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An effective learning culture: Using high performance work systems to strengthen the relationship between communities of practice and knowledge creation in Africa

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ABSTRACT

This paper sought to demonstrate how communities of practice can coalesce with high performance work systems to develop an Africanized learning culture that promotes interaction among employees and empowers them to create innovative knowledge for competitive performance. A total of 622 individual participants were selected from medium- and large-sized organizations (>200 employees) to complete data collection questionnaires. Structural equation modeling (path analysis coefficients) revealed that both components (hard and soft) of high performance work systems have significant mediating effects on the relationship between communities of practice and knowledge creation. However, adoption of the soft component of high performance work systems in knowledge creation seemed to be more relevant to African social learning practices and operational contexts.

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Introduction

As many organizations in Africa are struggling to improve their performance standards, increasing effort has been put into developing capacities of their employees. Annual assessments of the competences required by the various categories of employees are converted into training plans and budgets, the implementation of which is decidedly supported by employers with the intention of building a knowledge base for their organizations (Haslinda, 2009). Many managers of contemporary organizations have been made to believe that investing in training programs is the principal approach for preserving human capital that is imperative to national socioeconomic growth (Haslinda, 2009; Khumalo & Baloyi, 2017; Ocholla, 2007). Consultants and experts are often outsourced from developed countries to equip local employees with the knowledge that will enable them to become super performers. Nonetheless, most of these training programs often do not yield the desired outcomes and, as a consequence, organizations incur financial costs with marginal returns on investment (Calgary & Area Employer Survey, 2015; Plaza, Naz, & Sangra, 2012). Failure to realize returns is partially explained by the nature of the operational contexts that are seemingly turbulent to wholesomely

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accommodate the standards introduced by training (Nansubuga & Munene, 2013). Additionally, the training programs are sometimes perplexed with globalization trends and technological evolutions that are perceived to be controversial in African local communities (Haslinda, 2009).

Frequently training programs involving new technological experiences and global innovations rarely match African operational approaches, contextual demands or social values. This is so because the designers of these training programs are often external to the context and hence have little knowledge about employees' contextual dilemmas (Yadapadithaya & Stewart, 2003). Besides, the training programs are formally structured in a classroom setting with little or no direct relevant practical experience that can stimulate employees to learn how to apply the acquired knowledge and skills in their work environments (Calgary & Area Employer Survey, 2015). In totality, the learning culture in the African social context is never considered when designing the training programs. Shaw (2010) observed that learning culture refers to the practices, conditions or methods that support learning in a given organization or community. It includes ways in which people interact with each other, ways in which people lead or how they are led, how the organization evaluates its performance, the physical environment of workspaces, and how all these impact on sustaining knowledge creation over time. African societies for instance are characterized by teamwork and by virtue of this bond, their learning culture obliges them to learn and share knowledge through collective interactions. Specifically knowledge creation in these societies is grounded on humanistic cultural values and folklore that would relate to the day-to-day events and job activities (Mitiku, Jimma, & Diriba, 2016).

Duke (2009) observed that training approaches that are designed based on the behavioral conditioning models, which promote self-paced, step-by-step learning, could disadvantage diversified communities with diverse traditions. These training approaches basically focus on knowledge acquisition rather than context-based knowledge creation. While knowledge acquisition is the ability to learn and replicate rules related to a particular domain of interest (Holder, Markov, & Russell, 2006), knowledge creation is the ability to modify existing knowledge and create new insights appropriate to environmental demands. Duke (2009) emphasized that learning approaches that induce knowledge creation are highly influenced by social environmental factors such as cultural beliefs, languages, politics, religion, and economy. These wide-ranging environmental factors are associated with multiple work-related challenges some of which are too complex to be addressed by individualistic step-by-step knowledge acquisition methods (Duke, 2009; Ridoutt, Duttneall, Hummel and smith, 2002). Therefore, in organizations that are characterized by collective and humanistic learning behavior, such self-centered models like programmed instructional learning would be considered a distraction (Dia, 1991). Wenger (1998) also noted that training processes where knowledge is demonstrated out of context and where interaction is considered as cheating are irrelevant and laborious to learners. The social constructivism approach, where knowledge is expected to be created, could thus be a better alternative for dealing with complexity in workplaces than behavioral conditioning in which knowledge is acquired (Driskoll, 2000). This paper therefore intends to demonstrate how collective or group-based learning in the form of communities of practice can coalesce with high performance work systems to create an Africanized learning culture that promotes interaction among employees and empowers

them to create innovative knowledge for competitive advantage. Africanized learning culture according to Makgoba (1997 and Louw, 2010) is "a learning process that acknowledges who the African's are (identity), their philosophies and capabilities, and consciously adopt and integrate other learning cultures through the African lenses to provide the dynamism and evolution that is essential in the global world". Africanization is not about excluding other cultures but about affirming the African culture and its identity within the global community. This paper has adopted the social constructive theory of learning to demonstrate that knowledge is more useful in a particular community when it is developed from experiences and the social context of the community members than when it is acquired from exotic communities.

