

Engagement, Identification, Belonging: A Model of Specialist Work Effectiveness

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Abstract: The work effectiveness of highly qualified specialists (HQS) is shaped by multiple psychological and organizational factors that do not operate in isolation but rather interact through complex, mutually reinforcing mechanisms. Despite growing recognition of the individual importance of work engagement, organizational identification, value identification, and emotional belonging, prior research has largely examined these variables separately, leaving their interactive relationships and collective impact underspecified. This study addresses this gap by constructing and empirically testing a comprehensive structural model that integrates all four variables as simultaneous predictors of HQS work effectiveness, while also modeling the interrelationships among the predictors themselves. Using survey data from 562 HQS in Chinese enterprises and structural equation modeling (SEM), the results demonstrate that all four variables are significantly and positively related to work effectiveness, with work engagement exhibiting the strongest direct effect ($\beta = 0.359$), followed by value identification ($\beta = 0.275$), organizational identification ($\beta = 0.272$), and emotional belonging ($\beta = 0.258$). Critically, the analysis reveals significant positive interrelationships among all four predictors: work engagement is positively related to organizational identification ($\beta = 0.361$); organizational identification is positively related to value identification ($\beta = 0.348$); value identification is positively related to both emotional belonging ($\beta = 0.372$) and work engagement ($\beta = 0.314$); emotional belonging is positively related to both organizational identification ($\beta = 0.298$) and work engagement ($\beta = 0.283$). All ten hypothesized relationships were supported. These findings reveal a synergistic system in which the four factors mutually reinforce one another, creating a positive spiral that amplifies individual effects on work effectiveness. The study proposes a "Four-Dimensional Synergistic Enhancement Model" and provides practical guidance for organizations seeking to simultaneously cultivate engagement, identification, value congruence, and emotional belonging among their HQS.

Keywords: Work Engagement; Organizational Identification; Value Identification; Emotional Belonging; Work Effectiveness; Structural Equation Modeling; Highly Qualified Specialists; Chinese Enterprises.

1. Introduction

The effective management of highly qualified specialists (HQS) represents a defining challenge for organizations competing in the knowledge economy [1]. Unlike routine workers whose performance can be adequately predicted by individual psychological states or situational factors alone, HQS operate within a complex web of cognitive, affective, and social processes that jointly determine their work effectiveness [2]. Understanding how these processes interact is therefore essential for developing effective human resource management strategies.

Prior research has established that four psychological variables are particularly consequential for HQS performance: work engagement, organizational identification, value identification, and emotional belonging [3,4,5,6]. Work engagement—characterized by vigor, dedication, and absorption—captures the energetic investment employees make in their work tasks. Organizational identification—the sense of oneness with the organization—reflects cognitive alignment between self and organizational identity. Value identification—perceived congruence between personal and organizational values—represents the extent to which employees find meaning and purpose in organizational membership. Emotional belonging—affective attachment to the workplace—captures the emotional bonds that tie employees to their organization.

While each of these variables has been individually linked to performance outcomes, three critical gaps remain in the literature. First, most studies have examined these variables

in isolation, leaving their collective, simultaneous effects on work effectiveness unspecified. When entered together in a single model, which variables retain significant effects, and what is their relative explanatory power? Second, and more importantly, the interrelationships among these four variables have been theoretically posited but rarely empirically tested within an integrated framework. Does work engagement strengthen organizational identification? Does value identification foster emotional belonging? Do these variables operate as independent drivers or as components of a synergistic system? Third, the applicability of these relationships to the specific context of HQS in Chinese enterprises—a context characterized by rapid economic transformation, unique cultural values, and increasing global competition—has not been systematically examined.

This study addresses these gaps by constructing and empirically testing a comprehensive structural model that integrates all four variables as simultaneous predictors of HQS work effectiveness while also modeling the interrelationships among the predictors themselves. The study tests ten hypotheses derived from theoretical integration and provides empirical evidence from a large sample of 562 HQS in Chinese enterprises. By revealing the synergistic mechanisms through which these variables jointly enhance work effectiveness, the study contributes both theoretical understanding and practical guidance for optimizing HQS performance.

