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Assessing the Operator's Performance in Organizational Information Systems: Context of Call Center IS Management

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ABSTRACT

Delivering quality customer service has emerged as a strategic imperative, one that is increasingly tied to an organizational information system resources, work environment, and capabilities. Drawing upon theories on the IS, organizational behavioral and human psychology at organizational environment, this paper develops a model to investigate the extent to which organizational environment and operator's positive psychological traits impacts on their performance in IS delivering customer service. Based on the developed model, this paper hypothesizes how systems satisfaction, and organizational environment mediating through the operator's psychological perspective influence on their performance. The model is first pilot tested using a total of 51 survey data collected from call center IS of Korea Telecom. This test reveals that constructs are robust and could be used to test the conceptual model and associated hypotheses. Finally, the model would be empirically validated using survey data about call center IS from the same source. Results may shed new light on the assessing operator's performance associated with organizational IS. The implications of the findings for research and practice are discussed.

Keywords

Information system satisfaction, organizational environment, psychological state-traits, perceived cognitive effort, operator's performance

INTRODUCTION

The performance enhancement of operator's is a necessary step to achieve quality customer service as well as organizational competitive advantage(Greg 1996). Hence, delivering quality customer service has emerged as a strategic imperative for most organizations like call center that is increasingly tied to an organizational information system resources and capabilities (Gautam 2005). Quality customer service is not only the most important factor for achieving the customer satisfaction, but also it is the principal criterion for measuring the competitiveness of the customer service process (Zeithaml 2000). Simultaneously, the increased emphasis on customer service has emerged as a key driver for call center IS priorities, reflecting the general recognition of the essential role IT plays in support of this process(El Sawy 1997). Despite the potential of IS, extensive diversity exists in why the performance of tasks within an organizations vary across a set of competitors (Henderson and Cockburn 1994; Schroeder et al. 2002). Particularly, in the context of call center IS management faces criticisms about call centre from callers, like 1) Operators works from a script, 2) non-expert operators, 3) incompetent or untrained operators are incapable of processing customers' requests effectively, and 4) touch tone menu systems and automated queuing systems and so on(Ali 2006). Again complains from the operators, such as 1) Close scrutiny by management (e.g. frequent random call monitoring), 2) high stress & restrictive working practices, 3) repetitive job task & poor working conditions(Taylor and Bain 1999). These issues has emerged as a strategic imperative, one that is increasingly tied to the call center IS management. However, academic studies of the call center IS management about performance remain limited in both number and scope, particularly in the fields of organizational IS work environment and operator's psychological perspective at work.

The literature in Strategy and Human Resource Management identifies organizational work environment as a critical non-IT resource that determines customer service performance (Gautam 2005). However, while a number of studies emphasis on the critical role of IS in delivering customer service(El Sawy 1997; Elam 1993), empirical research examining the link between IS and performance in delivering customer service has been lacking. Past research on IS and performance concludes that the user satisfaction as a surrogate measure of IS success (Jamshid 1996) and the fit of the technology to task influence performance (Dennis 2001; Goodhue 1995; Zigurs 1999) as well. A resource based analysis is also used to examine the

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extent to which IT impacts customer service through investigating the differential effects of various IT resources and capabilities on the performance of the customer service process across organization(Gautam 2005). Specifically, DeLone & McLean (2003) suggested that their updated IS success model can be adapted to the measurement challenges of the IS success measure(DeLone & McLean 2003). However, in their updated model, net benefit measure is conceptually too broad to define (Wang 2008) although they included system use/use intention. However, the context of organizational work environment and users' psychological perspective to performance enhancement has been lacking. Although there are some psychometrically sound instruments that assess perceptions of organizational environments and users psychology in general, a very few scholars have attempted to quantitatively assess the work environment for creative performance in organizational IS usage (Amabile 1996).

To overcome these limitations and to improve the explanatory value of the operator's performance factors in the organizational information systems, this paper has developed a model drawing upon theories on the IS, organizational behavioral and human psychological perspective at organizational environment to investigate the extent to which user positive psychology impacts on the performance in organizational IS delivering customer service. Based on the developed model, this paper hypothesizes how IS systems satisfaction, service quality and organizational environment mediating through operator's psychological traits influence on their work life satisfaction and performance. The model is first pilot tested using a total of 51 survey data collected from call center IS of Korea Telecom. This test reveals that constructs are robust and could be used to test the conceptual model and associated hypotheses. Finally, the model would be empirically validated using survey data about call centre IS from the same source. Research questions addressed in this paper are: (1) What are the effects of organizational environment and operator's psychology on the performance in organizational IS delivering quality customer service? (2) What are the strategies organization should take in cropping up quality customer service to widening market, generate revenue as well as reputation?

