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Clarifying the construct of human resource systems: Relating human resource management to employee performance

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ABSTRACT

Strategic human resource management researchers have strongly advocated a system perspective and provided considerable evidence that certain systems of human resource practices have a significant impact on individual and organizational performance. Yet, challenges of understanding the construct of human resource systems still remain in the literature. Specifically, few efforts have been made to explicate the internal fit in human resource systems referring to how the practices in human resource systems work together. For the purpose of clarifying human resource systems construct, we review the components of human resource systems and delineate how the parts of human resource systems work together to influence employee performance. Theoretical and empirical implications for future research are also discussed.

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1. Introduction

Strategic human resource management (HRM) researchers argue for a focus on the bundles of human resource (HR) practices in place, rather than individual practices, as a primary unit of analysis when examining the impact of HR systems on individual and organizational performance (Huselid, 1995; MacDuffie, 1995). The logic for this argument is that individual HR practices do not function in isolation but work in concert, and employees are exposed to multiple practices simultaneously. As noted by Lado and Wilson (1994), an HR system is not merely a composition of HR practices but a dynamic bundle of HR practices that is deliberately designed to achieve the organization's goals. Given this, researchers have taken a system perspective to examine the impact of HRM on relevant outcomes (Wright & Boswell, 2002).

Despite the emerging consensus on this system focus, there still remain some challenges of clarifying the construct of HR systems. First, although it is widely acknowledged that HR systems are bundles of HR practices intended to achieve the objectives of organizations (Wright & McMahan, 1992), the composition of HR systems varies greatly from one study to the next. For example, prior research identified various HR systems such as high performance work systems (HPWS) (Becker & Huselid, 1998), high commitment HR systems (Arthur, 1992, 1994), high involvement HR systems (Guthrie, 2001), and high investment HR systems (Lepak, Taylor, Tekleab, Marrone, & Cohen, 2007). In addition, Lepak, Liao, Chung, and Harden (2006) and Combs, Liu, Hall, and Ketchen (2006) found that the number of practices included, as well as which practices were included in those HR systems varied dramatically across the empirical studies. Without consensus of the content of HR systems, it is difficult to operationalize HR systems appropriately and less likely that the field will accumulate knowledge about HR systems based on sound measures.

Besides variation of the components of HR systems, another challenge of understanding the construct of HR systems is the lack of precision of the internal relationships among the components of HR systems. From a conceptual perspective, Delery (1998) emphasized that "internal fit deals with the internal consistency, and complementarity of HR practices" (p. 291) and proposed that HR practices within an HR system may supplement, substitute, or interact with each other in positive or negative ways.

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Yet, even though the potential types of relationship among HR practices are widely noted (e.g., Chadwick, 2010; Delery, 1998; Gerhart, 2007), scant research has testified these internal relationships (Gerhart, 2007; Kepes & Delery, 2007; Lepak et al., 2006). Although some empirical studies found the interaction effects among distinct HR practices in isolation (e.g., Kepes, Delery, & Gupta, 2008), such piecemeal bivariate interactions in different studies is fragmented and incomplete without a comprehensive model about how the parts of HR systems operate. As a result, these findings are unable to reflect the theoretic intent of the HR system level approach.

Unfortunately, researchers have not typically focused on specific forms of interrelationships in HR systems. As one exception, Chadwick (2010) tried to address this issue by proposing three approaches to HR system synergy based on two dimensions for increasing system performance. The three approaches—virtuous overlaps, independent effects, and efficient complementarities—vary in their focuses on system components' independent effects on performance and on the interactions among the components. Chadwick (2010) provides useful insights for fitting approaches to synergy to different contingencies, but it is focused on forms of synergy within HR systems rather than the specific relationships among the components of HR systems. Without specifying what specific relationships that may exist among components of HR systems and when and why these relationships emerge in HR systems, it is difficult to theoretically understand the nature of HR systems. One consequence of this issue is that the field is plagued with inconsistent conceptualizations of HR systems and lacks a cumulative body of knowledge (Chadwick, 2010; Lepak et al., 2006). Moreover, without theoretical frameworks regarding the relationships among HR practices, it is hard to understand the mechanisms through which HR systems impact employee and organizational outcomes and the conceptualization of synergistic effects of HR systems is at most abstract (Delery, 1998).

Given these challenges, the current paper aims to contribute to the clarification of HR systems construct in three ways. First, drawing upon the AMO (i.e., ability, motivation, and opportunity) framework (e.g., Boxall & Purcell, 2008; Gerhart, 2007; Lepak et al., 2006) and the discussions in the literature on levels of HR systems (e.g., systems, policies, and practices) (Becker & Gerhart, 1996; Schuler, 1992), we identify the components of HR systems. Second, based on the distinctions among additive, substitutive, and interactive effects from the existing literature (Delery, 1998), we propose different kinds of interrelationships occurring at different levels of HR systems in predictable patterns by developing a theoretical framework regarding how the components of an HR system work together to impact employee performance. Following the discussions of the components of HR systems and the internal relationships within HR systems, we provide some implications for operationalizing HR systems in empirical research in the discussion section.

As suggested by previous research exploring internal relationships within HR systems (Chadwick, 2010; Delery, 1998), it is important to define an HR system construct by relating it to particular performance criteria because "it's impossible to configure systems to simultaneously maximize a wide variety of performance measures" (Chadwick, 2010, p. 89). In this study, we focus on employee performance, which refers to collective employee behaviors that are relevant to the organizational goals and that are under the control of employees (Lepak et al., 2006; Schuler & Jackson, 1987), in an attempt to clarify the construct of HR systems for several reasons.

First, employee performance is a reasonable outcome directly associated with the extent of internal fit among HR practices. Internally aligned HR practices operate to influence employee abilities, motivation, and opportunities (AMO) in a potentially harmonious manner (Becker & Huselid, 1998; Delery & Shaw, 2001; Guest, 1997). As such, we comprehensively cover how different aspects of HR systems may influence abilities, motivation, and opportunities to contribute as well as the potentially effective alignment among them (Boxall & Macky, 2008; Wood & Wall, 2007).

Second, conceptually, employee performance is also a key proximal outcome in the HR-performance linkage (Dyer & Reeves, 1995). HR research has examined the influence of HR systems on organizational outcomes (e.g., productivity, quality, and service) or financial outcomes (e.g. return on invested capital, return on assets, and return on equity), which might be quite distal from HR systems (Wright & Sherman, 1999) and might be confounded by many contextual factors such as industry (Datta, Guthrie, & Wright, 2005) and strategy (Youndt, Snell, Dean, & Lepak, 1996). In order to explore the "Black Box" in the HR system-firm performance relationships (Becker & Gerhart, 1996), recent research suggests examining the mediating role of proximal employee outcomes (Butts, Vandenberg, DeJoy, Schaffer, & Wilson, 2009; Chuang & Liao, 2010; Kehoe & Wright, in press; Liao, Toya, Lepak, & Hong, 2009; Nishii, Lepak, & Schneider, 2008; Takeuchi, Chen, & Lepak, 2009). For these reasons, it is appropriate to focus on employee performance to fully understand the construct of HR systems.