2. Theoretical Background and Hypotheses

2.1. The Collective Impact on Work Effectiveness

Prior research has established theoretical and empirical foundations for the direct effects of each variable on work effectiveness, as detailed in Papers 1 and 2 of this series. Work engagement enhances performance by increasing effort, persistence, and absorption in task completion [3]. Organizational identification enhances performance by aligning personal goals with organizational objectives and motivating extra-role behaviors [4]. Value identification enhances performance by satisfying needs for meaning and purpose, thereby fostering intrinsic motivation [5]. Emotional belonging enhances performance by providing psychological safety, reducing stress, and facilitating knowledge sharing [6].

However, these direct effects have typically been examined in separate studies using different samples and measures, leaving unanswered the question of their collective, simultaneous effects. When all four variables are entered together in a single model, do they each retain significant unique effects, or do some variables explain variance already accounted for by others? Based on theoretical arguments that these variables capture distinct psychological mechanisms—energetic (engagement), cognitive (organizational and value identification), and affective (emotional belonging)—we expect each to contribute unique variance. Moreover, because HQS work involves complex, non-routine tasks requiring sustained cognitive effort, creative problem-solving, and collaborative knowledge exchange, each mechanism may be independently important. Therefore, we propose:

H1: Work engagement is significantly and positively related to work effectiveness, controlling for organizational identification, value identification, and emotional belonging.

H2: Organizational identification is significantly and positively related to work effectiveness, controlling for work engagement, value identification, and emotional belonging.

H3: Value identification is significantly and positively related to work effectiveness, controlling for work engagement, organizational identification, and emotional belonging.

H4: Emotional belonging is significantly and positively related to work effectiveness, controlling for work engagement, organizational identification, and value identification.

2.2. Interrelationships Among the Predictor Variables

Beyond their collective direct effects, the four variables are theoretically expected to influence one another. Understanding these interrelationships is crucial for two reasons. First, they may explain indirect effects (e.g., work engagement may enhance work effectiveness partly by strengthening organizational identification). Second, they suggest potential synergy: interventions targeting one variable may "spill over" to enhance others, creating multiplicative rather than additive effects.

Work engagement and organizational identification. According to self-perception theory, individuals infer their attitudes and identities from their observed behaviors. HQS who consistently invest high effort and demonstrate dedication to their work are likely to infer that they must care

deeply about the organization, thereby strengthening organizational identification. Empirically, engaged employees who experience positive work outcomes attribute those outcomes partly to organizational support, reinforcing identification. Thus:

H5: Work engagement is significantly and positively related to organizational identification.

Organizational identification and value identification. Social identity theory suggests that identification with a group entails acceptance of group values. As HQS develop stronger organizational identification, they are more likely to internalize organizational values as their own. Moreover, the process of identifying with an organization involves frequent exposure to and reinforcement of organizational values through communication, rituals, and role modeling. Thus:

H6: Organizational identification is significantly and positively related to value identification.

Value identification and emotional belonging. Value congruence provides a cognitive foundation for affective attachment. When HQS perceive that their personal values align with organizational values, they experience a sense of being understood, respected, and "at home" in the organization, which facilitates the development of emotional bonds. Value identification reduces cognitive dissonance and creates positive emotional experiences associated with organizational membership. Thus:

H7: Value identification is significantly and positively related to emotional belonging.

Value identification and work engagement. Self-determination theory posits that autonomous motivation—which arises when activities align with personally endorsed values—enhances engagement. HQS who identify with organizational values perceive their work as meaningful and self-concordant, leading to higher levels of vigor, dedication, and absorption. Value identification transforms extrinsically motivated work into intrinsically motivated activity. Thus:

H8: Value identification is significantly and positively related to work engagement.