By addressing these research questions, this study would seem to have practical implications for the development and management of human resources' motivational propensities in organizational IS workplace and may shed new light on the assessing employee's performance associated with organizational IS delivering customer service.

THEORETICAL BACKGROUND

The foundation of our theoretical framework comprises three elements: Contextual theories of organizational creativity and behavior, IS success theories, and the user's psychological perspective at organizational environment. Organizational work environment is identified as a critical non-IT resource that determines customer service performance (Gautam 2005) where work environment refers to the employee's perceptions of the practices, procedures, and behaviors that are expected, supported, and rewarded, with regard to customer service delivery(Schneider 1998). Again, IS researchers have recently scrutinized phenomena such as users (Lamb 2003), user competence (Marcolin 2001), IT artifact (Orlikowski 2001) and the core phenomenon system usage (Andrew 2007). These line of IS research suggests that users' attitudes can be used as a surrogate for system quality, information quality, system use, user satisfaction, individual impact, and organizational impact (DeLone & McLean 1992). Further, literature on positive organizational behavior, which is defined as "the study and application of positively oriented human resource strengths and psychological capacities" suggest that it can be measured, developed, and effectively managed for performance improvement" (Fred 2007). Grounded on this theoretical framework, we argue that IS satisfaction and organizational environment affect performance after being mediated by the operator's psychological traits.

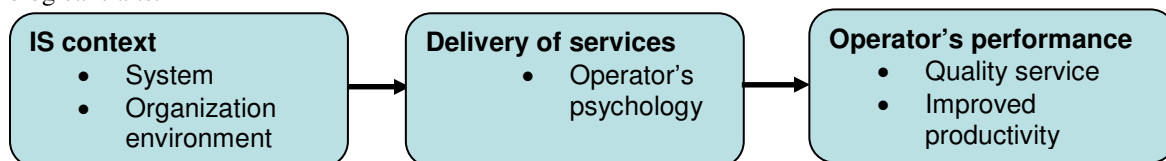


Figure 1 Conceptual framework

Organizational Information Systems and Performance

Recent contextual theories of organizational creativity and innovation have attempted to identify work environments that are related to creative user's performance (Amabile 1996). Amabile proposed three broad organizational factors through a componential model of creativity and innovation in organizations(Amahile 1988), each of which includes several specific elements, such as (1) Organizational motivation to innovate that refers to a basic orientation of the organization toward innovation, organizational encouragement and supports for creative performance and innovation throughout the organization (2) Resources refers to everything that the organization has available to aid work in a domain targeted, in our context, customer services using IS resources, and (3) Management practices refers to allowance of freedom or autonomy in the

conduct of work, provision of challenging, interesting work, specification of clear overall strategic goals, and formation of work teams. Woodman et. al (1993) took a similar theoretical perspective on creativity in organizations, however they extended their model in two additional ways. In their extended model, they included external influences and intra-organizational influences, and they gave prominence to intra-individual factors in their inter-actionist approach where creative behavior within organizations is a function of two categories of work environment inputs: (1) Group characteristics refer to the norms, group cohesiveness, size, diversity, roles, task characteristics, and problem-solving approaches used in the group, and (2) Organizational characteristics consist of organizational culture, resources, rewards, strategy, structure, and focus on technology (Woodman et. al 1993). The conceptual model underlying the development of KEYS taps these aspects of the organizational work environment and articulates of this componential theory (Amabile 1996). Based on these literatures, we identified organizational encouragement, team support, organizational impediments, workload pressure and supervisory leadership as organizational environment context to influence performance through operator's psychology at work.

Psychological State-Traits and Performance

Positive psychological state-traits represent the extent to which individuals tend to be efficacious, hopeful, optimistic, and resilient (Suzanne 2009). We focus on self-efficacy (Parker 1998), hope (Snyder et. al 1996), resiliency (Neill 2001), and optimism (Scheier & Carver 1985), even though other positive psychological capacities have been identified. Psychological state-traits have a positive impact on work-related individual-level performance and satisfaction (Fred 2007). We also theorize these capacities as state-traits as states, individuals' experiences of such capacities during particular times, events, or contexts which will be stable over time (Fred 2007) rather than individuals' enduring, stable, and cross-situational tendencies to experience such capacities (Suzanne 2009). Therefore, the psychological constructs of our study fit in the continuum as being "state like," that is, they are not as stable and are more open to change and development compared with "trait-like" constructs such as Big Five personality dimensions or core self-evaluations, but importantly that they also are not momentary states meaning over time it will be traits like. Further, these four positive psychological state-traits in part because theory and research suggest these capacities over time to be positively related to enduring outcomes such as job performance and problem solving (Suzanne 2009). They also suggested to play important roles in leadership development (Luthans 2003).