The organization of this paper is as follows. First, we discuss the components of HR systems and distinguish three primary HR policy domains (i.e., knowledge, skills, and abilities, motivation and effort, and opportunities to perform, respectively) based on their relationships with employee performance. Second, we explore the three types of relationships among HR practices (i.e., additive, substitutive, and synergistic, Delery, 1998) and develop propositions regarding how the components of HR systems operate in predicable patterns to impact employee performance. Finally, we provide theoretical implications for methodology of HR research and suggest directions for future research.

2. Theoretical background and propositions

In order to clarify the construct of HR systems, it is vital to be clear on the key constructs in the theoretical framework: the primary levels within HR systems—HR systems, HR policies, and HR practices (Becker & Gerhart, 1996; Schuler, 1992)—as well as the three HR policy domains (Lepak et al., 2006). We view the levels as the hierarchical categories of HR activities within HR systems rather than embedded units or entities in multilevel research such as individuals, groups, and organizations (Kozlowski & Klein, 2000).

2.1. Levels within HR systems

Within an HR system, the highest level of abstraction is the system level. As noted by Wright and McMahan (1992, p. 298), an HR system is "the pattern of planned human resource activities intended to enable an organization to achieve its goals". In this definition, two key components are highlighted. First, the reference is to a pattern. Practices are not always completely independent; there are underlying patterns to why the practices are used and how they operate. Second, there is reference to planned activities—multiple HR activities intended to work together to achieve a common goal.

At this level of abstraction, researchers have focused on a variety of HR systems. HPWS aim to attain a firm's strategic goals by generating inimitable human resources that help companies achieve high performance (Becker & Huselid, 1998). Somewhat related, high involvement HR systems emphasize building employee commitment and rely on a set of practices that facilitate skill development and provide opportunities and incentives for employees to use their skills (Batt, 2002; Guthrie, 2001; Pil & MacDuffie, 1996). Agarwala (2003) discussed innovative HR practices which aim to help companies adapt to changes by facilitating innovation through the HRM function. By contrast, others have examined control-oriented HR systems which focus on increased efficiency achieved by designing HR practices to ensure employees comply with predetermined regulations and to minimize labor costs (Arthur, 1994). While this list is not exhaustive, it highlights the various conceptualizations of HR systems utilized in the literature that are oriented toward achieving different outcomes.

At a lower level of abstraction are the HR policies that comprise the HR systems (Becker & Gerhart, 1996; Schuler, 1992). An HR policy is an employee-focused program that impacts choices regarding HR practices. As noted by Wright and Boswell (2002, p. 263), HR policies refer to "the firm or business unit's stated intention about the kinds of HR programs, processes, and techniques that should be carried out in the organization". HR policies can provide guidelines for action on people-related business issues and HR programs (Schuler, 1992). For example, a firm's compensation policy might be a reliance on pay for performance or might be based on seniority. Related, a firm's recruitment policy might emphasize broad reach to many different applicants while another firm's policy might be targeted outreach to potential applicants.

Finally, for each HR policy, a variety of implementable practices exist. In order to implement pay for performance, for example, companies may use merit pay, piece rate systems, or stock plans. Related, to implement a broad reach recruitment policy an organization may use internet, company based websites, or widely circulated publications. While the choice of the specific practice may vary across organizations, provided the practices are consistent with the objectives of a pay for performance logic, organizations with distinct HR practices may be viewed as following similar policies.

2.2. HR policy domains

In addition to levels within HR systems, several researchers (Boxall & Purcell, 2008; Lepak et al., 2006; Subramony, 2009) have suggested the grouping of HR policies. According to these arguments, all HR systems share a common make-up in their basic composition, such that HR systems operate through influencing employees' abilities to perform, motivation to perform, and opportunities to perform. These three paths are based on the conceptual logic of employee performance. Specifically, employee performance can be viewed as a function of three components—ability, motivation, and opportunity. According to the framework of Lepak and colleagues (2006, p. 238), in order to maximize employee contributions, HR policies may be viewed as being oriented toward influencing one of three primary HR policy domains: (1) the knowledge, skills, and abilities (KSAs) domain; (2) the motivation and effort domain; and (3) the opportunities to contribute domain.

The KSAs HR policy domain consists of a group of HR policies and practices that focus on HR efforts that influence the competencies of employees. Within HR systems, three general HR policies are directly instrumental in this domain: recruitment policies, selection policies, and training policies. The motivation and effort HR policy domain is composed of HR policies that are implemented to influence employee motivation and effort rather than abilities during their work performance. Three general HR policies are directly instrumental in this domain: performance management policies, compensation policies, and incentive and rewards policies. Beyond improving employees' KSAs and motivation required to perform well, an organization needs to design work in a way that allows them to exert their KSAs and efforts via opportunities to contribute HR domain. Within this domain, two HR policies are generally used to offer these opportunities: job design policies and involvement policies. Each policy within the three HR policy domains is implemented through various HR practices. For example, a training policy is realized via some particular training practices such as on-the-job training, off-the-job training, online training, and classroom training. Performance management policy can be implemented via formal evaluation, developmental appraisal, 360° appraisal, and result-oriented appraisal. Moreover, practices like empowerment, voice, employee participation, and information sharing may be used to realize involvement policy.

Although the grouping of HR practices is not new in strategic HRM research (e.g., Delery & Shaw, 2001; Gerhart, 2007; Lepak et al., 2006), few studies has explored the relationships among HR practices within and across HR policy domains (Gerhart, 2007), which is vital for understanding HR systems construct. Fig. 1 provides a graphic depiction of these levels within HR systems and the three primary policy domains as well as our proposed relationships within and between levels.