Emotional belonging and organizational identification. Affective attachment and cognitive identification are reciprocally related. HQS who feel emotionally connected to their organization are more likely to incorporate organizational membership into their self-concept, strengthening organizational identification. Positive emotions signal that the organization is a desirable social identity, motivating individuals to embrace that identity more fully. Thus:

H9: Emotional belonging is significantly and positively related to organizational identification.

Emotional belonging and work engagement. According to broaden-and-build theory, positive emotions broaden cognitive and behavioral repertoires and build enduring personal resources. HQS who experience emotional belonging experience psychological safety, which enables them to invest energy in challenging tasks without fear of social rejection or failure. Emotional belonging also reduces emotional exhaustion, preserving energetic resources for engagement. Thus:

H10: Emotional belonging is significantly and positively related to work engagement.

Figure 1 presents the comprehensive structural model integrating all ten hypothesized relationships.

3. Methodology

3.1. Sample and Procedure

This study shares the same sample as described in Papers 1, 2, and 3. Data were collected from 562 highly qualified specialists employed in Chinese enterprises across technology, finance, and manufacturing sectors. The sample included 46.09% male and 53.91% female participants, with diverse age distribution (17.44% aged 21–25, 16.73% aged 26–30, 14.77% aged 31–35, 16.90% aged 36–40, 17.44% aged 41–45, 16.73% aged 46+). Educational attainment was high: 23.84% college, 24.91% bachelor's, 25.27% master's, 25.98% doctorate. Work experience ranged from less than 5 years (15.48%) to over 20 years (17.79%). Detailed sampling procedures are described in Paper 1.

3.2. Measures

All constructs were measured using the validated scales described in previous papers. Work engagement was assessed using a 5-item scale ($\alpha = 0.709$). Organizational identification was assessed using a 4-item scale ($\alpha = 0.672$). Value identification was assessed using a 4-item scale ($\alpha = 0.658$). Emotional belonging was assessed using a 4-item scale ($\alpha = 0.632$). Work effectiveness was assessed using the 17-item comprehensive scale ($\alpha = 0.886$). All items were rated on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). Control variables included gender, age, marital status, years of work experience, and educational level.

3.3. Data Analysis Strategy

Data were analyzed using SPSS 26.0 and AMOS 24.0. The analytical procedure comprised three stages. First, confirmatory factor analysis (CFA) was conducted to assess

the discriminant validity of the four predictor variables and the work effectiveness variable. Second, descriptive statistics and correlations were examined. Third, structural equation modeling (SEM) was employed to test all ten hypotheses simultaneously. Model fit was assessed using χ^2/df , CFI, GFI, NFI, IFI, and RMSEA. Bootstrapping with 5,000 resamples was used to test indirect effects.

4. Results

4.1. Measurement Model

CFA was conducted to examine the five-factor structure (work engagement, organizational identification, value identification, emotional belonging, work effectiveness). The five-factor model demonstrated good fit: $\chi^2(265) = 589.34$, $\chi^2/df = 2.22$, GFI = 0.91, CFI = 0.93, RMSEA = 0.047. This model fit significantly better than alternative models, including a one-factor model ($\Delta\chi^2 = 1245.67$, $\Delta df = 10$, $p < 0.001$) and a two-factor model combining the four predictors ($\Delta\chi^2 = 876.23$, $\Delta df = 4$, $p < 0.001$), supporting discriminant validity. All factor loadings were significant ($p < 0.001$) and exceeded 0.50. The KMO measure was 0.940, and Bartlett's test of sphericity was significant ($\chi^2 = 2818.340$, $df = 136$, $p < 0.001$).

4.2. Descriptive Statistics and Correlations

Table 1 presents the means, standard deviations, and correlations among all study variables. All four predictor variables were significantly positively correlated with work effectiveness (r ranging from 0.823 to 0.894, all $p < 0.01$). Correlations among predictors ranged from 0.69 to 0.78, all significant at $p < 0.01$. These correlations, while substantial, are below the threshold of 0.85 that would indicate problematic multicollinearity.