Even though the search for personal characteristics predictive of creative performance dominated creativity research for several decades, but recent research has begun to examine the effects of such contextual factors as goals, deadlines, and expected evaluations on individuals' creative performance and most of these research has been conducted in behavioral laboratories and has followed an "intrinsic motivation" perspective (Greg 1996). Grounded in the IS assisted customer service, organizational environment and operator's psychological state-traits in the context of call center, we develop a conceptual model as shown in figure 1.

RESEARCH MODEL AND HYPOTHESIS

Based on our theoretical proposition that operator's psychological traits mediates the effect of IS satisfaction and organizational environment on performance, we develop a research model (Figure 2) and propose hypotheses grounded in the call center IS user's performance context.

Systems Context

Perceptual measures of IS success have been employed extensively over the years and such measurement instruments have basically relied on user satisfaction as a surrogate measure of IS success (Jamshid 1996). In their updated D&M model, net benefit measure is conceptually the primary measure of performance. This study takes system satisfaction and service quality to assess the IS system context.

System satisfaction: The degree of user satisfaction with the call center IS (Extended from (Rai et. al 2002)).

Perceived cognitive effort: The extent to which user exercise additional effort to restore the information from the system if they feel restricted by the system or organizational environment (Wang 2009)

Psychological state-traits: This composite construct is defined as "an individual's positive psychological state of development and is characterized by: (1) efficacy: having confidence to take on and put in the necessary effort to succeed at challenging tasks; (2) optimism: making a positive attribution about succeeding now and in the future; (3) hope: persevering toward goals and, when necessary, redirecting paths to goals in order to succeed; and (4) resilience: when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Fred 2007).

- H1a:** System satisfaction has a positive influence on operator's psychological state-traits
H1b: System satisfaction has a positive influence on operator's worklife satisfaction
H1c: System satisfaction has a positive influence on Performance

H2a: Operator's Psychological state-traits has a positive influence on their performance
H2b: Operator's Psychological state-traits has a positive influence on Work life satisfaction
H4a: Perceived cognitive effort has a negative influence on System satisfaction
H4b: Perceived cognitive effort has a negative influence on Performance