The Social Constructivism Theory of Learning and Knowledge Creation

The theory was first developed by Jean Piaget (1896–1980) mainly for academic purposes focusing on the nature of knowledge and how it grows. The theory became more influential in the 1980s by the constructivist movement led by Rosalind Driver, and during that period a series of books were written to emphasize the paradigm of knowledge creation (Sjøberg, 2007). The theory received additional attention in the late 1990s when Vygotsky's publications on constructivism were translated into English. Unlike Piaget, who was primarily interested in the nature of knowledge in academia and how it grows, Vygotsky focused on the understanding of social and cultural conditions of human learning (Sjøberg, 2007). The social constructivism theory assumes that when people reflect on their experiences, they construct their own mental models concerning the nature of the world they live in and that they keep adjusting these mental models to create new knowledge (Bada, 2015; Battacharjee, 2015; Poonam, 2017; Sjøberg, 2007; Woolfolk, 2007).

Inopportunely, in most organizations, people tacitly hold identical knowledge, tend to execute duties routinely *(following acquired standardized procedures)* without reflecting on their past and contextual experiences, and often snub checking flaws in their operational processes. Sjøberg (2007) noted that employees need to actively engage in discussions about challenges in their job tasks as they accumulate experience in order to construct their own meaning of work (creating knowledge). Moreover, when people interact and share ideas with others in the same environment, the opportunities for creating new knowledge in the form of solutions to problems increase (Brix, 2017; Kukla, 2000). In organizations, knowledge creation is perceived as a continuous process through which an individual overcomes the influence of past experiences that are no longer relevant to the current operational demands and initiates new ways of solving problems (Nonaka, von-Krogh, & Voelpel, 2006). Knowledge creation is therefore characterized by *externalization, internalization* and *problem definition*. While knowledge externalization is the ability to articulate tacit knowledge into explicit concepts, knowledge through iterative social interaction (Sowe, Stamelos, & Angelis, 2008) internalization has to do with embodying explicit knowledge into tacit knowledge (Silva, Kovaleski, Gaia, De Matos, & De Francisco, 2012). Nonaka et al. (2006) refer to both knowledge externalization and internalization as processes that validate individuals' subjective knowledge interpretations and then connect it with the interpretations of other individuals in same community. By translating tacit knowledge into explicit knowledge and vice versa, individuals develop the capacity to collectively define problems and the formulated ideas are then diffused, adapted and

embedded into new work methods/processes (Brix, 2017; Nonaka et al., 2006). Knowledge creation therefore is the difference between what is known *(explicit)* and what needs to be known *(tacit)* (Parent & Gallupe, 2000).

Communities of Practice and Knowledge Creation

Wenger (1998) described the concept of communities of practice based on the social constructive theory of learning. In his view, "communities of practice" is a situated kind of learning found in all places such as the workplace, the home, in schools, etc. It is not merely situated in terms of physical location or context but also includes socially negotiated cognitive usage of language and its meaning in a particular community which Wenger and Snyder (2000) described as a *shared domain of interest*. It brings together people with a shared concern to deepen an individual's or a group's understanding in an area of interest through interactions (Herrington & Oliver, 2000; Wenger & Snyder, 2000). Besides, communities of practice are built through *collaborative efforts* that can be recognized when management generates operational processes that enhance employees' trust and commitment towards organizational goals (Cardona, Lugo, & Velez-Gonzalez, 2012; Sallán, de Álava, Barrera-Corominas, & Rodríguez-Gómez, 2012). Roberts (2006) observed that organizations with strong hierarchical management controls typical of the Western culture are less likely to mobilize collaborative efforts that are essential for the success of communities of practice since hierarchical control is ordinarily a source of adversarial relations. Although successful collaborative interactions are traditionally applied through face-to-face conversation, with the acquisition of technological aid communities of practice can extend this through the use of web space or email lists as well as other social media that fit the local operational contexts (Millen, Fontaine, & Muller, 2002). Accordingly, employers who provide physical/social spaces for interaction and those who invest in information technology and networking infrastructure are at a greater advantage than those who do not to facilitate collective learning in an interactive mode. Whereas communities of practice have been spontaneously used for a long time, especially in community projects, some organizations have perceived the practice only as an interactive medium but not as a knowledge creation process (Smith, Hayes, & Shea, 2017, 2017–2018). However, African societies by tradition have always engaged in communities of practices using stories, proverbs, myths, etc. to teach young generations and this formed the bedrock of reasoning, decision-making and integrity among community members (Mangaliso & Mangaliso, 2007; Nkomo, 2011). Additionally, since stories are contextually embedded in day-to-day activities, storytelling could be a powerful learning approach that can convey complex organizational domains to enable employees share knowledge with rich tacit dimensions (Holtbrugge, 2013). More so, African understanding of knowledge creation has always been inclined towards how communities make sense of the world around them using an interpretive perspective. Opportunely, the collective interactional methods and the local language syntaxes, which are fundamental to communities of practice taking place, are already an integral part of African social communication structures, thus making it easier for groups and individuals to contextually interpret or translate knowledge concepts in manner that is meaningful to society (Bolden, 2014).

In today's era, those organizations that are willing to employ communities of practice in knowledge development will become superior performers and their employees will be

able to take collective responsibility to recognize, manage, and link the knowledge they need directly to learning and performance (Herrington & Oliver, 2000). The constructivism theory supports communities of practice by suggesting that construction of knowledge happens in a social interactive setting with the mediation of individuals, when the learners are treated as proactive knowledge creators rather than responding agents of external stimuli (Bruning, Schraw, Norby, & Ronning, 2004). Accordingly, organizations that institute collaboration mechanisms to enable people to discuss common concerns and learn from others' experiences while solving problems are likely to perform excellently. We therefore propose that:

H1: The latent variables of communities of practice (shared domain of interest and collaborative effort) are significantly related with knowledge externalization, knowledge internalization and problem definition which are latent variables of knowledge creation.

