory (MSI)* (Barbuto & Scholl, 1998), correcting for issues of construct and face validity, while maintaining reliability across all five motivational sources scales (Ryan, 2010, 2011).

#### *Engagement*

Work engagement was assessed using the 9-item *Utrecht Work Engagement Scale (UWES)*, a self-report instrument that captures three underlying constructs: vigor, dedication and absorption (Schaufeli & Bakker, 2003). Vigor is characterized by “high levels of energy and mental resilience while working (Seppala, *et al.*, 2009, p. 460); dedication refers to “a sense of significance, enthusiasm, inspiration, pride and challenge” (Schaufeli, Salanova, Gonzaliz-Roma & Bakker, 2002, p. 74), and absorption reflects full concentration and being deeply engrossed in work, often characterized by difficulty detaching and the perception of time passing quickly (Seppala, *et al.*, 2009). The *UWES* yields a single composite score incorporating all three dimensions and has similar psychometric properties as the original 23-item version (Schaufeli, *et al.*, 2002; Schaufeli, *et al.*, 2006). Each item is rated on a 7-point Likert scale ranging from “never” to “always”. Sample items for each dimension include: “At work, I feel bursting with energy”

(vigor); “I am proud of the work that I do” (dedication); and “I am immersed in my work” (absorption) (Schaufeli and Bakker, 2003).

## RESULTS

### Descriptive Statistics

A combined total of 243 surveys were returned comprising a response rate of 30% for educators (156 of 528) and 31% for manufacturing employees (87 of 280). The overall gender breakdown of respondents was 58% female ( $n = 140$ ), 41% male ( $n = 99$ ), with the gender ratio among educators being 78% female, 22% male versus 22% female, 78% male among manufacturing employees. A similarly inverted profile emerged with respect to respondents’ level of education, with 87% ( $n = 136$ ) of educators holding at least a 4-year college degree, and 96% ( $n = 80$ ) of manufacturing employees reporting less than a 4-year college education.

With respect to tenure, both industries reflected a similar proportion of respondents in their first 10 years of employment (29% manufacturing, 31% school district), but a disproportionately large proportion of long term employees (21+ years) among manufacturing employees (44%) compared to educators (31%), and a larger proportion (37%) of mid-tenure employees (11-20 years) among educators (37%), compared to manufacturers (23%) (See Table 1). Interestingly, 25% of the manufacturing respondents reported a tenure of 31+ years in the industry compared to only 9.68% of respondents from education. Descriptive statistics were sufficiently representative of population distributions to justify further data analysis.

**TABLE 1**  
LENGTH OF TENURE IN INDUSTRY FOR EDUCATION VERSUS  
MANUFACTURING EMPLOYEES

	Education		Manufacturing	
	Frequency	Percent	Frequency	Percent
0-10 Years	49	31%	25	30%
11-20 Years	58	37%	20	24%
21-30+ Years	48	31%	38	46%
Total $n$	155 (1 missing)		83 (4 missing)	

### Reliability

Scale reliability indicators were calculated for the *UWES* and all subscales of the *MMS* using both the combined cross-industry dataset, as well as each industry subset independently. Cronbach’s alpha for all five dimension of the *MMS* achieved acceptably high levels of reliability, both in the aggregate and each industry-specific dataset, with several indicators exceeding those reported previously by Ryan (2011) (see Table 2). Similar computations for the *UWES* yielded equally high indicators of reliability for both the aggregate and industry-specific datasets. All measures were deemed sufficiently reliable for hypothesis testing to proceed.