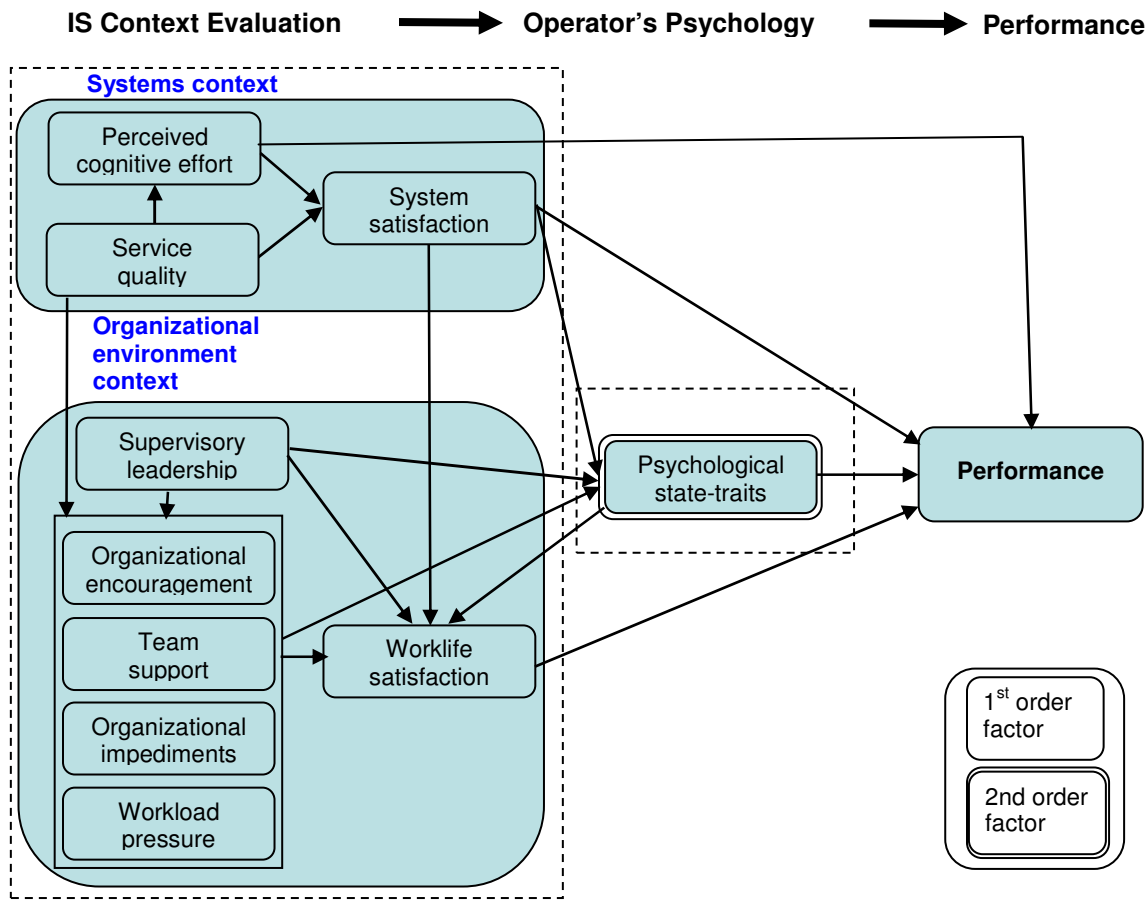


Fig. 2 Research Model

Service quality: Service quality from IS department and providers provide the relational and technological context for employees to interpret behaviors and events related to system satisfaction. The role of service quality in shaping cognitions and behaviors in user has received significant attention and become an important dimension of IS success given the importance of IS support in the organizational environment where customer service is crucial (DeLone 2003b). A highly restrictive IS can invoke psychological reactance (Brehm 1981), bringing user dissatisfaction that may result in their performance outcomes if it is deemed to be too constraining. Therefore, Perceived cognitive effort which is defined as the extent to which user exercise additional effort to restore the information from the system if they feel restricted by the system or organizational environment(Wang 2009) becomes the predictor of systems satisfaction.

Service quality is a form of attitude as well as in a long-run overall evaluation(Parasuraman 1988; Zeithaml 1988). Service quality portrays a general; overall appraisal of service, i.e. a global value judgment on the superiority of the overall services and it could occur at multiple levels in an organization(Sureshchandar 2002). Extant research in this area shows that properly implementing such service quality features may increase customer satisfaction (Parasuraman 1988; Walker 2006). If services provided by an organization meet a customer's needs, this may lead to higher customer satisfaction (Foster 2004; Parasuraman 1988; Walker 2006). As result, the role of service quality has become critical to the success of organizations(Hollis 2007). IS department support, in the form of extended technical assistance, emergency maintenance, updates, and special user training, is an important factor with ERP during the post-implementation stages (Toni 2004).

We expect that Service quality from IS department plays a key role of signification by shaping the cognitions, actions, and behaviors of users with respect to their day to day activities usage application with IS systems. This leads to the following hypothesis:

- H4c: Service quality has a positive influence on System satisfaction*
- H4d: Service quality has a negative influence on operator's perceived cognitive effort*
- H4e: Service quality has a positive influence on organizational encouragement*
- H4f: Service quality has a positive influence on team support*
- H4g: Service quality has a negative influence on organizational impediments*
- H4h: Service quality has a negative influence on workload pressure*

Organizational Environment Context

Organizational encouragement: An organizational culture that encourages employees activities through the fair, constructive judgment of ideas, reward and recognition for creative work, mechanisms for developing new ideas, an active flow of ideas, and a shared vision of what the organization is trying to do(Amabile 1996).

- H6a: Organizational encouragement has a positive influence on operator's work life satisfaction*
- H7a: Organizational encouragement has a positive influence on operator's psychological state-traits*

Team support: A diversely skilled work groups in which people communicate well, are open to new ideas, constructively challenge each other's work, trust and help each other, and feel committed to the work they are doing(Amabile 1996).

- H6b: Team support has a positive influence on operator's work life satisfaction*
- H7b: Team support has a positive influence on operator's psychological state-traits*

Organizational impediments: An organizational culture that impedes employees activities through internal political problems, harsh criticism of new ideas, destructive internal competition, an avoidance of risk, and an overemphasis on the status quo(Amabile 1996).

- H6c: Organizational impediments has a negative influence on operator's work life satisfaction*
- H7c: Organizational impediments has a negative influence on operator's psychological state-traits*

Workload pressure: According to some psychological research, exploration of alternative possibilities and time for that exploration directly correlate with the creativity of task outcomes in laboratory settings(Amabile 1996). Therefore, excessive workload pressure would be expected to undermine creative activities, especially if that time pressure were perceived as imposed externally as a means of control (Amabile, 1988) may affect on work life satisfaction. Various kinds of task configurations affect key employee attitudes and behaviors (Griffin 1991) through positive psychological traits. With these, we posit the following hypothesis:

Extreme time pressures, unrealistic expectations for productivity, and distractions from creative work.

- H6d: Workload pressure has a negative influence on operator's work life satisfaction*
- H7d: Workload pressure has a negative influence on operator's psychological state-traits*

Supervisory leadership: A supervisor who serves as a good work model, sets goals appropriately, supports the work group, values individual contributions, and shows confidence in the work group(Amabile 1996).