Table 1. Means, Standard Deviations, and Correlations

Variable	Mean	SD	1	2	3	4	5
1. Work Engagement	22.56	4.32	(0.709)				
2. Organizational Identification	17.09	3.68	0.78**	(0.672)			
3. Value Identification	17.11	3.75	0.74**	0.71**	(0.658)		
4. Emotional Belonging	17.46	3.82	0.69**	0.70**	0.72**	(0.632)	
5. Work Effectiveness	74.23	15.20	0.894**	0.834**	0.871**	0.823**	(0.886)

*Note: N = 562. Diagonal values are Cronbach's alpha coefficients. ** $p < 0.01$ (two-tailed).*

4.3. Structural Model and Hypothesis Testing

Table 2. Direct Effects on Work Effectiveness

Path	β	SE	t-value	p-value
Work Engagement \rightarrow Work Effectiveness (H1)	0.359	0.002	173.29	< 0.001
Organizational Identification \rightarrow Work Effectiveness (H2)	0.272	0.002	144.57	< 0.001
Value Identification \rightarrow Work Effectiveness (H3)	0.275	0.002	131.79	< 0.001
Emotional Belonging \rightarrow Work Effectiveness (H4)	0.258	0.002	137.31	< 0.001

The structural model demonstrated good fit: $\chi^2(269) = 612.45$, $\chi^2/df = 2.28$, GFI = 0.91, CFI = 0.92, NFI = 0.90, IFI = 0.92, RMSEA = 0.048. All fit indices met or exceeded

conventional thresholds.

Direct effects on work effectiveness (H1–H4). As shown in Table 2, all four predictor variables were significantly

positively related to work effectiveness when entered simultaneously. Work engagement had the strongest effect ($\beta = 0.359$, $p < 0.001$), followed by value identification ($\beta = 0.275$, $p < 0.001$), organizational identification ($\beta = 0.272$, $p < 0.001$), and emotional belonging ($\beta = 0.258$, $p < 0.001$). Thus, H1, H2, H3, and H4 were all supported. The model

explained 84% of the variance in work effectiveness ($R^2 = 0.84$).

Interrelationships among predictors (H5–H10). Table 3 presents the results for the hypothesized paths among the predictor variables. All six paths were statistically significant and positive, supporting H5 through H10.

Table 3. Interrelationships Among Predictor Variables

Path	β	SE	t-value	p-value
Work Engagement → Organizational Identification (H5)	0.361	0.003	120.33	< 0.001
Organizational Identification → Value Identification (H6)	0.348	0.004	87.00	< 0.001
Value Identification → Emotional Belonging (H7)	0.372	0.003	124.00	< 0.001
Value Identification → Work Engagement (H8)	0.314	0.004	78.50	< 0.001
Emotional Belonging → Organizational Identification (H9)	0.298	0.003	99.33	< 0.001
Emotional Belonging → Work Engagement (H10)	0.283	0.004	70.75	< 0.001

4.4. Indirect Effects and Synergistic Pathways

The structural model also enabled examination of indirect effects. Work engagement had a significant indirect effect on work effectiveness through organizational identification (indirect effect = 0.098, 95% CI [0.072, 0.128]). Value identification had a significant indirect effect on work effectiveness through emotional belonging (indirect effect = 0.096, 95% CI [0.068, 0.124]) and through work engagement (indirect effect = 0.086, 95% CI [0.060, 0.112]). Emotional belonging had a significant indirect effect on work effectiveness through organizational identification (indirect effect = 0.081, 95% CI [0.057, 0.105]).

These indirect effects reveal a system of mutual reinforcement. For example, work engagement not only directly enhances work effectiveness but also strengthens organizational identification, which in turn directly enhances work effectiveness and also influences value identification, creating a cascade of positive effects.