**TABLE 2**  
**AGGREGATE AND INDUSTRY-SPECIFIC RELIABILITY INDICATORS FOR THE**  
**MEASURE OF MOTIVATIONAL SOURCES AND UTRECHT**  
**WORK ENGAGEMENT SCALES**

<i>Cronbach's Alpha:</i>	Aggregate	Educators	Manufacturers
Instrumental	.78	.82	.78
External Self-Concept	.71	.75	.74
Intrinsic Process	.73	.76	.78
Internal Self-Concept	.97	.87	.78
Goal Internalization	.88	.78	.78
Work Engagement	.94	.91	.94

**TABLE 3**  
**T-TESTS COMPARING INDUSTRY MEANS FOR SOURCES OF**  
**MOTIVATION AND WORK ENGAGEMENT**

	Education Industry Mean ( <i>n</i> = 156)	Education Industry Standard Deviation	Manufacturing Industry Mean ( <i>n</i> = 87)	Manufacturing Industry Standard Deviation	<i>t</i> -value ( <i>d.f.</i> = 241)
Instrumental Motivation	3.18	1.08	3.57	1.16	2.62**
External Self-Concept	3.87	1.05	4.10	1.10	1.62
Intrinsic Process	4.66	0.89	3.56	1.10	8.50***
Internal Self-Concept	6.08	0.70	2.51	0.86	35.02***
Goal Internalization Motivation	5.45	0.93	3.36	1.21	15.03***
Work Engagement	40.99	8.04	31.80	12.67	6.91***

\* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$

### **Comparative Industry Analysis**

Initial analysis focused on examining cross-industry differences. Following the approach employed by Ryan (2014), independent *t*-tests were computed to compare industry means for each of the five dispositional sources of motivation and work engagement. Reflecting the exploratory nature of the study, two-tailed tests of significance were employed after successfully testing for normality in both industry datasets. Significant differences were found for work engagement and four of the five motivational sources (see Table 3). One-way analysis of variance (ANOVA) comparing industry means for all motivational sources simultaneously confirmed these results.

Unique motivational sources profiles emerged for employees in these desperate industries, offering strong support for Hypothesis 1. Significant differences were noted on four of the five sources of motivation: instrumental motivation ( $t(241) = 2.62, p > .01$ ), intrinsic motivation ( $t(241) = -8.50, p > .001$ ), internal self-concept motivation ( $t(241) = -35.02, p > .001$ ), and goal internalization motivation ( $t(241) = -15.03, p > .001$ ). A similarly significant difference was observed on work engagement, with educators reporting higher levels than manufacturers ( $t(241) = 6.91, p > .001$ ). Overall, educators reported higher levels of engagement and were more motivated by intrinsic, internal self-concept and goal internalization motivation. Manufacturing employees, were significantly less engaged than educators, and were more instrumentally motivated. Similar levels of external self-concept motivation were reported for both industry groups.

### **Moderators of Motivation and Work Engagement by Industry**

Analysis of variance (ANOVA) was used to explore demographic factors that vary systematically with differences in motivational sources and levels of work engagement for each industry group, and the aggregate dataset combining scores of all respondents.

#### *Gender Effects*

In the aggregate dataset females reported significantly more intrinsic process motivation ( $F(1, 237) = 16.29, p > .001$ ), internal self-concept ( $F(1, 237) = 84.85, p > .001$ ) and goal internalization ( $F(1, 237) = 53.32, p > .001$ ), as well as higher levels of work engagement ( $F(1, 237) = 26.85, p > .001$ ). However, when data were disaggregated by industry, most gender differences dissipated: Female educators reported higher levels of external self-concept motivation ( $F(1, 154) = 4.82, p > .05$ ) but no significant difference in work engagement. Among manufacturing employees, females reported significantly higher levels of work engagement ( $F(1, 81) = 4.47, p > .05$ ), but no gender differences were observed on any sources of motivation. Only instrumental motivation showed no gender effects in either the aggregate or industry subgroups. Tests for an interaction between gender and work engagement relative to intrinsic process, internal self-concept and goal internalization, failed to reach significance ( $F(1, 243) = 2.77, p > .097, n.s.$ ). The small number of male educators and female manufacturing respondents in this study suggest caution interpreting these results.