High Performance Work Systems (HPWS)

High performance work systems (HPWS) are human resource systems that aid employee competence development, engagement and productivity. They include a wide range of human resource management practices such as training and development, compensation, welfare, and all diverse learning initiatives that are associated with performance (Posthuma, Campion, & Campion, 2013). According to Jensen, Patel, and Messersmith (2013), HPWS include both soft and hard human resource management practices. Whereas the "hard component" of HPWS perceives employees as objects to be compelled, and rewarded to produce what organizations require, the "soft component" of HPWS treats people as valued assets whose resourcefulness is tapped through increased commitment, engagement, and empowerment (Jensen et al., 2013). Posthuma et al. (2013) noted that most organizations tend to pay attention to the former and barely take care of the latter. Those organizations that embrace the hard component often invest a lot in physical and material resources in order to support the implementation of strategies and policies such as formal training programs, performance-based reward systems, and competitive welfare benefits (Haslinda, 2009). In his example regarding formal training, Poonam (2017) argued that training treats people like empty vessels waiting for an expert to fill them with wisdom. Meanwhile, the process demands the organization to acquire standardized textbooks/modules, workbooks and materials and, in the end, the acquired knowledge becomes inert to the extent that knowledge applied in a particular working experience may not be easily transferred to another working environment. In another example, Mangaliso & Mangaliso, (2017) synthesized that a five-day compassionate paid leave policy that caters for biological parents and children may be dissatisfying in the African context. With the cultural background that believes in extended families where all brothers of one's father are his/her "fathers" and where all children of one's siblings are his/her "children", this employee would expect a five-day compassionate paid leave every time one his relatives passed away and, when this is not fulfilled, the particular employee may become disappointed. In summary, the hard component of high performance work systems has a tendency to focus on transactional exchanges while disregarding the humanistic relations and/or obligations which are key performance drivers in the African context (Nkomo, 2011; Posthuma et al., 2013).

According to Datta and De (2017) both "relational capital" (also referred to as intra-relationships) and "coherent leadership" are parameters of the soft component of HPWS. Relational capital is mobilized by developing, maintaining, and nurturing high-quality interaction competences of employees to associate effectively with external partners (e.g. customers, suppliers, market agents, etc.). These associations are attributed to a shared code of conduct that facilitates a common understanding of collective goals and humane ways of acting in an organization (Tsai & Ghoshal, 1998). On the other hand, coherence leadership is characterized by a leadership environment that empowers subordinates to take decisions and solve problem through delegation and other self-directed actions. However, coherence leadership in this sense would mean that before delegation, leaders have to ensure that the delegated employees have the competence to proactively define work-based problems, generate corrective ideas, and make the right decisions (Chénard, Morin, & Bourikas, 2017). The soft component of HPWS is also realized through employee engagement (Posthuma et al., 2013). Engaged employees tend to express emotional commitment, vigor and enthusiasm towards their work roles and they take actions to ensure organizational success (Shirom, 2003 and Kahn, 1990). According to Shaw (2005), employees will voluntarily translate their potential into performance if they are cognitively and emotionally energized.

High Performance Work Systems in Africa: The Ugandan case

Before transforming Africa into state governments (countries), the above assumptions regarding the soft component of HPWS parameters *(i.e. relational capital, employee engagement and coherence leadership)* were somehow practiced informally by the traditional kingdoms and chiefdoms. For instance, in Uganda and the Kingdom of Buganda in particular; the Kabaka *(King)* used to delegate responsibilities to the chiefs and to the clan leaders who served as his representative at the different community levels (i.e. county, sub-county, village or clan). The Kabaka would regularly engage the chiefs and the clan leaders to discuss communal areas of concern in an interactive mode and with the intention of nurturing them to become egalitarian leaders. Decisions on social, economic, and political development were often reached based on traditional beliefs and through consensus (Green, 2010; Skalník, 2004). The chiefs would, in return, share and implement the decisions in their territories through the same interactive approach. The application of the SHPWS actions harnessed community mobilization thus energizing community members to carry out activities collectively, such as road maintenance, cleaning water sources, growing food crops and planting coffee for economic purpose (Green, 2010). Operational technology for implementing community activities was invented through interactive associations among people and their environment (e.g. people would use palm trees, '*Nkoma*' in the local language, to stop animals and people from stepping into drinking-water wells).