2.3. Types of relationships among HR practices

Conceptualizing HR systems and understanding the internal relationships within these systems has attracted considerable attention (Combs et al., 2006; Delery, 1998; Huselid, 1995; Lepak et al., 2006; MacDuffie, 1995). In part, this is because the

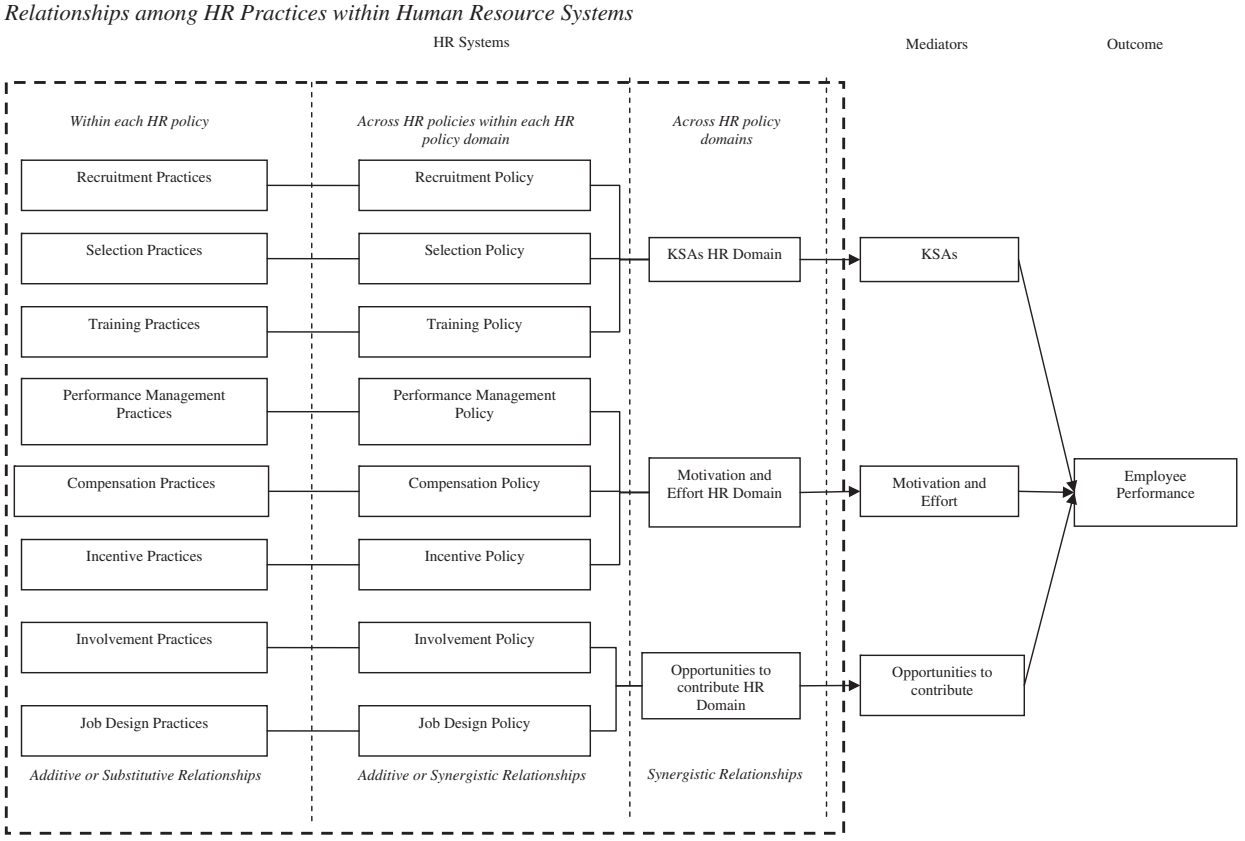

Fig. 1. Relationships among HR practices within human resource systems.

relationship among the components of HR systems is related to methodological issues in the strategic HRM literature. In generating an HR index for analysis, for example, researchers generally adopt an additive approach and take the average score of a set of HR practice scales or count the numbers of HR practices that are present in a system (e.g., Arthur, 1992, 1994; Guthrie, 2001; Huselid, 1995; Toh, Morgeson, & Campion, 2008; Youndt et al., 1996). However, this is not simply an empirical issue—there are conceptual assumptions underlying this logic. While some practices may certainly have an additive effect, it is possible that some HR practices may have synergistic effects and, if so, bundles of HR practices may have a greater impact than the sum of individual practices. If this were the case, a simple summation would underestimate the influence of an HR system on a relevant outcome (Delery, 1998; Gerhart, 2007; Kepes & Delery, 2007; Lepak et al., 2006). Alternatively, it is possible that some practices may be redundant with one another—resulting in a lack of synergy even though both practices are beneficial in isolation. In these cases, these methodologies would be misstating the measurement of HR systems and, ultimately, their impact on important outcomes. As a result, how we conceptualize internal relationships within HR systems is both theoretically important and empirically relevant for understanding HR systems.

Building on Delery (1998), we conceptualize potential relationships among HR practices in a system as additive, substitutive, or synergistic. In an *additive* relationship, HR policies and/or practices have independent and non-overlapping effects on employee outcomes (Delery, 1998). Essentially, with an additive relationship, two practices might generate greater effects on an outcome than either one used alone. However, the effects of using two practices together are not more than the sum of the effects of the individual practices. Moreover, the effect of each practice is sufficient in isolation and is not dependent on other practices. The investigation of additive relationship has a longstanding history in strategic HRM research and involves creating an "additive index" based on a summation of the scores of individual practice measures. For instance, Youndt et al. (1996) followed the additive approach which was used by previous researchers (e.g., Arthur, 1992, 1994; MacDuffie, 1995) to combine HR practices into two HR bundles. Also, Becker and Huselid (1998) established a "homogeneity index" to measure the degree of a firm's HRM system by counting the HR practices used by most organizations (i.e., beyond the 75th percentile in the sample). Many other studies measured HR systems on a continuous scale by summing the raw scores (e.g., Collins & Smith, 2006; Liao et al., 2009) or Z-scores of HR practices (e.g., Batt, 2002; Guthrie, 2001; Huselid, 1995; Takeuchi et al., 2009) that are consistent with additive assumptions.

A *substitutive* relationship exists when one practice is replaceable with another practice and therefore using two practices does not have a greater impact compared to their individual effects. In other words, adding one practice that has a substitutive relationship with another practice only increases operational cost. Ichniowski, Kochan, Levine, Olson, and Strauss (1996) gave employee stock ownership and profit sharing practices as an instance of substitutive relationship because both may increase

employee identification with the employers and using them in combination may not result in better identification than either independently. Similarly, Harp, Taylor, and Satzinger (1998) examined the effectiveness of three methods of computer software training: computer-based training, video tutorials, and instructor-led classroom training. They demonstrated that computer-based training and instructor-led classroom training were more effective than video tutorials and that computer-based training may be an effective substitute for classroom training with lower cost.

Lastly, practices may also have *synergistic* relationships with each other when used together. As noted by Delery (1998), the relationship among HR practices is synergistic if they work together interdependently such that the effectiveness of one practice depends on other practices in place. This synergy exists whether the relationship is positive (powerful connections) or negative (deadly combinations) (Becker, Huselid, Pickus, & Spratt, 1997). Researchers have examined interaction effects of separate HR practices (e.g., Kepes et al., 2008) but less research has incorporated a synergistic logic when looking at the composition within a single HR systems. As one exception, MacDuffie (1995) found that the positive interaction terms of three bundles (i.e., Buffers, Work systems, and HR policies) were related to performance. However, this study did not discuss the relationships among the individual practices within these sub-bundles. In a meta-analytic review of 92 studies, Combs et al. (2006) demonstrated that HPWS had a larger impact on organizational performance than individual HR practices since there were synergistic effects within HPWS. Although their research did not provide the direct evidence of the synergistic relationships among HR practices, this result suggests the significance of research about synergistic relationships among HR practices.