#### *Educational Attainment*

Level of education yielded significant overall effects on four of the five sources of motivation as well as work engagement. Employees with less educational attainment scored higher on instrumental motivation ( $F(1, 238) = 8.2, p > .01$ ), while those with at least a 4-year college degree were more motivated by intrinsic motivation ( $F(1, 238) = 62.44, p > .001$ ), internal self-concept ( $F(1, 238) = 348.99, p > .001$ ), and goal internalization ( $F(1, 238) = 164.83, p > .001$ ) sources of motivation, and reported higher levels of work engagement ( $F(1, 238) = 25.44, p > .001$ ). No effect of education on external self-concept was observed in the aggregate dataset.

Among educators, greater educational attainment also predicted higher levels of instrumental motivation ( $F(1, 155) = 4.86, p > .05$ ), intrinsic process motivation ( $F(1, 155) = 5.22, p > .05$ ), internal self-concept ( $F(1, 155) = 4.99, p > .05$ ) and goal internalization ( $F(1, 155) = 4.88, p > .05$ ), but not external self-concept or work engagement ( $F(1, 154) = .109, p > .741, n.s.$ ). These results suggest that work engagement is a function of an individual's motivational profile, not their educational attainment,

and that a motivational sources profile reflecting higher levels of intrinsic, internal self-concept and goal internalization may be an antecedent of both work engagement and educational attainment. Among manufacturing employees, lower levels of education only predicted higher levels of goal internalization ( $F(1, 81) = 4.57, p > .05$ ), with no significant difference in other motivational sources or work engagement. The finding that educational attainment predicts work engagement across industry groups but not within the same industry, suggests these constructs may have been confounded in this dataset.

#### *Tenure in Industry*

Analysis of variance (ANOVA) for tenure in industry, using ten year increments, revealed a single significant effect for internal self-concept motivation ( $F(2, 235) = 3.22, p > .05$ ) in the aggregate dataset, with post hoc analysis pointing to higher levels among employees with 11-20 years' experience in their respective industry (Tukey's mean diff. = .737  $p > .033$ ). No significant differences in work engagement due to tenure were observed in the aggregate dataset. Disaggregating results by industry, no significant differences were observed among manufacturing employees in either motivational sources or work engagement due to length of tenure in the industry. Among educators, a significant tenure effect was observed for external self-concept motivation ( $F(2, 154) = 3.58, p > .05$ ), with post hoc analysis revealing higher levels among manufacturing employees in the first, as compared to the third decade of tenure in the industry (Tukey's mean diff. = .559,  $p > .023$ ). With this one exception, motivation and engagement in both industry groups were relatively stable across years of tenure. Taken together, these results suggest employees' motivational sources are distinct, but stable within disparate industry groups.

#### **Correlational Analysis**

The distinctive profiles (Hypothesis 1) and predictive utility (Hypothesis 2) of employees' differential motivational sources were further explored using correlational analysis. Separate correlation matrixes were produced for the aggregate data set, and each industry group, reflecting interrelationships among the five sources of motivation and work engagement.

#### *Sources of Motivation*

The aggregate correlation matrix revealed significant associations among all sources of motivation; only instrumental with intrinsic motivation, and external self-concept with internal self-concept motivation failed to reach significance (see Table 4).

TABLE 4  
AGGREGATE CORRELATION MATRIX FOR EDUCATORS AND MANUFACTURING  
EMPLOYEES SCORES COMBINED

Construct	Mean	S.D.	Instrumental	ExternalS-C	Intrinsic	InternalS-C	Goal	Engage
Instrumental	3.32	1.12	1					
External S-C	3.95	1.07	.308*	1				
Intrinsic	4.26	1.10	-.114	.197**	1			
Internal S-C	4.80	1.88	-.229***	-.006	.600***	1		
Goal	4.70	1.45	-.172**	.190**	.615***	.813***	1	
Engagement	37.70	10.86	-.129*	-.203**	.035	.277***	.174**	1