The hard component of HPWS has mainly been introduced in an effort to modernize African organizations and for purposes of organizational competitiveness within the global arena (Globler and de Bruyn, 2018; Jensen et al., 2013; Posthuma, et al., 2013). Michaelis, Wagner, & Schweizer (2015) suggested that HHPWS are suitable for large-sized organizations, with the economies of scale that allow them to dominate the market. Small-sized organizations whose human resource practices and structures are

built on relational capital, engagement and coherence leadership are less likely to benefit from the hard component of high performance work systems. In this study we therefore focused on large organizations, those that have exposed themselves to competition within and outside the region (EYA survey report, 2009)

Communities of Practice (CoP) and High Performance Work Systems (HPWS)

Millen et al. (2002) examined the benefits of communities of practice in association with high performance work systems in addition to knowledge creation. Specifically, they found that communities of practice improved the quality of interaction and collaboration between supervisors and their employees. Consequently, quality interaction and collaboration reduced the time taken by organizational members to solve a given problem by 50% since it was easy to find someone in the organization that had experienced an almost similar problem (Calgary & Area Employer's Survey, 2015). For instance, online interaction (eLearning) using stories and templates developed through communities of practice lessened the burden of moving from one office to another while looking for information from colleagues and also reduced the time and money that would have been spent on physical interactions with sourced trainers. The fact that communities of practice lead to time saving implies that there is also cost saving which could be used to institute a reward and recognition system for innovative knowledge creators and those who meet performance targets beyond expectations (Millen et al., 2002). Based on the assumption that the two components of high performance work systems are critical in strengthening the predictive power of communities of practice in knowledge management, we hypothesize that:

H2a: Communities of practice (CoP) significantly influence the hard component of high performance work systems (HHPWS) which, in return, increases knowledge creation (KC).

H2b: Communities of practice (CoP) significantly influence the soft component of high performance work systems (SHPWS) which, in return, increases knowledge creation (KC).

Methodology

Research Design

The researchers adopted the multivariate causal correlational research design using SEM to establish direct path coefficients and indirect path coefficients (mediational effects) in the proposed hypotheses. This design was selected because of its ability to statistically explain the multiple complex behaviors/factors that influence dependent variables. The design also brings to the surface structural relationships of measured and latent variables and helps to reduce type I error, validate measures, and increase the predictive power of multiple variables (Grimm & Yarnold, 2000; Meyers, Gamst, & Guarino, 2013).

Participants

The participants were selected from medium- and large-sized organizations (>200 employees) that are affiliated to both the Federation of Uganda Employers (FUE) and

the Human Resources Managers' Association of Uganda (HRMAU). FUE is a national organization that was established in 1958 to represent the interests of Ugandan employers in matters dealing with employment relations and people management. On the other hand, HRMAU is a Human Resource Managers' Association of Uganda established in 1999 aimed at instituting standards, enhancing development, and promoting human resources practices in Uganda. Thirty (30) participating organizations voluntarily accepted to participate in the survey in order to obtain feedback on their competitive people management practices. Within these organizations, a total of 622 individual participants were selected using stratified random sampling. Of these, 57% were from private organizations and 43% from the public and NGO sector (non-profit). Furthermore, 47% were females, 33% were managerial employees, and 55% had spent more than five years in their organizations. The average age of participants was 26–35.

Measurement and Validation of Measures

The study focused on assessing relationships among four (4) variables, namely community of practice (CoP), the *hard* and *soft* components of high performance work systems (HHPWS and SHPWS), and knowledge creation (KC). The item-measures for each of these variables were developed based on qualitative research conducted by PILA consultants during the bi-annual EYA surveys. These items had been administered, tested and modified eight (8) times during each year the survey was conducted (i.e. EYA survey, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017). Each of these variables was assessed using a seven-point factor Likert scale and before analysis of reliability and validity, we prepared the dataset for confirmatory factor analysis (CFA) and structural equation model (SEM) by cleaning and normalizing the data (Byrne, 2001). To establish reliability, we aimed at achieving alpha coefficients greater than .7 and eliminated all items whose total correlation was less than .4. We then ran exploratory factor analysis (EFA) using maximum likelihood which is recommended as the best extraction method as it allows for the computation of a wide range of indexes of the goodness of fit and computation of confidence intervals (Costello & Osborne, 2005). We then applied CFA with $p > .05$ to verify the factor structure of a set of observed variables derived from EFA. CoP initially had 15 items with an alpha coefficient of .88. After EFA, we retained eight (8) items and established two (2) latent variables *(underlying measure or component)*, namely shared domain of interest (SDI) and collaborative effort (CE) as identified by Wenger and Snyder (2000). The confirmed two-factor measurement model had indices indicating a good fit *($x^2 = 15.83$, $df = 11$, $p = .15$, GFI = .98, TLI = .99. NFI = .98, CFI = .99, RMR = .02, RMSEA = .027).* HPWS items indicated a reliability coefficient of .98 with the original 67 items. EFA distinguished these items into 6 latent variables falling into two major categories (i.e. HHPWS and SHPWS). CFA confirmed a three-factor measurement model for HHPWS with all indices indicating a good fit *($x^2 = 70.91$, $df = 61$, $p = .18$, GFI = .98, TLI = .97. NFI = .99, CFI = .99, RMSEA = .016, AVE = .99).* The identified latent variables for HHPWS included Reward system (RS), Training and development (TD) and Employee welfare (EW). CFA for SHPWS confirmed a three-factor measurement model with all indices indicating a good fit *($x^2 = 28.27$, $df = 21$, $p = .13$, GFI = .99, TLI = .99. NFI = .99, CFI = .99, RMSEA = .023).* The identified latent variables included Relational capital (RC), Employee engagement (EE) and Coherent leadership (CL). Knowledge creation (KC)

initially had nine (9) items and these were all retained after reliability analysis (alpha = .83) CFA for KC still revealed a three-factor measurement model, indicating a good fit for all indices as follows: $x^2 = 31.46$, $df = 23$, $p = .11$, $GFI = .99$, $TLI = .99$. $NFI = .99$, $CFI = .99$, $RMSEA = .024$. In all four measurement models, the average variance extracted (AVE) was 0.99 which was well above the recommended 0.5 threshold for convergent and discriminant validity (Hair, Black, Babin, & Anderson, 2010).