2.4. Patterns of relationships within HR systems

Building on previous research on potential types of HR relationship and HR components (Chadwick, 2010; Delery, 1998), we turn our attention to conceptualize a framework of internal relationships among HR policies and practices within HR systems. We propose that all three types of relationships exist within HR systems in predictable patterns. It is the nature of goals of different levels within HR systems that determines the relationships among specific components of HR systems.

At the highest level, the immediate and direct goal of HR systems is to obtain desired employee performance which, conceptually, directly impacts organizational performance. In order to achieve this superordinate goal, the three HR policy domains need to impact employee KSAs, employee motivation and effort, and opportunities for employees to contribute. The goal of each HR policy domain is to influence one of the three elements of employee performance respectively. At a lower level, the goal of an HR policy domain (e.g., enhancing KSAs, motivation, or opportunities to contribute) may further involve two or more sub-goals which can be accomplished by HR policies within a particular domain. For example, an organization may have a goal for the KSAs HR policy domain to improve both general KSAs and specific KSAs of employees. In turn, this goal for improve both general and specific KSAs may become the goals of the HR policies within this KSAs HR policy domain (e.g., selection policy and training policy). Similarly, at the lowest level, specific HR practices are used to achieve the sub-goals of HR policies.

The discussion of the goals at different levels within HR systems provides a theoretical foundation to explain the potential relationships among the components within HR systems. The broad logic underlying the following arguments is grounded in the argument that collective employee performance is a function of employees' KSAs, motivation and effort, and opportunities to contribute (Batt, 2002; Boxall & Purcell, 2008; Gerhart, 2007; Huselid, 1995; Lepak et al., 2006; MacDuffie, 1995). Because KSAs, motivation and effort, and opportunities to contribute are all essential elements of employee performance, HR systems exert their influence through three policy domains: the KSAs HR domain, the motivation and effort HR domain, and the opportunities to contribution HR domain simultaneously. The combination of the three HR policy domains can be understood as follows:

Employee performance = f (KSAs HR domain, motivation and effort HR domain, opportunities to contribute HR domain)

As we discuss below, this basic equation of the role of HR systems in employee performance serves as a starting point for theorizing the relationships (i.e., additive, substitutes, synergistic) among HR policy domains, HR policies within policy domains, as well as HR practices within HR policies.

2.4.1. Relationships among HR policy domains

The area of investigation that has received the most attention in strategic HRM research relates to what Kepes and Delery (2007) refer to as inter-HRM activities area fit. According to Kepes and Delery (2007), inter-HRM activities area fit is concerned with the examination of the degree of alignment among HR policies or practices across areas (e.g., between compensation and job design). In this area of investigation, researchers have emphasized the potential benefits of synergy. This logic is applicable when thinking about the relationships among HR policy domains. In particular, we anticipate that the three HR policy domains have synergistic effects on employee performance.

The argument for interdependence among the three HR policy domains is fairly straightforward. Researchers in psychology have noted for years that individual performance is a function of both ability and effort (Austin, Villanova, Kane, & Bernardin, 1991; Campbell, 1990; Gerhart, 2007; Vroom, 1964). While strong KSAs may provide employees with the ability to add value, doing so requires that the employees are motivated to apply their talents and exert discretionary effort (Wright & Snell, 1998). Alternatively, motivated workers without the necessary KSAs will not achieve maximum contributions. In the context of the work environment, this logic may be conceptualized as operating at a higher level of abstraction; that is, HRM influences the performance of employees through developing their KSAs and motivation and effort (Lepak et al., 2006). Furthermore, this higher level of conceptualization of collective employee performance also depends on employees' opportunities to perform. Talented employees who are motivated, but lack the opportunities to use their abilities, will likely display lower contributions than similar

employees provided with such opportunities. On the contrary, when given proper opportunities, employees who are capable of making contribution to organizations can fully exploit their knowledge and skills (Gerhart, 2007).

Extending this logic and consistent with the synergy arguments for the elements of employee performance, three HR policy domains are anticipated to operate in a synergistic fashion, either positively or negatively. Specifically, there will be a positive synergistic relationship when three policy domains are aligned together to improve employee performance. For example, Ichniowski et al. (1996) indicated that training employees in problem-solving would be more effective when organizations permit them to solve more problems. For another instance, prior research suggested that promotion from within policy can magnify the effectiveness of training on employees KSAs (Becker et al., 1997; Benson, Feingold, & Mohrman, 2004). In contrast, "deadly combinations" (Becker et al., 1997, p. 43) may occurs when the three policy domains work against one another and send inconsistent or conflicting messages (Snell, Shadur, & Wright, 2000). A typical example is an HR system which provides comprehensive training for teamwork but also includes performance appraisal practices which reward highly individual behavior (Boxall & Purcell, 2000; Boxall, Ang, & Bartram, 2011). In this case, the effect of team-based KSAs emphasized by training on employee performance may be undermined by the individual-oriented performance management.

Conceptually, the synergistic relationships among HR policy domains are fundamentally based on the arguments for internal or horizontal fit in the strategic HRM literature. As advocates of internal fit have noted, the impact of one domain on employee performance is dependent on the presence and effectiveness of other policy domains in place (Delery & Shaw, 2001). The rationale for synergistic relationship, rather than additive or substitutive relationship, among HR policy domains is also based on the notion that HR policy domains have interdependent effects on employee performance because those practices focus on three necessary and interactive elements of collective employee performance (KSAs, motivation and effort, and opportunities to contribute). Therefore, we propose the following:

Proposition 1. *Within an HR system, the three HR policy domains of KSAs, motivation and effort, and opportunities to contribute have synergistic effects on employee performance.*

2.4.2. Relationships among HR policies within HR policy domains

A second variant of the inter-HRM activity area fit (Kepes & Delery, 2007) refers to the relationships among different HR policies within a particular HR policy domain. Compared to the synergistic relationship expected across HR policy domains, we anticipate that HR policies within each policy domain may have either synergistic or additive effects on achieving the goal of the HR policy domain.