$N = 243$ ; \*  $p > .05$ ; \*\*  $p > .01$ ; \*\*\*  $p > .001$



All sources of motivation were significantly correlated with at least three other motivational source, with goal internalization being correlated with all four other motivational sources assessed by the *MMS*. Of the eight significant correlations among motivational sources in the aggregate data set, six were positive and two were negative. The only negative correlations included instrumental motivation, with both goal internalization ( $r = -.172, p > .01$ ) and internal self-concept ( $r = -.229, p > .001$ ). Goal internalization accounted for three of the positive correlations, with external self-concept ( $r = .190, p > .01$ ), intrinsic process ( $r = .615, p > .001$ ) and internal self-concept ( $r = .813, p > .001$ ). Two additional positive correlations included intrinsic process motivation, with internal self-concept ( $r = .600, p > .001$ ) and external self-concept ( $r = .197, p > .01$ ). The sixth positive correlation to attain significance in the aggregate dataset was between instrumental and external self-concept motivation ( $r = .308, p > .05$ ).

A number of shifts in the pattern and strength of correlations among sources of motivation were observed when data were disaggregated by industry groups (see Tables 5 & 6). All three positive correlations involving goal internalization were retained among both educators and manufacturing employees, when the data were disaggregated, but the negative correlation with instrumental motivation failed to gain significance for either industry group separately. The positive correlation between intrinsic motivation and internal self-concept remained highly significant among both educators ( $r = .484, p > .001$ ) and manufacturing employees ( $r = .414, p > .001$ ), as did the positive correlation between instrumental motivation and external self-concept for both educators ( $r = .312, p > .001$ ) and manufacturing employees ( $r = .272, p > .05$ ). By contrast, the positive correlation between external self-concept and intrinsic process motivation was retained among educators ( $r = .344, p > .001$ ), as was the negative correlation between internal self-concept and instrumental motivation ( $r = -.208, p > .01$ ), while both became non-significant among manufacturing employees.

One new significant, positive correlation between internal and external self-concept emerged when the data were disaggregated by industry, for both educators ( $r = .179, p > .05$ ) and manufacturing employees ( $r = .284, p > .001$ ). The correlation between instrumental and intrinsic process motivation remained non-significant for both groups when the data were disaggregated by industry. Together these findings provide strong support for Hypothesis 1, illustrating that individuals employed in different industries are characterized by different motivational profiles.

TABLE 5  
CORRELATIONAL MATRIX FOR EDUCATORS' MOTIVATIONAL SOURCES  
AND WORK ENGAGEMENT SCORES

Construct	Mean	S.D.	Instrumental	ExternalS-C	Intrinsic	InternalS-C	Goal	Engage
Instrumental	3.18	1.08	1					
External S-C	3.87	1.05	.312***	1				
Intrinsic	4.66	.89	.076	.344***	1			
Internal S-C	6.08	.70	-.208**	.179*	.484***	1		
Goal	5.45	.93	-.050	.361***	.456***	.634**	1	
Engagement	40.99	8.04	-.441***	-.185*	-.098	.086	-.058	1

$N = 156$ ; \*  $p > .05$ ; \*\*  $p > .01$ ; \*\*\*  $p > .001$

TABLE 6  
CORRELATION MATRIX FOR MANUFACTURERS' MOTIVATIONAL SOURCES AND  
WORK ENGAGEMENT SCORES

Construct	Mean	S.D.	Instrumental	ExternalS-C	Intrinsic	InternalS-C	Goal	Engage
Instrumental	3.57	1.16	1					
External S-C	4.10	1.10	.272*	1				
Intrinsic	3.56	1.10	-.196	.201	1			
Internal S-C	2.51	.86	-.196	.284**	.414***	1		
Goal Internal	3.36	1.21	-.117	.381***	.435***	.577***	1	
Engagement	31.80	12.67	.403***	-.171	-.264*	-.456***	-.203	1