Controlling Confounding Factors

To identify and control the confounding variables which usually are part of the demographic factors, we used nonparametric correlation (rank order) to establish whether there was any factor influencing knowledge creation that would impact on the study results. These demographic factors included type of organization, job level, age, sex, and tenure and all were scored on a categorical scale. The only factor that correlated significantly with knowledge creation was age ($r_s = -.09$, $p = .03 < .05$). The $r_s = -.09$ value was negative meaning that it is the young employees that are likely to be involved in knowledge creation, but the fact that it was so close to zero indicated that it had a weak influence on knowledge creation. We confirmed this by running multiple regression analyses and by doing so the prediction power of age was reduced ($\beta = .01$, $p = .75 > .05$) and it became insignificant.

Study Findings

To establish the relationship between communities of practice and knowledge creation we correlated their latent variables (hypothesis 1). The results (Table 1) revealed that both shared domain of interest and collaborative effort *(latent variables of communities of practice)* significantly influenced the individuals' ability to translate tacit knowledge into explicit knowledge *(knowledge externalization)* through interactions, observations, discussions, analyses, and spending time with colleagues in same work environment. These two latent

Table 1. Descriptive statistics and zero order correlation between latent variables.

			DV – Knowledge creation (KC)		
	Mean	SD	EXT	INT	PD
IV – Communities of practice (CoP)					
1. Shared domain of interest (SDI)	5.92	.79	.38**	.39**	.44**
2. Collaborative effort (CEF)	5.98	.82	.33**	.37**	.34**
MV1 – Hard high performance work systems (HHPWS)					
3. Reward systems (RS)	5.14	1.50	.47**	.32**	.47**
4. Training and development (TD)	5.37	1.26	.51**	.41**	**.67****
5. Employee welfare (EW)	6.00	1.36	.44**	.24**	.41**
MV2 – Soft high performance work systems (SHPWS)					
6. Relational capital (RC)	5.81	1.05	.46**	.40**	.48**
7. Employee engagement (EE)	6.15	.89	**.60****	.46**	.41**
8. Coherent leadership (CL)	5.93	1.21	.46**	.38**	**.60****
DV – Knowledge creation (KC)					
9. Knowledge externalization (EXT)	6.11	.77			
10. Knowledge internalization (INT)	5.99	.85			
11. Problem definition (PD)	5.49	1.26			

Note: IV = independent variable, MVI = the first mediating variable, MV2 = the second mediating variable, DV = dependent variable.

***$p < .0001$, $N = 622$

variables (shared domain of interest and collaborative effort) also significantly influence knowledge internalization and problem definition.

We, however observed, that the correlation (r) between the latent variables of communities of practice and the latent variables of knowledge creation was below .40, except for the relationship between shared domain of interest and problem definition (r = .44, $p < .05$). According to Evans (1996), a correlation (r) below .40 is a weak correlation though significant and positive. Nonetheless, the correlation (r) between the moderators (i.e. HHPWS and SHPWS) and knowledge creation indicated a positive significant relationship that is moderately strong and recommended for causal sequencing (mediation). Specifically, we found the following relationships among others to be strong according to Evans (1996): training and development versus problem definition (r = .60, $p < .01$); employee engagement versus knowledge externalization (r = .67, $p < .01$); and coherent leadership versus problem definition (r = .60, $p < .01$).

Hypothesis 2a proposed that communities of practice (CoP) significantly influence the hard component of high performance work systems (HHPWS) which, in return, increases knowledge creation (KC). We used structural equation modeling to establish the indirect effects of communities of practice through HHPWS to predict knowledge creation. Initially, we measured the direct effects of the latent variables of communities of practice (CEF & SDI) on knowledge creation (KC) without including the mediating variable (Table 2, model 1) and the results showed that the direct effect of CEF was (B = .49, $p < .001$) and that of SDI was (B = .30, $p < .001$). When we introduced the mediating variable, i.e. HHPWS, we found that the direct path coefficients from both collaboration effort (B = .04, $p = .36 > .05$) and shared domain of interest (B = .06, $p = .11 > .05$) to knowledge creation became weaker and insignificant (Table 2, model 2). However, the alternative indirect path coefficients from both collaboration effort (B = .62, $p < .01$) and shared domain of interest (B = .44, $p < .01$) through the hard component of high performance

Table 2. Regression analysis and mediated path coefficients using structural equation modeling (SEM).