First, the relationships among HR policies within a single HR policy domain are likely to be additive. Unlike the goal of HR systems which can be achieved only when all three domains are in alignment (Lepak et al., 2006; MacDuffie, 1995), the goal of a specific HR policy domain is concerned with one element of employee performance (KSAs, motivation and effort, or opportunities to contribute). As a result, HR policies within each domain may be conceptualized as independent approaches to pursue the same goal of the HR policy domain from different policies. Each HR policy used in isolation would likely exert a unique effect on the goal of the policy domain. This impact is not contingent on the existence of other policies in the same policy domain. In contrast, the deficiency of one policy will not necessarily deracinate the effect of another policy, although it certainly may decrease the net effect of the entire policy domain (MacDuffie, 1995). For instance, firms can improve employees' KSAs through training as well as through recruiting and selecting job applicants with high competence. Recruitment and selection policies can impact employees' initial acquisition of knowledge and skills, while training policy may further provide firm-specific knowledge and skills for employees to perform assigned tasks (Delery, 1998; Ostroff & Bowen, 2000). In this case, the absence of training will not erase the impact of recruitment or selection on employee's KSAs, but the presence of training may help improve KSAs, which further adds value on employee performance.

Substitutive relationships are less likely to exist among HR policies within the same policy domain because each policy can make unique contribution to the goal of policy domains. Although prior research about human capital and transaction-costs theory implies the equifinality of selecting employees with general skills and developing these skills by training within organizations (Lepak & Snell, 1999), the two policies cannot capture specific function of each other. For example, even organizations which acquire employees with the required skills from external labor market need to provide training regarding compliance with rules, regulations, and procedures of the organizations. Also, organizations which provide comprehensive training for employees need to recruit and select employees with potential and ability to learn (Lepak & Snell, 2002). Similarly, HR policies in motivation and effort domain or opportunities to contribute domain are unlikely to substitute each other because of the different focus of each policy. For example, a performance management policy reflects an organization's integrated approach to evaluating and appraising employee performance to ensure employees are focusing their work efforts in ways that contribute to achieving organizational outcomes, while compensation policy refers to an organization's decision regarding how to influence employees' motivation to perform through monetary and non-monetary remuneration. An organization's job design policy refers to its overall orientation for what it hopes to accomplish through job design (e.g., efficiency, innovation, etc.) and is implemented through choices among specific job design practices (e.g., job rotation, job enrichment, job simplification, job standardization, etc.). An organization's involvement policy is somewhat different in that rather than focusing on how work is done, it focuses on the degree of involvement employees are afforded at work.

Moreover, we anticipate that synergistic relationships among HR policies within a policy domain may occur when the nature of policies implies that their impact on the policy domain's goal depends on the effectiveness of the others in the same domain. For example, in the KSAs HR policy domain, prior research (e.g., Noe, 1986; Noe & Schmitt, 1986) has found that training

effectiveness is dramatically affected by the level of employees' ability to learn and their learning-related personalities (e.g., locus of control), which are determined by an organization's selection policy. In order to obtain high-quality employees through selection policies, a recruitment policy needs to be adopted to attract enough candidates for selection (Carlson, Connerley, & Mecham, 2002). The interdependence also involves motivation and effort HR policy domain. For instance, the impact of pay-for-performance policy on employees' motivation is inherently dependent on the accuracy of performance appraisal. If the results of performance appraisal are unable to reflect employees' performance valued by the pay-for-performance policy (e.g., individual performance or group performance; short-term performance or long-term performance), the pay-for-performance policy will be unlikely to improve employees' efforts at work (Becker et al., 1997; Delery, 1998). In contrast, positive synergy may be obtained if the two policies are aligned to focus on the same type of employees' performance.

In general, the goals of an HR policy domain to enhance employees' KSAs, motivation, or opportunities to contribute can be divided into several sub-goals of HR policies of this domain. HR policies can contribute to the effectiveness of the HR policy domain by accomplishing these sub-goals separately or contributing to the same goal interdependently. According to the definitions of additive and synergistic relationships by Delery (1998), we propose the following:

Proposition 2. *HR policies within an HR policy domain have synergistic effects on the respective element of employee performance when the goals of HR policies are interdependent; otherwise, their effects are additive.*

2.4.3. Relationships among HR Practices within HR Policies

The third area of potential relationships is among the HR practices within each HR policy. Kepes and Delery (2007) refer to this as intra-HRM activity area fit—"the alignment between specific HRM activities with a certain set of HRM activities (e.g., HRM practices within the compensation practice area)" (Kepes & Delery, 2007, p. 391). We anticipate that either an additive or substitutive relationship may be found when focusing on HR practices within a single HR policy. The key factor in this distinction relates to the degree of overlap across practices.

As mentioned above, a significant feature of substitutive relationship is that HR practices have overlapping effects on an identical outcome (Delery, 1998). In other words, using either practice alone results in the outcome and there is no incremental benefit achieved by adding one practice to another (Wright & Boswell, 2002). This feature conceptually separates substitutive relationships from additive relationships which pertain to independent and non-overlapping effects of HR practices. Within a single HR policy, whether HR practices operate in an additive or a substitutive relationship depends on whether HR practices have overlapping effects on employee KSAs, motivation, or opportunities. In order to portray those relationships, we specify the conditions whereby non-overlapping effects or overlapping effects might occur.

As noted above, an HR policy refers to an organization's choice of HR practices used to achieve some desired employee related outcome (Wright & Boswell, 2002). For each HR policy, a variety of implementable practices may be used to pursue the common goal. It is possible that the goal of an HR policy may be divided into two or more separated sub-goals. For example, in order to attract potential applicants, an organization's recruitment policy might simultaneously consider how to improve the organization's image and how to establish a convenient and efficient channel through which the organization could communicate with potential job seekers. For another instance, with regard to motivating employees, an organization's incentive policies might strive to reward different kinds of employee performance (e.g., short-term performance and long-term performance, individual-based performance and team-based performance).

The accomplishment of HR policy sub-goals could be aggregated to the common goal of an HR policy. Under this scenario, specific HR practices might be required to achieve those different sub-goals. Because the sub-goals are often distinct, the effects of HR practices applied to pursue different sub-goals might be independent and non-overlapping. In this circumstance, the relationships among those HR practices would likely be additive. For example, both cognitive ability tests and the use of an assessment center could be used to measure employees KSAs under a selection policy. Due to the different KSAs the two techniques target, both practices may contribute to enhance the level of KSAs of employees obtained by the organization. For another example, both campus recruitment and web-based recruitment could be used to generate an applicant pool. By using campus recruitment an organization can directly communicate job and organization information to potential job seekers and deliver an impressive organizational image to them which can significantly influence perspective applicants' job decisions (Barber, 1998). Web-based recruitment, on the other hand, can help communicate with a large number of geographically dispersed job seekers at a relatively low cost via multiple channels on the website (Allen, Mahto, & Otondo, 2007). Both recruitment sources have their own advantages for attracting job applicants and using each practice might result in incremental benefit given the presence of the other. In these instances, the relationships between HR practices within an HR policy are additive. Conceptually, this rationale is similar to the arguments for the additive relationships among HR policies within each HR policy domain, in which HR practices focus on different aspects of the objects of the HR policy or the policy domain in isolation.