*N* = 87; \*  $p > .05$ ; \*\*  $p > .01$ ; \*\*\*  $p > .001$

#### *Motivational Sources and Work Engagement*

The relationship between motivational sources and work engagement (Hypotheses 2) was examined using linear correlation analysis for both the aggregate and disaggregated datasets; significant relationships emerged from all three analyses. Four significant correlations emerged from the aggregate correlation matrix, two positive and two negative (see Table 4). Work engagement was positively correlated with both internal self-concept motivation ( $r = .277$ ;  $p > .001$ ) and goal internalization ( $r = .174$ ,  $p > .01$ ), and negatively correlated with instrumental ( $r = -.129$ ;  $p > .05$ ) and external self-concept motivation ( $r = -.203$ ;  $p > .01$ ). Only intrinsic process motivation was unrelated to work engagement in the combined industry matrix ( $r = .35$ ;  $p > .58$ , *n.s.*). In summary, work engagement in the cross-industry sample was associated with higher levels of internal self-concept motivation and goal internalization and lower levels of external self-concept and instrumental motivation.

Two significant correlations emerged for educators, both negative, where lower levels of engagement were associated with instrumental ( $r = -.441$ ,  $p > .001$ ) and external self-concept ( $r = -.185$ ,  $p > .05$ ) motivation (see Table 5). These associations were reversed or non-existent among manufacturing employees, for whom work engagement was positively correlated with instrumental motivation ( $r = .403$ ,  $p > .001$ ) and not significantly related to external self-concept motivation ( $r = -.171$ , *n.s.*) (see Table 6). Among manufacturing employees work engagement was also negatively correlated with both internal self-concept ( $r = -.456$ ,  $p > .001$ ) and intrinsic process motivation ( $r = -.264$ ,  $p > .05$ ). No significant relationships were observed between these two sources of motivation and work engagement among educators, between work motivation and external self-concept among manufacturing employees, or between goal internalization and work engagement for either disaggregated industry group.

To summarize the industry-specific associations between work engagement and the five sources of motivation: Instrumental motivation predicts engagement among both educators and manufacturing employees, but in opposite directions, with higher levels of instrumental motivation being associated with more engagement among manufacturing employees, and less engagement among educators. For educators, external self-concept motivation also predicts engagement, with lower levels being associated with more engagement. Intrinsic motivation and internal self-concept also predict engagement among manufacturing employees, with higher levels being associated with less engagement. Among the associations that failed to reach significance, intrinsic process and goal internalization were in the

negative direction among educators, while internal self-concept motivation was positive; among manufacturing employees, external self-concept motivation and goal internalization were in the negative direction but failed to reach significance. Taken together, these results support Hypothesis 2, that employees' differential motivational profiles predict levels of work engagement in dissimilar industries.

### **Regression Analyses**

The predictive utility of dispositional sources of motivation was further explored using simple linear regression with work engagement as the dependent variable. Analysis of the aggregate and industry-specific datasets yielded three separate models identifying the portion of variance attributable to each of the five sources of motivation and other moderators of work engagement. Multiple indicators of model fit were examined.

#### *Aggregate Regression Model*

The adjusted regression model for the aggregate dataset was significant, ( $F(5, 237) = 7.16, p > .001, R^2 = .13, R^2_{\text{adjusted}} = .11$ ). Significant predictors of work engagement included internal self-concept motivation ( $Beta = .364, t(237) = 3.24, p > .001$ ) and external self-concept motivation ( $Beta = -.168, t(237) = -2.43, p > .05$ ). Indicators of model fit were all within acceptable limits, including tests of collinearity, non-zero variances, normal distribution and the absence of outliers. Data met the assumption of independent residuals (Durbin-Watson value = 1.78), and the Normal P-P Plot revealed all data located on or in very close proximity to the regression line. The model indicates higher levels of internal self-concept motivation combined with lower levels of external self-concept motivation predict increased work engagement among employees overall, accounting for a small but significant amount of variance.