- H5a: Supervisory leadership has a positive influence on organizational encouragement*
- H5b: Supervisory leadership has a positive influence on team support*
- H5c: Supervisory leadership has a negative influence on organizational impediments*
- H5d: Supervisory leadership has a negative influence on workload pressure*
- H5e: Supervisory leadership has a positive influence on operator's psychological state-traits*
- H5f: Supervisory leadership has a positive influence on operator's worklife satisfaction*

Work life satisfaction: Work life Satisfaction is defined as the assessment of the impact that an IS has on individuals within their organizational work domain of life(Rice 1985). Work life Satisfaction and task support satisfaction which in turn influence value such as perceived organizational impact of IS use. Work life satisfaction standing for individual utility is understood as a psychological consequence(Garrity 1998). The Work life Satisfaction construct is drawn from the socio-technical viewpoint and recognizes and focuses on the human component of systems. The socio-technical viewpoint of systems concedes that humans often have their own set of goals and objectives(Garrity 1998). The differences between personal objectives and organizational goals can cause problems when systems are designed without considering human factors and this implies that users are not only components of the organizational system but they are also recognized as having their own goals and aspirations separate from the directives of the organization. IS and organizational work domain

provide greater control via autonomy and secure environment should produce positive feelings about the system and lead to job efficacy and pleasure (Pierce 2001) which is interpreted as Work life Satisfaction.

H3: Work life satisfaction has a positive influence on operator's performance

Performance: Actual performance evaluations are used that were gathered independent for this study. To do so, the performance measures were based on objective data and managerial ratings of operators obtained from the manager's records.

RESEARCH METHOD AND DATA

Construct Operationalization

This study used survey method to test the developed model. A survey instrument was developed by identifying appropriate measurements from a comprehensive literature review. Some modifications were made to the existing scale to make those more suitable in the context of call center IS. Fifty five measurement items were developed and all of these measure items were posed as questions on seven-point likert scales, from 1=strongly disagree to 7=strongly agree. Since the target organizations are located in Korea, the questionnaires were translated into Korean and a panel of experts in the MIS research area examined the face validity of the items. Questionnaire items are used for this study is shown in the appendix A.

Psychological State-Traits

Consistent with the theoretical arguments made earlier, we operationalized psychological state-traits as a second-order construct composed of four related dimensions as shown in figure 3. Each of the 4 first order constructs: Efficacy, Hope, Optimism, and Resilience have four items adapted from the following studies; Efficacy (Parker 1998), Hope(Snyder et. al 1996), Optimism (Scheier & Carver 1985), and Resilience (Neill 2001) respectively.

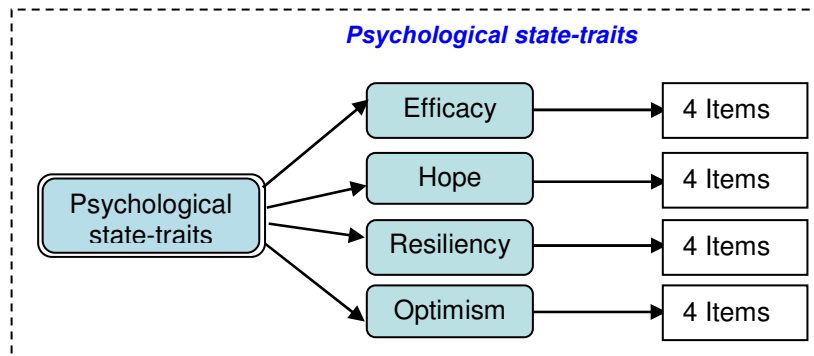


Figure 3 A Specification of Psychological state-traits

PILOT STUDY

Data Analysis and Results

51data for pilot study was collected using survey from call center IS of Korea Telecom. Knowledgeable academics and practitioners reviewed the questionnaires prior to pilot study and these reviews used to ensure that items unambiguously captured the appropriate constructs in this research model. In order to preserve relative objectivity of operator's positive psychological state-traits measure, the key informants are requested to provide answers based on how they think about their selves right then.

The instruments were pilot-tested to ensure that the questions were being properly interpreted and that the survey format was in order. Assessment of the measurement model was performed using partial least squares (PLS), that is, PLS-Graph version 3.00 (Chin 1994).

Measurement Model

Convergent Validity

The assessment of the measurement model, individual item loadings and internal consistency were examined as a test of reliability. Table 1 presents information about the loadings of the measures of our research model. We note that all the reliability coefficients are greater than 0.7 and each AVE is above 0.50 except for workload pressure (Cronbach's alpha=0.602 and AVE=0.483). As shown in Table 1, all the individual loadings are in an acceptable range and the t-values indicate that they are significant at the 0.01 level except for workload pressure's items WLP2 (loading =0.306, t-value=1.140

) and items WLP4 (loading =0.603, t-value=3.037). As a result, we dropped the item WLP2 and rephrased item WLP4 for the final study.