In contrast, substitutive effects might also occur among HR practices within each HR policy. If the goal or sub-goals of a particular HR policy is not divisible, the practices associated with those lower level goals would logically be interchangeable and using different practices could approximately result in the identical or similar outcome of the HR policy. In these scenarios, the use of multiple practices targeting the same sub-goal or policy outcome may be overlapping and have no greater impact compared to using them in isolation. Conceptually, the underlying rationale for substitutive effects echoes the argument of equifinality in organizational configurations. Consistent with previous research (Becker & Huselid, 1998; Katz & Kahn, 1978), equifinality of HR practices means that two or more HR practices might be equally effective in achieving the objective of employee performance. For example, Delery (1998) suggested that using multiple practices such as quality circles, off-line problem-solving

teams, and other formal participation in decision making practices is unlikely to increases participation and empowerment beyond using one or two of them. Brown, Fakhfakh, and Sessions (1999) found that using a shared ownership plan by itself was more effective in reduce employee absenteeism than using shared ownership combined with profit sharing, even though both practices were intended to reduce absenteeism. In these cases, there is little benefit to using additional practices that are interchangeable—the net impact would be that they function as substitutes.

Overall, the goal of an HR policy may involve several independent sub-goals that are achieved by specific HR practices. When HR practices target different sub-goals, the relationship among HR practices should be additive. When HR practices target the same sub-goals, the relationship among HR practices is likely to be substitutive. Therefore, we propose the following:

Proposition 3. *HR practices within an HR policy have additive effects or substitutive effects on the goal of the HR policy when the goals of HR practices are non-overlapping; otherwise, their effects are substitutive.*

3. Discussion

The current paper aims to contribute to the clarity of HR systems construct by summarizing the components of HR systems and explicating a theoretical rationale for how the various parts of HR systems work together to influence employee performance. Building on the AMO framework (Boxall & Purcell, 2008; Gerhart, 2007; Lepak et al., 2006) and existing insights of the types of internal relationships within HR systems (Chadwick, 2010; Delery, 1998), we propose that different types of interrelationships are more likely to occur at different levels of HR systems. We believe that the proposed framework may provide theoretical implications for understanding the construct of HR systems and methodological implications for the measurement of HR systems in future research.

First, we clarify the conceptual logic of HR systems by relating HR systems to dimensions of employee performance. By focusing on the employee performance broadly considered, as well as the critical dimensions of employee performance, we can consider how HR systems impact this critical outcome. One benefit of this focus is that regardless of the organizational objective or strategic objective, employees are expected to contribute toward organizational effectiveness. While the organizational objectives may vary dramatically across settings, the more proximal focus of employee performance is more consistent across organizations. Moreover, compared to organizational outcomes, employee performance is more immediate and proximal outcomes of HR systems (Becker & Huselid, 1998; Dyer & Reeves, 1995). Even though one of the primary objectives of strategic HRM research is to examine how HR systems influence important operational and financial outcomes, these outcomes cannot be truly realized without HR systems' impact on employee performance. And by focusing on employee performance, we are likely to have more generalizable findings across settings and research studies.

Second, we clarify the components of HR systems and explicitly link HR policies and policy domains with elements of employee performance. Extending Lepak et al.'s (2006) argument regarding HR policy domains, we argue that HR systems consist of three HR policy domains: KSAs domain, motivation and effort domain, and opportunities to contribute domain. Consistent with research regarding the determinants of individual employee performance (e.g., Austin et al., 1991; Campbell, 1990), these three HR policy domains are argued to be associated with three elements of employee performance. Each HR policy domain includes different HR policies that are implemented by specific HR practices.

Conceptually, one potential implication of this model is that while we tend to focus on system level thinking, policies from different HR policy domains (KSAs, motivation and effort, and opportunities) may have stronger effects on different elements of employee performance. If this possibility reflects reality, one implication of this is that while the overarching HR system may be related to employee and organizational performance, the relative impact of the three domains on performance may vary across the three elements of employee performance. This would imply, for example, that we might find a statistically significant relationship between organizational compensation policies with motivation and effort but not with employee KSAs, or between a selection policy with KSAs but not with opportunities to contribute.

At the same time, it is important to note that while we conceptualize the specific HR policies within each domain, it is possible that a certain HR policy may be associated with more than one HR policy domain (Lepak et al., 2006). For example, while training is logically associated with employees' KSAs, providing training, particularly when used as a reward, may serve as a form of motivation for employees (Liao et al., 2009). Similarly, empowerment is expected to be associated with opportunities to contribute but it may also provide employees with motivation to perform (Delery & Shaw, 2001). Though the theoretical framework of the proposed model suggests that HR policies are aligned most strongly with a single HR policy domain, research is needed to examine the relationships between HR practices from within, as well as between, HR policy domains and these three key mediators as well as employee performance, and ultimately, organizational performance.

Third, our model contributes to understanding how the components of HR systems work together and furthers the knowledge about the mechanism through which HR systems influence employee and organizational performance. In particular, we view HR systems as composed of three sub-domains and propose relationships within and across these domains. By doing so, we extend prior work about relationships within HR systems in two aspects. First of all, we go beyond clearly articulating the types of relationships that might exist among HR practices (Delery, 1998) and the types of synergy within HR systems (Chadwick, 2010) to develop a generalizable conceptual rational for how the parts of HR systems operate. While empirical research is certainly needed to examine these arguments, the proposed logic provides a framework regarding when different types of relationships among the components within an HR system are likely to exist. Conceptually, this rationale provides a theoretical consistency to a key foundational topic within strategic HRM research—the necessary focus on systems. Once understanding when different relationships

are likely to emerge, we are in a better position to build a common body of logic regarding how and when HR systems are likely to maximize (or minimize) employee and organizational performance.

Moreover, this discussion about the relationships within and across HR policy domains provides theoretical support for recent research investigating the impact of sub-systems of HR systems on performance outcomes (e.g., Batt & Colvin, 2011; Gong, Law, Chang, & Xin, 2009; Shaw, Dineen, Fang, & Vellella, 2009). These studies have demonstrated that different sub-systems have distinct impact on employee outcomes (e.g., turnover, commitment). As suggested by our arguments, the next step of this stream of research is to examine the synergistic effects among different sub-systems on employee performance which is related to organizational outcomes. Differentiating the specific influence of sub-systems and examining the relationships within and across these sub-systems can advance our understating of how HR systems affect organizational performance.

In the current paper we aim to provide a general framework delineating interrelationships among HR practices within HR systems. Given the possibility that HR practices may have either additive or synergistic relationship among HR policies within policy domains or either additive or substitutive relationship within HR policies, it is vital to clarify the specific relationship by considering the purposes of HR practices. Within the KSAs HR policy domain, for example, an organization's recruitment policy and its training policy may make independent contribution to enhance the employee's KSAs via attracting high-KSAs candidates or providing firm-specific knowledge. In this case, the relationship between HR practices of the two policies is additive. If the organizations uses training that is dependent on effective recruiting and/or selection policies to ensure certain necessary traits for training (IQ, experience, functional background), training may boost the effect of these recruitment and selection practices in attracting and employing high potential candidates, and as a result, have a positive synergistic effect. Therefore, we encourage future research to consider the purposes of HR practices rather than just the HR practices per se when considering the relationships among those practices.