A second aggregate regression equation adding gender and level of educational attainment as predictors also attained significance, accounting for slightly more overall variance in work engagement ( $F(7, 231) = 6.90, p > .001, R^2 = .17, R^2_{\text{adjusted}} = .15$ ). Both gender ( $Beta = .221, t(231) = 3.14, p > .01$ ) and educational attainment ( $Beta = .193, t(231) = 2.05, p > .05$ ) emerged as significant predictors of work engagement in this model, along with external self-concept motivation ( $Beta = -.171, t(231) = -2.53, p > .05$ ). Internal self-concept motivation failed to attain significance when gender was included in the model ( $Beta = .097, t(231) = .707, p = .48, n.s.$ ), due to the large gender disparity reported previously. Fit indices were slightly less favorable, but still within the acceptable range (Durbin-Watson value = 1.82). According to this model, gender and educational attainment, along with external self-concept motivation contribute significantly to predicting variance in work engagement, with female employees and those less motivated by external self-concept, who had earned at least a four-year college degree being more engaged.

#### *Educators' Regression Model*

The regression model for educators alone was also significant ( $F(5, 150) = 7.84, p > .001, R^2 = .21, R^2_{\text{adjusted}} = .18$ ). While the model identified only a single significant predictor of work engagement, instrumental motivation ( $Beta = -.417, t(150) = -5.20, p > .001$ ), it accounted for a greater amount of variance in work engagement among educators (18%) than the aggregate model (11%). Adding age and educational attainment failed to identify additional predictors or account for more variance in work engagement. Fit indices for both models were equally acceptable (Durbin-Watson value = 1.98, Model 1; 1.96, Model 2), indicating lower levels of instrumental motivation predict greater work engagement among educators.

#### *Manufacturers' Regression Model*

The regression model for manufacturing employees was also significant. The model both identified more predictors and explained a larger percent of variance in work engagement than either the aggregate or educators' models ( $F(5, 81) = 9.34, p > .001, R^2 = .37, R^2_{\text{adjusted}} = .33$ ). Three significant predictors attained significance in this model: instrumental motivation ( $Beta = .408, t(81) = 4.18, p > .001$ ), internal self-concept ( $Beta = -.412, t(81) = -3.67, p > .001$ ) and external self-concept ( $Beta = -.227, t(81) = -2.20,$

$p > .05$ ), with high levels of instrumental motivation and low levels of self-concept and external self-concept motivation predicting greater engagement among manufacturing employees. A second model including gender and educational attainment neither improved model fit, nor identified additional predictors of work engagement ( $F(5, 81) = 6.71, p > .001, R^2 = .39, R^2_{\text{adjusted}} = .33$ ). Model fit parameters were acceptable for both models (Durbin-Watson value = 1.60, Model 1; 1.6, Model 2). Results of these regression analyses add confirmatory evidence in support of Hypothesis 2.

### **Dominant Source Analysis**

Leonard *et al.*'s (1999) theoretical proposition asserting employees base their work-related decisions on a single dominant source of motivation (rather than their entire motivational profile) (Hypothesis 3), was explored through comparative analysis of respondents' highest scoring motivational source. The 25 respondents who scored equally high on two motivational sources were omitted from this analysis, since a truly dominant source of motivation could not be determined for these participants. One-way ANOVA of the resulting aggregate dataset established significant differences in work engagement among employees possessing different dominant sources of motivation ( $F(4, 213) = 15.19, p > .001$ ).

Post hoc analysis using Tukey's HSD revealed work engagement was higher for individuals whose dominant source of motivation was instrumental, compared to individuals with dominant external self-concept ( $p > .002$ ) or intrinsic motivation ( $p > .014$ ), but not significantly different from those primarily motivated by internal self-concept ( $p > .935$ ) or goal internalization ( $p > .383$ ). Individuals with dominant external self-concept motivation were significantly more engaged than those whose dominant motivational source was either instrumental ( $p > .002$ ) or internal self-concept ( $p > .001$ ). Those with dominant intrinsic motivation differed significantly from those with either instrumental ( $p > .014$ ) or internal-self-concept motivation ( $p > .001$ ) as their dominant source, and those whose dominant motivational source was goal internalization differed significantly in terms of work engagement from those whose dominant source was internal self-concept ( $p > .005$ ). Employees with the highest level of engagement were those whose motivational profile was dominated by internal self-concept motivation; these individuals were significantly more engaged than those whose dominant source of motivation was external self-concept ( $p > .001$ ), intrinsic ( $p > .001$ ) or goal internalization ( $p > .005$ ).