Discriminant Validity

Discriminant validity was verified with the squared root of the average variance extracted for each construct higher than the correlations between it and all other constructs(Fornell 1981). Table 2 shows that each construct shares greater variance with its own block of measures than with the other constructs representing a different block of measures demonstrating sufficient discriminant validity. Further, a cross-loadings was constructed in order to assess validity of our measurement instruments as suggested by Gefen et al. (2000)(Gefen 2000) . It can be noticed that each item loadings (not shown here) is much higher on its assigned construct than on the other constructs, supporting adequate convergent and discriminant validity. Therefore, our measurements satisfy the two criteria for discriminant validity suggested by Chin (1998, p. 321).

Table 1 Reliability of Constructs

Constructs	Item	Loading	St. Error	t-value	Cronbach's alpha	Composite reliability	AVE*
System satisfaction					0.873	0.915	0.729
	SSF1	0.839	0.034	24.702			
	SSF2	0.886	0.025	35.367			
	SSF3	0.806	0.043	18.891			
	SSF4	0.881	0.031	28.912			
Service quality					0.912	0.935	0.742
	SQL1	0.887	0.039	23.022			
	SQL2	0.887	0.036	24.470			
	SQL3	0.856	0.042	20.523			
	SQL4	0.849	0.041	20.944			
	SQL5	0.826	0.070	11.754			
Organizational encouragement					0.921	0.943	0.768
	OGE1	0.862	0.043	19.962			
	OGE2	0.923	0.024	38.251			
	OGE3	0.947	0.013	74.636			
	OGE4	0.769	0.076	10.177			
	OGE5	0.869	0.038	22.784			
Team support					0.903	0.930	0.727
	TSP1	0.849	0.037	22.830			
	TSP2	0.913	0.019	48.877			
	TSP3	0.932	0.019	50.224			
	TSP4	0.759	0.096	7.891			
	TSP5	0.795	0.054	14.839			
Organizational impediments					0.826	0.896	0.743
	OGI1	0.865	0.044	19.673			
	OGI2	0.898	0.035	25.893			
	OGI3	0.821	0.078	10.508			
Workload pressure					0.602	0.769	0.483
	WLP1	0.886	0.033	26.495			
	WLP2	0.306	0.268	1.140			
	WLP3	0.830	0.051	16.412			
	WLP4	0.603	0.199	3.037			
Supervisory leadership					0.941	0.954	0.775
	SLS1	0.863	0.057	15.038			
	SLS2	0.890	0.056	15.819			
	SLS3	0.869	0.037	23.829			
	SLS4	0.901	0.042	21.304			
	SLS5	0.866	0.043	20.378			
	SLS6	0.890	0.050	17.168			
Hope (Psychological state-traits)					0.914	0.939	0.795
	PTH1	0.872	0.036	24.106			
	PTH2	0.897	0.039	23.170			
	PTH3	0.898	0.042	21.168			
	PTH4	0.899	0.034	26.655			
Optimism (Psychological state-traits)					0.844	0.896	0.683
	PTO1	0.803	0.051	15.622			

Constructs	Item	Loading	St. Error	t-value	Cronbach's alpha	Composite reliability	AVE*
	PTO2	0.875	0.048	18.189			
	PTO3	0.826	0.085	9.778			
	PTO4	0.800	0.054	14.826			
Resiliency (Psychological state-traits)					0.867	0.915	0.730
	PTR1	0.827	0.053	15.613			
	PTR2	0.884	0.048	18.273			
	PTR3	0.776	0.080	9.751			
	PTR4	0.923	0.028	32.674			
Efficacy (Psychological state-traits)					0.910	0.937	0.788
	PTE1	0.860	0.043	19.806			
	PTE2	0.892	0.047	18.798			
	PTE3	0.904	0.033	27.333			
	PTE4	0.896	0.040	22.463			
Perceived cognitive effort					0.898	0.837	0.833
	PCE1	0.913	0.032	28.197			
	PCE2	0.952	0.016	60.868			
	PCE3	0.872	0.082	10.582			
Worklife satisfaction					0.920	0.944	0.807
	WLS1	0.920	0.025	36.804			
	WLS2	0.862	0.057	15.253			
	WLS3	0.884	0.039	22.648			
	WLS4	0.927	0.027	33.859			

*Average Variance Extracted.