Fourth, the proposed model also has implications for empirical research in strategic HRM. Many studies have discussed the methodological issues and challenges associated with strategic HRM research (e.g., Becker & Huselid, 2006; Chadwick, 2010; Delery, 1998; Gerhart, 2007). Chief among these issues may be the measurement of HR systems. While there is general consensus that a systems focus is needed, what should be measured in HR systems and how to measure those systems remain in debate. Bringing the proposed model and prior discussion about multidimensional constructs (e.g., Law, Wong, & Mobley, 1998; MacKenzie, Podsakoff, & Jarvis, 2005; Wong, Law, & Huang, 2008) together, we provide implications for measurement issues of HR systems from two aspects.

Our model focuses on the content that should be included in HR system measures. Building on previous research (e.g., Ichniowski et al., 1996; Shaw, Gupta, & Delery, 2005; Shaw et al., 2009), we argue that the measure of HR systems should be formative rather than reflective because the measurement model meets the criteria of formative model listed in MacKenzie et al.s' (2005) work. As discussed above, the three HR policy domains jointly explain the meaning of HR systems. Each of these domains captures a unique aspect of the concept of HR systems which is not captured by the others (e.g., improving KSAs, enhancing motivation, or providing opportunities). Their impact on HR systems is not interchangeable, and thus, none of them can reflect HR systems in isolation. Each domain may have different antecedents and the changes in each domain can lead to the change of the whole HR systems. In this case, all three HR policy domains contribute to an HR system collectively rather than reflecting it as a common latent construct. Therefore, we suggest that a valid measure of HR systems needs to include all three HR policy domains regardless what specific policies or practices are adopted within these domains. If researchers measure HR policies or practices from only one or two domains of HR systems, it will be inappropriate to draw the conclusions about the relationships of the whole HR systems with other constructs (Wong et al., 2008; Wood & Wall, 2007).

In the following, we turn attention to the composition of policies or practices to indicate HR systems (see Chadwick (2010) who provided a comprehensive review of the analytical techniques measuring HR systems in prior research). The most common operationalization is the additive approach that sums or averages the values of practices used in HR systems. Beyond the theoretical support for the additive approach given by Becker and Huselid (1998), many researchers used the results of exploratory (or confirmatory) factor analysis and internal reliability test to support a single index of HR system. However, as indicated by Becker and Huselid (1998), factor analysis is appropriate for a reflective measurement model in which multiple items are "covering the same construct" (p. 73) but not for a formative measurement model such as HR systems. Delery (1998) made the same point in discussing the use of scales versus indices in macro HRM research. Theoretically, it is not appropriate to expect all practices or policies to load on a single factor or necessarily strongly correlate with each other (MacDuffie, 1995). Practically, it is conceivable, if not likely, that there is considerable variation in the specific practices that are used within HR systems. But assuming high reliability across practices assumes, by definition, that there is internal alignment. That is a goal, not a trait of all HR systems. Extending this logic, we echo the sentiment of Delery (1998) and Becker and Huselid (1998) that research on HR systems should not rely on the findings of single factor from factor analysis or high internal reliability to support the use of additive index of HR systems. While this might indicate high internal alignment, it is not a requirement for how we understand HR systems or how HR systems operate.

Related, several scholars have suggested that simply summing values of practices or counting the numbers of HR practices used may not be appropriate to reflect the overall effects of HR systems on individual and organizational outcomes (e.g., Delery, 1998; Lepak et al., 2006). From this point of view, we propose a mixed measurement model of HR systems which combines the additive approach and synergistic approach. As indicated in Fig. 2, HR systems may be viewed as a three-order multidimensional construct where HR policies (i.e., the first-order in Fig. 2) have reflective measures (practices or items reflecting the policies) and HR policies are formative indicators of three policy domains respectively (i.e., the second-order in Fig. 2), which further form HR systems construct (i.e., the third-order in Fig. 2). At the lowest level of the model, one can measure HR

Measurement Model of HR systems

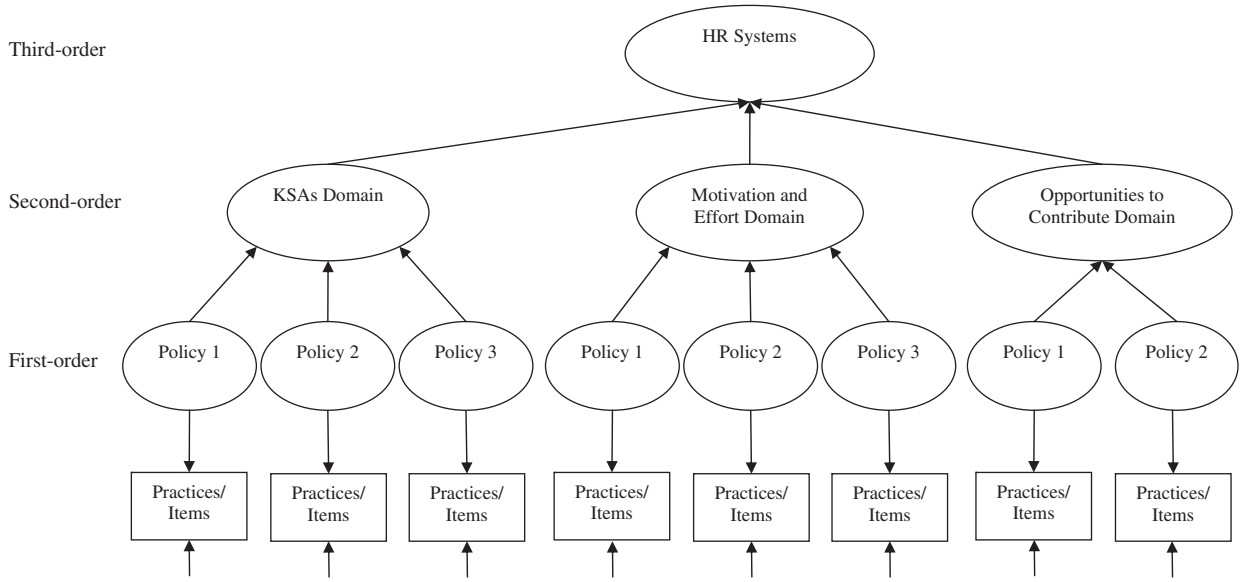

Fig. 2. Measurement model of HR systems.

policies using the reflective model. Given that practices within HR policies reflect the common goals of policies, it is reasonable that the choices of these practices are driven by the goals of policies. For example, a comprehensive training policy intended to improve KSAs of employees can be indicated by any training practices, such as orientation program, on-the-job training, and formalized training, or reflected by descriptive items like "The firm continuously provides training programs" or "The firm invests considerable time and money in training" (Lepak & Snell, 2002). Previous research has provided examples for the reflective model at the policy-level. For example, Youndt et al. (1996) used confirmatory factor analysis to test the structure of four HR policies (i.e., staffing, training, performance appraisal, and compensation) before combining the practices into aggregate indexes. Similarly, Sun, Aryee, and Law (2007) found eight dimensions of HPWP by using both exploratory factor analysis and confirmatory factor analysis. As reflective measurement model used in other field (MacKenzie et al., 2005), additive approach can be used to calculate the values of HR policies.