Model 1: Direct effects from IV to DV

DV		IV	B	SE	*P*	x^2	*df*	GFI	TLI	NFI	CFI	RAMSEA
KC	<—	CEF	.49	.11	***	110.86	40	.97	.95	.94	.96	.053
KC	<—	SDI	.30	.08	***							

Model 2: Hard HPWS as a mediator

DV		IV/MV	B	SE	*P*	x^2	*df*	GFI	TLI	NFI	CFI	RAMSEA
HHPWS	<—	CEF	.62	.13	***	232.99	68	.95	.93	.93	.95	.063
HHPWS	<—	SDI	.44	.10	***							
KC	<—	HHPWS	**.36**	.04	***	.						
KC	<—	CEF	.04	.05	***.36***							
KC	<—	SDI	.06	.03	***.11***							

Model 3: Soft HPWS as a mediator

DV		IV/MV	B	SE	*P*	x^2	*df*	GFI	TLI	NFI	CFI	RAMSEA
SHPWS	<—	CEF	.35	.10	***	254.07	69	.94	.92	.92	.94	.066
SHPWS	<—	SDI	.55	.08	***							
KC	<—	SHPWS	**.56**	.06	***							
KC	<—	CEF	.11	.05	***.03***							
KC	<—	SDI	−.11	.05	***.05***							

Note: IV = independent variable (CEF & SDI), MV = moderating variables (HHPWS & SHPWS) and DV = dependent variables (KC).

*** $p < .0001$, N = 622

work systems (B = .36, $p < .01$) to knowledge creation was significant. We also observed that collaboration effort was a stronger predictor of the hard component of high performance work system compared to the prediction power of shared domain of interest. The model fit indices demonstrated a good fit where $\chi^2 = 232.99$, df = 68, GFI, TLI, NFI and CFI >.9 while RAMSEA = .063 (Table 2, model 2). The fact that the direct path coefficients from the latent variables of CoP (i.e. collaboration effort and shared domain) were weaker and insignificant indicated that a full moderation was obtained for hypothesis 2a (MacKinnon, Fairchild, & Fritz, 2007).

Hypothesis 2b proposed that communities of practice (CoP) significantly influence the soft component of high performance work systems (SHPWS) which, in turn, increases knowledge creation (KC). The direct path coefficients from collaboration effort (B = .11, $p = .03 < .05$) and shared domain of interest (B = −.11, $p = .05$) to knowledge creation was weakened but remained significant (Table 2, model 2). In addition, the indirect path coefficients from collaboration effort (B = .35, $p < .01$) and shared domain of interest (B = .55, $p < .01$) through the soft component of high performance work systems (B = .56, $p < .01$) to knowledge creation were also significant. The model fit indices demonstrated a good fit where $\chi^2 = 254.07$, df = 69, GFI, TLI, NFI and CFI >.9 while RAMSEA = .066 (Table 2, model 2). Since the direct path coefficients from the latent variables of communities of practice were weaker but significant, we concluded that a partial moderation was obtained for hypothesis 2b (MacKinnon et al., 2007).

Nonetheless, by comparing the two models, 1 and 2, we noted that, of the two latent variables of communities of practice, collaboration effort was a stronger predictor for the hard components of high performance work systems, while shared domain of interest was a stronger predictor for the soft components of high performance work systems (see results in Table 2). Moreover, the soft component of high performance work systems seemed to be a stronger predictor of knowledge creation compared to the hard component of high performance work systems.

Discussion

This study focused on the coalition of communities of practice with high performance work systems as an intermediary variable that facilitates an increase in employees' ability to create innovative knowledge necessary for solving diverse problems in organizations. We grounded our investigations in social constructivism theory which is premised on the notion that people construct their own mental models of the nature of the world they live in and they keep adjusting these mental models to create new knowledge (Bada, 2015; Battacharjee, 2015; Sjøberg, 2007; Woolfolk, 2007). We extended this assumption in examining whether high performance work systems can accommodate outcomes of communities of practice to advance knowledge creation rather than knowledge acquisition in organizations. In so doing, our aim was to determine whether the constructive approach of knowledge creation, which adumbrates African learning culture, is a better alternative than the behavioral condition approach or knowledge acquisition model when it comes to operations in complex environments.

Based on the zero order correlation coefficient, findings illustrated in Table 1 clearly show that the two latent variables of communities of practice – "shared domain of

interest" and "collaborative effort" – directly influenced the individuals' ability to translate tacit knowledge into explicit knowledge, a process referred to as "knowledge externalization" (Nonaka et al., 2006). Communities of practice allow individuals to spend additional time interacting with each other, observing, analyzing, and discussing complex situations in the same work environment, thus enhancing knowledge externalization (Cardona et al., 2012). In tandem, as knowledge is crystalized, it is also transformed into organized digitalized reports, documentations, training manuals, and procedural manuals commonly used as references to guide business operations. During this process, knowledge is internalized or assimilated in the individuals' minds to enable them to apply the espoused knowledge, work methods, and activities. Subsequent to the conversion of tacit knowledge into explicit knowledge and vice versa, or externalization and internalization, tasks that were seemingly complex and problematic are defined by combining the divergent ideas of the employees regarding the shared conceptualizations of operational problems and meaningful solutions (Gourlay, 2006).