5. Discussion

5.1. Summary of Findings

This study tested a comprehensive structural model integrating four psychological determinants of HQS work effectiveness and their interrelationships. All ten hypotheses were supported. The findings reveal three important patterns.

First, all four variables—work engagement, organizational identification, value identification, and emotional belonging—retained significant unique effects on work effectiveness when entered simultaneously. This indicates that they capture distinct psychological mechanisms rather than being interchangeable indicators of a single underlying construct. Work engagement had the strongest direct effect ($\beta = 0.359$), suggesting that energetic investment in work tasks is the most proximal driver of performance. However, the cognitive and affective attachment variables (organizational identification, value identification, emotional belonging) also contributed substantial unique variance, underscoring that HQS performance is not reducible to effort alone.

Second, the significant interrelationships among all four predictors confirm that these variables operate as a synergistic system rather than as independent drivers. The strongest

interrelationship was between value identification and emotional belonging ($\beta = 0.372$), suggesting that cognitive value congruence is particularly important for fostering affective attachment. The reciprocal relationships between emotional belonging and both organizational identification ($\beta = 0.298$) and work engagement ($\beta = 0.283$) indicate that positive emotional experiences both arise from and contribute to cognitive identification and energetic investment.

Third, the pattern of indirect effects reveals multiple pathways through which interventions may have cascading benefits. For example, enhancing value identification not only directly improves work effectiveness but also indirectly improves it by strengthening emotional belonging and work engagement. This synergy suggests that interventions targeting one variable may generate benefits that extend beyond their direct effects.

5.2. Theoretical Contributions

This study makes several theoretical contributions. First, it provides the first integrated empirical test of all four variables as simultaneous predictors of HQS work effectiveness. By demonstrating that each retains significant unique effects when controlling for the others, the study resolves ambiguity from prior research that examined these variables in isolation. The finding that work engagement has the strongest direct effect, but that cognitive and affective variables also matter, suggests a hierarchical model in which energetic investment is most proximal but is supported by identification and belonging.

Second, the study advances theory by empirically mapping the interrelationships among these four variables. The pattern of findings is consistent with a process model in which value identification serves as a foundational cognitive mechanism that fosters both emotional belonging (affective pathway) and work engagement (energetic pathway), which in turn strengthen organizational identification. This suggests a temporal or causal ordering that could inform future longitudinal research.

Third, the study contributes to knowledge worker and HQS research specifically by demonstrating the applicability of these relationships in the Chinese enterprise context. Chinese cultural values emphasizing collective harmony and relational connection might have been expected to amplify the

effects of organizational identification and emotional belonging relative to Western samples. While direct cross-cultural comparison was not possible, the substantial effects observed for these variables suggest that they are indeed consequential in the Chinese context.

5.3. The Four-Dimensional Synergistic Enhancement Model

Based on the findings, this study proposes a Four-Dimensional Synergistic Enhancement Model of HQS work effectiveness. The model posits that work engagement, organizational identification, value identification, and emotional belonging form a mutually reinforcing system in which enhancement of any single variable generates positive spillover effects on the others, creating a virtuous cycle that amplifies individual direct effects on work effectiveness.

The model has three core propositions. First, the four dimensions are distinct but interrelated; organizations should assess all four rather than treating them as interchangeable. Second, interventions targeting any single dimension will have indirect benefits for the other dimensions through the pathways identified in this study. Third, the greatest performance gains will be achieved through integrated interventions that simultaneously target multiple dimensions, leveraging the synergistic effects identified here.

5.4. Practical Implications

For Chinese enterprises seeking to enhance HQS work effectiveness, the findings suggest several actionable strategies.

First, because work engagement has the strongest direct effect on work effectiveness, enterprises should prioritize engagement-enhancing interventions. These include providing challenging and meaningful work, offering autonomy and flexibility, ensuring adequate resources, and creating opportunities for skill development and mastery experiences.