Dominant source analysis of the disaggregated, industry-specific data shed additional light on the relationship between dispositional sources of motivation and work engagement. Among educators, all but one respondent had dominant internal self-concept or goal internalization motivation. After eliminating this single outlier, ANOVA revealed educators dominated by internal self-concept motivation were significantly more engaged than those primarily motivated by goal internalization ( $F(1, 136) = 5.87, p > .017$ ). Dominant sources of motivation were more diverse among manufacturing employees (only internal self-concept was not identified as dominant), and ANOVA revealed work engagement to be significantly different among those reporting different dominant sources ( $F(3, 75) = 3.60, p > .017$ ). Post hoc analysis revealed these differences to be attributable to employees whose dominant source of motivation was instrumental motivation being more engaged than those primarily motivated by external self-concept ( $p > .009$ ) or intrinsic motivation ( $p > .035$ ), but not more engaged than those with dominant goal internalization ( $p > .105$ ).

Together the results of dominant source analysis provide strong support for Hypotheses 3 and 4, reinforcing the theoretical proposition advanced by Leonard *et al.* (1999) that employees base their work related decisions on their dominant dispositional source of motivation. Educators and manufacturing employees' motivational profiles were found to be dominated by different motivational sources, and these dominant sources were the best predictors of work engagement among each respective employee group. Indeed, using respondents' highest rated source of motivation to predict work engagement yielded far less ambiguous results than correlational analysis reflecting all motivational sources for employees in each industry. Yet because participants in this study appear to have largely self-selected into organizations in which their dominant sources of motivation predisposed them toward being engaged, employees with other dominant sources of motivation were underrepresented, making it impossible to test the interaction of dominant motivational source and engagement with organization directly.

## DISCUSSION

All hypotheses in this cross-industry study were supported by the results, providing confirmatory evidence for two fundamental propositions of Leonard, *et al.*'s (1999) meta-theory of motivation, and demonstrating the predictive utility of motivational sources for employee-specific outcomes such as work engagement. Distinctive motivational sources profiles emerged for both manufacturing and educational employees that appear stable across years of tenure in each industry (Hypothesis 1). Significant differences were found on four of five sources of motivation among employees in educational versus manufacturing industries. Manufacturing employees reported higher levels of instrumental motivation, while educators reported higher levels of intrinsic process, internal self-concept and goal internalization motivation. No difference in extrinsic self-concept motivation was observed between workers in these two industries. These industry-specific motivational profiles are relatively stable across employees' tenure in their respective industries: Employees who had been working in an industry for only a short time reported similar sources of motivation and levels of engagement to those who reported longer tenures, irrespective of how long these respondents had been employed by the specific organizations surveyed.

The predictive utility of these differential motivational profiles was also substantiated with respect to levels of employee engagement in different types of organizations (Hypothesis 2). Correlational analysis revealed higher levels of employee engagement among educators were associated with more internal self-construct motivation and goal internalization and less instrumental and external self-construct motivation, while among manufacturing employees, higher engagement was associated with more instrumental motivation and less internal self-construct and intrinsic motivation. Together, these findings lend support to the proposition that employee engagement in the workplace is not universally linked to a particular source of motivation; rather, work engagement appears to be a function of industry-specific motivational factors. Notably, the predictive utility of these industry-specific associations were largely obscured when levels of motivation and engagement were examined in the aggregate. Yet the disaggregated data reveal that employee engagement is predicted by a unique profile of motivational sources, most likely dependent upon the particular characteristics and demands of the industry, not a single motivational source or ubiquitous motivational sources profile.