In order to form three policy domains from HR policies (the second-order in Fig. 2), we encourage researchers to consider the nature of the policies included in policy domains and choose additive approach and/or synergistic approach according to if the impact of the HR policies on KSAs, motivation, or opportunities is contingent on the effectiveness of other policies in the same domain or not. Similarly, in terms of forming the whole HR systems from three policy domains (the third-order in Fig. 2), researchers need to base the aggregation on an algebraic function driven by theories (Law et al., 1998). Although specifying a specific function like the Motivating Potential Score of job characteristics developed by Hackman and Oldham (1976) goes beyond the scope of our study, researchers may calculate an HR system score by taking account of the synergistic effects across HR policy domains. Measuring HR systems with this approach may be more theoretically sound and might bring new findings about the influence of HR systems on individual and organizational outcomes by better reflecting how HR systems influence important outcomes.

The current paper has some additional implications for empirical research besides the methodological ones. Depending on research interests, researchers can end up with one single multidimensional construct of HR systems (i.e., third-order in Fig. 2) or three multidimensional HR policy domains (i.e., second-order in Fig. 2). By using the former approach measuring HR systems, future research may re-estimate the magnitude of the relationship between HR systems and organizational outcomes and explore the synergies of HR systems on these outcomes by using the proposed operationalization. The latter approach may provide a new perspective to explore the internal fit of HR systems.

By grouping HR practices or policies into three policy domains, researchers may have more theoretical support for the synergy of HR systems on organizational outcomes. It may also help explain why previous investigations did not find strong support for the synergistic effects of HR systems. Taking Huselid's (1995) seminal study as an example (since it is one of the most cited articles in the field), HR practices were combined into two additive indexes (i.e., employee skills and organizational structures factor and employee motivation factor) and the results showed weak support for the interaction of the two factors. Conceptually, what would these results look like if employee skills and organizational structures factor were split into two factors indicating KSAs domain and opportunities to contribute domain? The results might be identical, but, there might be more significant interaction within HR systems. It might be the case that the factor analysis doesn't allow for this possibility, a possibility that might show unique variance accounted for by the opportunities domain that is not recognized in his study. Moreover, examining HR

systems as three policy domains can help explore the unique contribution of each policy domain on important employee outcomes. As Subramony (2009) found, three HR policy domains might have different effects on different types of organizational outcomes. The findings of the specific contribution of each policy domain may be helpful for HR practitioners to make investment decision making in different parts of HR systems.

There are also implications for configural approaches to HR systems measurement based on the proposed conceptualization of HR systems. First, as multiple HR systems exist for different employment groups within and across organizations (Lepak & Snell, 1999, 2002), our framework is not limited to the HR system oriented toward high performance of employees or the core group of employees. The common components of HR systems and the nature of the relationships among HR practices do not depend on the focus of HR systems but on their effects on the outcomes. Therefore, the components of HR systems and the process of how the parts operate are expected to be similar in HR systems with any anchors. This suggests that configural model of HR systems for different types of employees include all three HR policy domains. For example, Delery and Doty (1996) proposed two employment systems (i.e., market-type system and internal system) described in terms of seven HR practices including internal career opportunities, training, results-oriented appraisals, profit sharing, employment security, participation, and job descriptions, which covered all three policy domains of HR systems. Second, HR configurations are assumed to be theoretically combinations of HR practices that maximize the synergistic effects on outcomes (Delery & Doty, 1996; Lepak & Snell, 1999, 2002). By proposing the interrelationships among components of HR systems, this paper may provide theoretical rationales for ideal profiles for these configurations.

Fifth, while the current paper focuses on the internal relationships within single HR systems, extant research has examined the influence of external factors and organizational characteristics on the design of HR systems (Jackson & Schuler, 1995; Jackson, Schuler, & Carlos Rivero, 1989). Therefore, we encourage future research to further explore how contextual factors (e.g., technology, industry, organizational size, organizational structure, life cycle stages, capital intensity, nations, organizational culture, organizational climate, etc.) may impact the internal relationships proposed in our study. For example, HR practices in manufacturing industries may have dominant effects on employees' KSAs and motivation, whereas the effects of HR practices on employees' KSAs and motivation in service industries may be partially dependent on employees' interactions with customers (Combs et al., 2006). Research is needed to explore in greater detail how context influences the mechanisms of internal alignment of HR systems.

Related, future research needs to bring individual attributes into the consideration of internal fit in HR systems. It is possible that the effects of HR practices and their interactions depend in part on the individual characteristics. For example, Liao et al. (2009) found that managerial perceptions of high performance work systems had both direct and indirect (through employee perceptions) impacts on individual employee's human capital, but were only indirectly related to employee motivation (i.e., psychological empowerment and perceived organizational support). This indicates that the influence of organizational level HR systems on employee motivation is more likely to depend on employee interpretation than the influence on employee KSAs. In addition, Nishii et al. (2008) demonstrated that individuals may have different perceptions and interpretations of the same HR practices, which in turn can influence individuals' attitudes and behaviors. For these instances, we encourage future research to investigate how employee perceptions may affect the effects of HR practices as well as the internal relationships among HR practices. While speculative, these possibilities highlight the potential value of focusing on individual differences of employees in the impact of HR systems on employee performance. In addition, the mechanisms through which three policy domains impact on outcomes may be worth of exploring. It is possible that three policy domains first impact on collective KSAs, motivation, and opportunities to contribution respectively, which in turn interact to influence employee performance and subsequent operational and financial outcomes. The exploration of the three mediators may also make valuable contribution to the understanding of how HR systems operate.

4. Conclusion

In conclusion, the proposed conceptual framework contributes to the clarity of HR systems construct by summarizing the components of HR systems and conceptualizing interrelationships among the components of HR systems to influence employee performance. In this framework, we proposed that additive, substitutive, and synergistic relationships will simultaneously exist in HR systems in predictable patterns, such that, there are synergistic relationships among three HR policy domains, additive or synergistic relationships among HR policies within HR policy domains, and additive or substitutive relationships among HR practices within HR policies. While there is certainly more research needed on this topic, we believe that this framework provides an important approach to how we conceptualize and operationalize HR systems.

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