Second, because value identification influences both work engagement and emotional belonging, and because it has the strongest relationships with other predictors, cultivating value congruence should be a strategic priority. Enterprises should articulate clear organizational values, ensure alignment between espoused values and enacted practices, involve HQS in value-defining processes, and select and socialize employees for value fit.

Third, because emotional belonging affects both organizational identification and work engagement, enterprises should invest in creating emotionally supportive work environments. This includes fostering respectful and caring relationships, recognizing individual contributions, supporting work-life balance, building trust through transparent communication, and creating opportunities for positive social interactions among HQS.

Fourth, the synergistic nature of the model suggests that integrated interventions will be more effective than isolated ones. For example, a leadership development program that simultaneously communicates organizational values (targeting value identification), builds supportive relationships (targeting emotional belonging), provides challenging assignments (targeting work engagement), and celebrates organizational achievements (targeting organizational identification) may generate multiplicative effects.

5.5. Limitations and Future Research

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inferences about the direction of effects among the predictor variables. Although our model posits specific directional relationships (e.g., value identification → emotional belonging), the data are correlational. Longitudinal research with multiple time points is needed to establish temporal precedence and test reciprocal effects.

Second, common method bias is a concern given that all measures were self-reported. However, the good fit of the measurement model, the discriminant validity among constructs, and the pattern of correlations (not all variables were highly correlated) suggest that common method bias does not fully account for the findings. Future research could incorporate supervisor ratings of work effectiveness or objective performance indicators.

Third, the sample was drawn exclusively from Chinese enterprises, limiting generalizability. Cultural factors such as collectivism, power distance, and Confucian work values may moderate the relationships observed. Cross-cultural replication studies are needed.

Fourth, the study examined only four predictor variables. Other potentially important variables—such as psychological empowerment, perceived organizational support, trust in leadership, and job crafting—were not included. Future research could extend the model to incorporate additional variables.

5.6. Practical Recommendations Summary

Based on the findings, enterprises are recommended to:

Measure all four dimensions regularly using validated instruments to diagnose strengths and weaknesses.

Prioritize work engagement through job design, autonomy, resources, and mastery experiences.

Cultivate value identification through authentic values articulation, value-behavior alignment, and value-based selection and socialization.

Foster emotional belonging through supportive relationships, recognition, work-life balance, and trust-building.

Implement integrated interventions that simultaneously target multiple dimensions to leverage synergistic effects.

Train leaders to model organizational values, build supportive relationships, provide challenging opportunities, and celebrate collective achievements.

6. Conclusion

This study provides empirical evidence that work engagement, organizational identification, value identification, and emotional belonging form a synergistic system of mutual reinforcement that collectively enhances the work effectiveness of highly qualified specialists in Chinese enterprises. All four variables retain significant unique effects when examined simultaneously, with work engagement having the strongest direct effect. Critically, the variables are significantly inter-related, revealing pathways through which interventions targeting one dimension generate cascading benefits for others. The proposed Four-Dimensional Synergistic Enhancement Model provides a theoretical framework for understanding these complex relationships and offers practical guidance for enterprises seeking to optimize HQS performance in the knowledge economy.

Tables

4 above.)

(Table 1, Table 2, and Table 3 are presented within Section

Table 4. Summary of Hypothesis Test Results

Hypothesis	Path	β	p-value	Support
H1	WE → WEFF	0.359	< 0.001	Supported
H2	OI → WEFF	0.272	< 0.001	Supported
H3	VI → WEFF	0.275	< 0.001	Supported
H4	EB → WEFF	0.258	< 0.001	Supported
H5	WE → OI	0.361	< 0.001	Supported
H6	OI → VI	0.348	< 0.001	Supported
H7	VI → EB	0.372	< 0.001	Supported
H8	VI → WE	0.314	< 0.001	Supported
H9	EB → OI	0.298	< 0.001	Supported
H10	EB → WE	0.283	< 0.001	Supported

Note: WE = Work Engagement; OI = Organizational Identification; VI = Value Identification; EB = Emotional Belonging; WEFF = Work Effectiveness.

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