Table 2 Correlations among Major Constructs

Const.	SSF	SQL	OGE	TSP	OGI	WLP	SLS	PTH	PTO	PTR	PTE	PCE	WLS
SSF	0.854												
SQL	0.478	0.861											
OGE	0.423	0.585	0.876										
TSP	0.311	0.476	0.686	0.853									
OGI	-0.014	-0.091	-0.017	-0.364	0.862								
WLP	-0.045	-0.111	0	0.056	0.204	0.695							
SLS	0.521	0.448	0.513	0.554	-0.051	0.085	0.880						
PTH	0.045	0.007	0.068	0.112	0.185	0.455	0.294	0.892					
PTO	0.138	0.254	0.217	0.26	0.053	0.336	0.282	0.741	0.826				
PTR	0.096	0.327	0.26	0.258	0.11	0.382	0.353	0.742	0.806	0.853			
PTE	0.208	0.144	0.196	0.19	0.277	0.29	0.345	0.776	0.584	0.65	0.888		
PCE	-0.098	-0.188	-0.061	0.124	-0.075	0.292	0.122	0.236	0.22	0.17	-0.008	0.913	
WLS	0.428	0.46	0.584	0.424	-0.013	-0.184	0.348	0.177	0.317	0.306	0.314	0	n/a

Notes: Diagonal elements are the square root of average variance extracted (AVE), only reported for reflective measures and triangular elements are major constructs correlations. SSF =Systems satisfaction; SQL= Systems quality; OGE= Organizational encouragement; TSP= Team support; OGI=Organizational impediments; WLP= Workload pressure; SLS= Supervisory leadership; PST = Psychological state-traits; PCE= Perceived cognitive effort, and WLS= Worklife satisfaction.

Validity of the Second-Order Construct

The estimation of the second-order construct psychological state-traits is shown in Table 5 and its structure is illustrated in Figure 3. The paths from the second-order construct to the four first-order factors are significant and of high magnitude, greater than the suggested cut off of 0.7 (Chin 1998). We evaluated the efficacy of the second order model by the target coefficient (T-ratio) with an upper bound of one(Steward 2002). Our model has a very high T-ratio of 0.913, implying that the relationship among first-order constructs is sufficiently captured by the second-order construct (Steward 2002). Therefore, on both theoretical and empirical grounds, the conceptualization of psychological state-traits a higher-order, multidimensional construct seems justified. Thus, constructs developed by this measurement model are robust and could be used to test the conceptual model and the associated hypotheses proposed earlier.

In summary, our measures satisfied various reliability and validity criteria and were used to test the structural model and hypotheses.

Table 5 Measurement Model: Second Order Construct of Psychological state-traits

Second Order Construct	First order constructs	Loadings	t-statistic	Composite reliability	Target coefficient(T-ratio)
Psychological state-traits	PTH	0.928*	-	0.959	0.942
	PTO	0.878	30.900		
	PTR	0.904	31.317		
	PTE	0.857	17.109		

Path significance: p<0.01; *loadings are specified as fixed to make the model identified

FUTURE PLAN AND DISCUSSION

Data Collection

We are concern with the investigation of operator's performance in organizational IS. In order to develop a suitable sampling frame, sample will be drawn from the users of call center IS of Korea Telecom (KT) to realize specific performance of delivering quality customer service, and productivity improvement through meeting organization's business mission. The instruments after pilot-tested, the refined questionnaires, we sent to employees of call center IS of KT sating the purpose of this research located at the Seoul, Gyeong-Gi, Honang, Busan, Degu, and Daejeon in Korea. KT 114 directory service, more than 100 years old, is a major call center as well as the most popular brand in Korea. Consequently, it would give us some strategic implications to verify that the satisfaction of 114 operators with the system and organizational environment are positively related to the satisfaction of 114 users. As providing information services to customers are the strategic importance of KT 114 service, they should be particularly interested in improving their business processes through the use of its IS. Again, KT 114 service operator's response must solve customer problems immediately, must save customers that wished to cancel service and must generate revenue. KT 114 service operators need to search the required service requested by customers from the system and quality of service to the customers depends on information provided by the system to operator and how operator delivers the information to customers.

A total of 250 responses were received so far and waiting for more responses expecting around 400 samples. The data for dependent variable performance will be directly collected from call center IS management and then final assessment of the research model will be conducted using PLS. The sample represents a wide range of geographical and cultural diversity of organizations and a broad range of organization size with different requirements, and provides a good context to examine operator's performance in organizational IS.

Implications

By addressing the research questions, this paper contributes to the IS performance literature by isolating a parsimonious set of theoretically grounded factors that affect the performance of IS in organization and by providing empirical evidence about the impact of psychological state-traits on performance. These findings can improve the explanatory value of IS success in terms of operator's performance by integrating theory from human psychology to IS research.

This study has practical implications for the development and management of human resources' motivational propensities in organizational environment. The results should be of great interest to organizational policy makers to provide better customers service. Hopeful employees, optimistic, efficacious, and resilient may be more likely to "weather the storm" of the type of dynamic, environmental contexts confronting most organizations today better than their counterparts with lower psychological state-traits like capital. Financial, human, and social capital is certainly necessary investment, but it may no longer be sufficient in this environment. Therefore, in practice investment in psychological capital consists of psychological traits may yield very substantial returns beyond the other more traditional forms of capital investment (Fred 2007).