Although communities of practice offer an environment that supports conversion of tacit knowledge into explicit knowledge, the results of the second hypothesis (2a and 2b) proved that both the hard and soft components of high performance work systems can ignite such an environment to heighten knowledge creation. In hypothesis 2a, when HHPWS was introduced, the direct effects of CEF on KC were reduced from .49 to .04 and the direct effects of SDI to KC were reduced from .30 to .06, thus confirming the significant mediational effects of the hard component of HPWS. In hypothesis 2b, when SHPWS was introduced, the direct effects of CEF on KC were reduced from .49 to .11 and the direct effects of SDI on KC were reduced from .30 to −.11, also confirming the significant mediational effects of the soft component of HPWS. Concomitantly, the hard component of high performance work systems, whose effects evidenced a moderate prediction (B = .36***), focuses on palpable and more extrinsic human resource management functions that are oriented towards motivating employees through training, competitive rewards, and other tangible welfare benefits that are commonly documented as policies in human resource manuals (Haslinda, 2009; Mariappanadar & Kramar, 2014).

The rhetorical versus reality theoretical perspective of HPWS (Gould-Williams, 2007) suggests that the hard component of HPWS is aimed at creating a competitive advantage for the organization at the expense of the employees thus heightening pressure on the individuals to produce unrealistic results in exchange for tangible rewards. However (Ramsay et al., 2000) argued that those consequences can be reversed by adopting the soft component of HPWS which shows genuine concern for individual employees by promoting team relationships, teamwork, team learning and team performance through collective interactions. This perspective seems to be compatible with those African traditional management models that are concentric to human existence and experience (Khumalo & Baloyi, 2017; Mangaliso & Mangaliso, 2007). Therefore, the essence of the soft component of high performance work systems, which proved to be a stronger predictor of knowledge creation (B = .56***), can be espoused to develop more rigorous and intangible human resource rewarding strategies such as empowering employees to exercise coherence leadership, make important decisions, and promote cooperation, as well as providing opportunities for them to engage in relations with external stakeholders.

More fascinating results were observed in the different ways the latent variables of communities of practice associated with the two components of high performance

work systems. First, we noted that in *hypothesis 2a* the effects of collaboration effort (B = .62***) were stronger than the effects of shared domain of interest (B = .44***) on the *hard* component of high performance work systems. This denotes that an effective high performance work systems that supports knowledge creation was being built upon collaborative efforts and demonstrated formally through social networks and/or professional alliances. The learning culture forged by the hard component of high performance work systems therefore is characterized by virtual interactions modes (e.g. email lists, whatsApp chats, and other social media platforms) (Saini, 2015). These modes are supported by formal structures and availability of financial and technological resources, provided in form of competitive salaries, internet and intranet, web space and training to stimulate group associations (Millen et al., 2002). This may seem contradictory to the earlier supposition that strong hierarchical organizational structures tend to obstruct collaborative efforts and instead induce adversarial relations (Roberts, 2006). Nonetheless, some literature does assert that since communities of practice are based on social constructive theory (Wenger, 1998), they can actually regulate the hard component of high performance work systems by involving employees in determining the desired training programs, training approaches, cost implications and other key people management policies (Millen et al., 2002).

Second, in *hypothesis 2b*, we noted that the effects of shared domain of interest (B = .55***) were stronger than the effects of collaboration effort (B = .35***) on the *soft* component of high performance work systems. Shared domain of interest is acknowledged by the nature of activities the employees engage in, in terms of disciplinary backgrounds, business goals, similarity of activities and used tools, shared stories and operational values. The organization can set up dynamic structures to allow as many communities of practice groups as the existing areas of specialties shared experiences spontaneously (i.e. in the hall ways, during lunch meetings and other discussion forums). Mentorship, employee involvement in decision- making and delegation of work at high levels are prominent features of the learning culture applied under the soft component of high performance work systems (Saini, 2015).

Implications of Full and Partial Mediation

The full mediation effects demonstrated in model 2 reflected the normative preferred human resources management systems that are found in organizations similar to those we studied; a system that promotes more contingent extrinsic rewards to control people's behavior with the aim of yielding high productivity. According to Truss, Gratton, Hope-Hailey, Mcgovern, and Stiles (1997), the hard component of high performance work systems is based on the notion of tight strategic control of employees to increase economic gain. Hence, employees are trained to acquire demanded delivery skills and rewards are used as a token for inspiring outputs. This approach is intended to energize people who are less self-directed to meet performance expectations, where clear obligations and rights are defined as high performance work principles, work policies, work procedures, and work products (Posthuma et al., 2013). These findings limit the social constructive perspective which treats people as entities that are capable of interpreting their own work environment to create new knowledge (Sjøberg, 2007).

Model 3 demonstrated partial moderation effects caused by the soft component of high performance work system, thus reflecting a non-controlling human resource management system that may be considered lenient and risky by contemporary management models (Ichikawa & Steup, 2018). However, from the African perspective these results demonstrate a system that regards people as self-regulated with high levels of intrinsic motivation and in which the central role of management is to empower its employees by providing information that is needed to deliver in their roles (Truss et al., 1997). In this system, the relationship between the managers and employees is based on high levels of trust, flexibility and adaptability to the operational dynamics, thus explaining the emerging strong direct effects of the mediator (SHPWS) in knowledge creation. Accordingly, alongside the mediational effects of SHPWS, the latent variables of community of practice could also influence knowledge creation directly. This is a sign that CoP and SHPWS can easily converge to induce innovative knowledge creation