Using dominant source analysis, support was found for two additional hypotheses derived from Leonard, *et al.*'s (1999) meta-theory of motivation relating to employees' highest ranking source motivation. More distinct motivational profiles emerged for educators and manufacturing employees when dominant source analysis was introduced (Hypothesis 3): All educators except one were primarily motivated by either internal self-concept or goal internalization, with the overwhelming majority (80%) identifying the former as their dominant motivational source. Among manufacturing employees, more than half (70%) were primarily motivated by instrumental or external self-concept motivation, with the remaining 30% reporting intrinsic or goal internalization as their dominant source of motivation. The utility of dominant source analysis for predicting work engagement was also confirmed (Hypothesis 4). For both educators and manufacturing employees, dominant source of motivation predicted work engagement with less ambiguity than correlational analysis. Educators primarily motivated by internal self-concept and manufacturing employees dominated by instrumental motivation were significantly more engaged than employees in their respective industries whose dominant source of motivation was one of the other motivational sources profiled. These results support Leonard, *et al.*'s (1999) proposition that dominant motivational sources serve as the best predictors of work-related behavior.

Covariate analysis of moderating factors relating to gender, educational attainment and tenure working in the industry shed additional light on these overall findings regarding the effects of dispositional sources of motivation on work engagement. Female respondents were more engaged than males overall, and among manufacturing employees, although no gender effect emerged among educators. These data suggest gender affects engagement in some industries more than others, and that gender differences in motivation may be industry-specific. Educational attainment also emerged as a significant predictor of work engagement in the aggregate dataset, but this affect was entirely due to differences between the respective industries. The fact that educational attainment and industry were

confounded in this study raises additional questions about whether education is a mediating factor in the relationship between motivation and work engagement, or whether dispositional sources of motivation constitute causal factors independently affecting both educational attainment and employee engagement.

## LIMITATIONS AND FUTURE RESEARCH

The cross-sectional nature of this study, and the inclusion of only a single representative organization for each industry, create the possibility that results reflect organizational anomalies rather than ubiquitous differences between the industries studied. Similarly, it is possible participants interpreted items on the assessment instruments differently based on their employment context, reflecting such factors as organizational culture, industry norms or method of survey administration (paper versus online for manufactures and educators, respectively). These factors necessarily limit the generalizability of this research and dictate caution in extrapolating results. An expanded sample representing multiple organizations in each industry and greater geographic diversity, would strengthen confidence in reported findings; such studies are currently underway. Finally, it is worth noting that the relatively high levels of engagement reported by respondents in both populations prevented a full spectrum analysis of less engaged employees.

Although the cross-sectional nature of this research precludes drawing causal conclusions, coupled with the evidence that motivational sources were found to be relatively stable attributes, results suggest employees in this study have self-selected into work environments strongly aligned with their motivational preferences. Replication of this research (including dominant source analysis), sampling a larger number of representative organizations in each industry group, would provide more conclusive evidence for the stability and predictive utility of the differential, industry-specific motivational profiles documented in this study. Longitudinal analysis and factorial designs could help clarify the potential causal effects of motivational sources on educational attainment and other factors determining industry-related employment outcomes. Path analysis would be beneficial for illuminating the complex relationships among educational attainment, industry placement and work engagement.

Dispositional sources of motivation represent important antecedents of job engagement that should be studied in more detail, along with other attitudinal factors being investigated by organizational scholars (Sharoni, Shkoler & Tziner, 2015). Extending this line of research could provide insight into the mediating mechanisms underlying employee burnout (Simha, Huand, & Elloy 2015) and clarify the link between organizational fit and turnover intention (Foster, 2013; Memon, Salleh, Baharom, Harun, 2014) by identifying employees whose motivational sources align (or misalign) with industry-specific demands. We also expect the cross-industry study of motivational sources to inform leadership research by providing insight into the dynamics of leader-organization fit (Burns, Kotrba & Denison, 2013) and the genesis of motivation to lead (Kerns, 2015).

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