CONCLUSION

The ultimate goal of the study is to provide a concrete theoretical and practical basis for measuring operator's performance in the organizational IS context. The findings of this study improves the explanatory value of IS success in terms of employee's performance by integrating theory from human psychology to IS research which would have implication for the researchers. The results provide strategic ingredients for the organizational policy makers, managers, end users, support staff and systems developers in cropping up quality customer service and researchers for integrating theory development from human psychology to IS research. These theoretical perspective and findings will stimulate researchers to investigate IS management in a wide variety of settings using multiple streams of literature to build a cumulative body of evidence that can advance knowledge about performance of IS in organizations and have significant practical implications for how organizations should manage the IS to streamline their business processes.

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APPENDIX A

Questionnaire items used for study constructs

System satisfaction (DeLone 2003a; N. Au 2008)

1. I am very contented with the information system.
2. I am very pleased with the information system.
3. I feel delighted with the information system.
4. Overall, I am very satisfied with the information system.

Service quality (Christopher L. 2007; DeLone & McLean 2003; Luthans 2003)

1. When the IS department promises to do something by a certain time, it does so
2. When I have a problem, the IS department shows a sincere interest in solving it
3. Employees in the IS department give prompt service to me
4. Employees in the IS department have knowledge to answer questions
5. Employees in the IS department give IS users individual attention

Organizational encouragement (Amabile 1996; Coveney 2008; Eisenberger et. al 1997; Trudy 2008)

1. We are encouraged to solve problems creatively in this organization
2. We are recognized for creative work in this organization.
3. This organization has a good mechanism for encouraging and developing creative ideas.
4. We know what our organization wants to achieve
5. We are given rewards for innovative and creative work

Team support (Amabile 1996; James 2000; Karen S. Cox 2007)

1. There is free and open communication within my team
2. We get along well and treat each other fairly
3. We respect everyone's contributions
4. There is a feeling of trust among the members of team I work with most closely
5. We have a shared commitment to make our work a success

Organizational impediments (Amabile 1996; Coveney 2008)

1. There are many political problems in my organization
2. The internal competition is high and people do not trust each other
3. I don't dare doing anything different for fear of failing or being negatively criticized

Workload pressure (Amabile 1996; Coveney 2008)

1. I have too much work to do in too little time
2. Deadlines have a positive impact on my work (dropped)
3. I feel a sense of time pressure to perform my work
4. I feel too often distracted by colleagues

Supervisory leadership (Amabile 1996; Bradley 2009)

1. My supervisor articulates a vision
2. My supervisor provides an appropriate model

3. My supervisor insists on only the best performance
4. My supervisor shows respect for my personal feelings
5. I can talk freely and openly with my supervisor.
6. My supervisor has stimulated me to rethink the way I do things

Perceived cognitive effort (Wang 2009)

1. The task of delivering customer's query in this organizational environment using the systems took too much time
2. Delivering customer's query in this organizational environment using the systems required too much effort
3. The task of delivering customer's query in this organizational environment using the systems was too complex

Psychological state-traits (Fred 2007; Weiquan Wang 2009)

Instructions: Following are the statements that describe how you may think about yourself **right now**. Use the following scale to indicate your level of agreement or disagreement with each statement.

Efficacy (Parker 1998)

1. I feel confident in analyzing a long-term problem to find a solution
2. I feel confident helping to set targets in my work area
3. I feel confident in representing my work in meetings with senior management
4. I feel confident presenting information to a group of colleagues

Hope(Snyder et. al 1996)

1. If I should find myself in a jam at work, I could think of many ways to get out of it
2. At the present time, I am energetically pursuing my work goals
3. There are lots of ways around any problem that I am facing now
4. Right now I see myself as being pretty successful at work

Resilience (Neill 2001)

1. When I make plans at work I follow through with them
2. I usually manage difficulties in finding information one way or another
3. I usually take stressful things at work in my stride
4. When I am in a difficult situation at work, I can usually find my way out of it

Optimism (Scheier & Carver 1985)

1. In uncertain times at work, I usually expect the best
2. I always look on the bright side of things regarding my work
3. I am always optimistic about my future
4. I approach this work as if "every cloud has a silver lining"

Work life satisfaction (Kim 2004)

1. The information systems and the organizational environment make my tasks easier to schedule
2. The information systems and the organizational environment help alleviate time pressure
3. The information systems and the organizational environment give me the right level of autonomy in my work
4. The information systems and the organizational environment raise my feelings of participation

Performance (Wang 2009; Wang 2008)

Actual performance evaluations are used that were gathered independent for this study. To do so, the performance measures were based on objective data and managerial ratings of operators obtained from the manager's records.