Theoretical Implications

The social constructive theory of learning urges organizations to use communities of practice as a basis for creating innovative knowledge that is compatible with the work environment (Sjøberg, 2007; Wenger, 1998). This type of knowledge is believed to be original since it is developed within specific operational contexts and is therefore considered to be meaningful to employees. In this paper, we have theorized that the high performance work system is an approach that ignites knowledge creation in organizations where communities of practice are implemented. We understand the propensity of most organizations to focus on the hard component of high performance work systems with the view to controlling and pressuring their employees to pursue maximum productivity in exchange for competitive rewards and benefits. We deliberately introduced the paradigm of the soft component high performance work systems using its subcomponents of "relational capital", "coherence leadership", and "employee engagement" to illustrate that it can be a better alternative and a more humanist approach for managing people. Additionally, since the soft component of high performance work system is rooted in African traditions, where knowledge is developed, maintained, and nurtured through quality interactions to achieve a common goal (Tsai & Ghoshal, 1998), this paradigm is anticipated to be a better fit for African learning culture and productivity.

Practical Implications

The findings of this research contribute to the body of human resource management literature by explaining the benefits of knowledge creation and how knowledge creation can be supported in organizations. Knowledge creation increases expertise among employees by providing resources that are rare, valuable, inimitable, and contextually grounded. This way, organizations move away from mastering only the generic routinized activities to creating novelties that can address socially complex and causally ambiguous challenges in their operational environments. Communities of practice bring together people to deepen their knowledge and expertise in areas where they have a shared concern through regular interactions. High performing organizations therefore need to embrace communities of practice to enable employees to gain collective expertise necessary for

creating sustainable production standards and customer-oriented solutions approaches that are more innovative. We found that sustainable knowledge creation by the learning groups (communities of practice) can be strengthened when high performance management systems are introduced. To achieve this, top management should strive to provide risk-free environments and strategies for developing self-directed character among communities of practice members (Wenger & Snyder, 2000) and high performance work systems that are compatible with their work environment.

Implications for Uganda and Africa

Uganda, just like various other countries in Africa, is a low developing country with a poor economy (i.e. GDP growth at 5% and a third of its population living below the poverty line of US$1.9 per day). Generally, most employers – regardless of the size and age of the organization – are struggling to pay taxes and to finance their companies including payment of decent salaries and other welfare benefits to their employees (EYA survey report, 2009). Under such circumstances, implementing high performance work systems to ignite knowledge creation among employees might be difficult, especially the hard component which demands highly funded strategies such as comprehensive recruitment and selection, training and development, and performance-based incentives to sustain performance. However, most African societies, Uganda included, have always valued collective interactions (collaboration), humanity, and reciprocity, which makes it simple to integrate communities of practice as a medium for knowledge creation. Therefore, a combination of communities of practice together with relational capital, engagement, and coherence leadership can serve as a strategic driver for innovative knowledge and as a means for providing high performance solutions. Specifically, organizations can take the following actions: (1) Initiate strategic interactive relationships *(both intra- and inter-relationships)* to allow their employees, customers, partners, suppliers, and other stakeholders participate in regular communities of practice forums. (2) Lead with coherence by creating systems that promote both individuals and groups by giving them an opportunity to grow through mentorship and delegation of high-level responsibilities to those with potential. (3) Provide positive and constructive feedback to enhance employee engagement and boost their experiences while recognizing individuals and groups that have met performance expectations.

Limitations and Areas for Future Research

This study assessed the synergetic influence of communities of practice and the two components of high performance work systems as mediators in the vein of increasing innovative knowledge creation. However, the study did not focus intensively on the direct effects of the two components as independent predictors of knowledge creation outside communities of practice. Table 1 gives an indication that both hard and soft components of high performance work systems may have a direct significant influence on knowledge creation. In this study we only used that data as a basis for justifying continuance with mediational analysis and since we did not hypothesize that relationship, we could not follow up on the

findings throughout our debate. This can therefore be a point of investigation for further research.

Secondly, some scholars have criticized the effects of the hard component of high performance work systems saying that it puts employees under a lot of pressure to achieve performance targets thus exposing them to inflexible working schedules and work overload which may be harmful to their psychological and physical wellbeing (Mariappanadar & Kramar, 2014; Stankeviciute & Savaneviciene, 2014). Besides mediational effects, this study did not attempt to understand deeply the consequential differences in utilizing either of the two components (hard and soft) of high performance work systems in knowledge creation. This may require a qualitative approach to uncover the underlying factors behind the success of each type of high performance work system.

Conclusion

Knowledge creation through collective interactions and negotiated meanings about daily work contributes to organizations' competitive advantage. As organizations develop and implement systems to create knowledge, their employees' expertise and ability to address complexity in their operational contexts increases. In this study we found that in organizations where the learning culture is driven by collective interaction, employees would use their experiences to articulate tacit knowledge explicitly and modify it to create new knowledge that is context based. These interactions are built on shared domains of interest and collaborative efforts which are components of communities of practice. Communities of practice provide people with a shared concern both virtual and physical space to elaborate their experiences, conceptualize their operational contexts and develop new innovative ideas that can drive performance. With the aid of high performance work systems, capability processes are availed to motivate organizational members and enhance their involvement in decision-making. Specifically, the soft component of high performance work systems was found to be more compatible with the African context since the systems value the humanness nature of individuals and empower people through collaborative relationships, engagement, and coherent leadership to create innovative knowledge.

Disclosure statement

No potential conflict of interest was reported by the authors.

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