In management and human resource (HR) fields, consensus is growing that knowledge workers are the main source of value-adding innovations that lead to organizational competitiveness (Drucker, 1999; Nonaka & Takeuchi, 1995, Ruona & Gibson, 2004; Ulrich & Brockbank, 2005). Drucker (1999) coined the term knowledge workers to describe skilled workers in the economy and predicted that the future success of organizations will rely on their productivity. Such a workforce will require highly specialized knowledge to create organizational value through intangible assets, including knowledge of the market, customers, business processes, and technologies (Davenport & Prusak, 1998; Gherardi, 2006).

Human resource fields are converging to the goal of improving the performance of knowledge workers (Ruona & Gibson, 2004). Past views of HR fields consisting of the related but divergent fields of human resource development (HRD), human resource management (HRM), and organization development (OD) are evident in McLagan’s (1989) HR wheel. She defined HRD as the integrated use of training and development, career development, and OD to improve individual, group, and organizational effectiveness, and HRM as another HR field handling labor relations, employee assistance, compensation and benefits, and HR information systems.

McLagan’s (1989) wheel and her later update of the HR field (1996) never included human performance technology (HPT) as a relevant or legitimate HR field. Ruona and Gibson (2004), however, recognized HPT as a growing,
innovative field whose presence was becoming stronger in the 1990s as the entire HR field placed heavier emphasis on improving organizational performance as opposed to training or employee development. This evolving view is reflected in Pershing’s (2006) definition of HPT as “the study and ethical practice of improving productivity in organizations by designing and developing effective interventions that are results-oriented, comprehensive, and systemic” (p. 6).

Ruona and Gibson (2004) also pointed out that distinctions among HR fields continue to blur, and similarities across fields provide the necessary synergy for HR to be a valued organizational partner. Similar to the shift of HR functions from reactive operations to proactive strategies over the past 20 years (Brockbank, 1999; Ruona & Gibson, 2004), the focus of HPT has evolved from individuals’ behavioral improvement to performance improvement at the group and the organizational levels (Rummler, 2007).

Differing opinions still exist regarding the positioning of each HR field. For instance, those in HRD may want to include OD as a core component in its view of organizations as sociotechnical systems, while the OD field in general does not see itself as a subset of HRD and may not want to be associated with HRD (Gary N. McLean, personal communication, July 30, 2009). Conceptually HPT is similar to OD in that it is an applied behavioral science and identifies systems theory as its foundation (Foshay, Moller, Schwen, Kalman, & Haney, 1999; Jacobs, 1988, 1989; Pershing, 2006). Stolovitch (2007) has also pointed out that both HPT and OD are primarily concerned with improving organizational performance. HPT has gained recognition for the solid application of behaviorism, especially systematic processes of instructional design (Hardre, 2003; Molenda & Pershing, 2008) and varied human performance improvement models (Addison & Haig, 2006; Gilbert, 1996; Pershing, 2006; Rummler & Brache, 1995; Van Tiem, Moseley, & Dessinger, 2004; Wile, 1996). Designing or facilitating change of human behavior is the primary focus of HRD as well.

Despite conceptual similarities and complementary relationships observed between HPT and other HR fields, many HPT scholars agree that more theory development and theory-grounded empirical research are in order (Huglin, 2009; Johnsen, Huglin, & Marker, 2008; Klein, 2002; Marker, Huglin, & Johnsen, 2006; Pershing, Lee, & Cheng, 2008).

Research Problem and Purpose

Learning and development professionals recognize that training and formal instruction can be slow and expensive and are often limited to problems involving knowledge and skills. In response, HPT has grown as an alternative approach to addressing organizational performance improvement (Dean & Ripley, 1997; Pershing, 2006; Stolovitch, 2007; Van Tiem et al., 2004). It is defined as a “field of practice” (Forshay et al., 1999, p. 896) whose main purpose is “to engineer systems that allow people and organizations to perform in ways that all stakeholders value” (Pershing, 2006, p. xiii). HPT
approaches in organizations have been commonly practiced in forms of performance analysis, gap and cause analysis (Harless, 1973; Rossett, 2009), and various types of noninstructional as well as instructional HR interventions (Langdon, Whiteside, & McKenna, 1999; Stolovitch & Keeps, 1999). Efforts to develop core theories of HPT, however, have been less visible in the field in comparison to related HR fields.

Ruona and Gibson (2004) pointed out that HR fields in the past had a different primary operational goal, for example, HRM to manage employee relations, HRD to develop workforce skills, and OD to enhance organizational effectiveness, but all have evolved and converged to emphasize strategic and proactive roles to create learning organizations. To support this view, they examined the historical contexts and dominant approaches of each field. Another field that was recognized but not included in their analysis and should be examined for convergence is HPT.

Investigating disciplinary boundaries and components of relevance is an important scholarly task that shapes the identity of the field (Swanson, 2001), but little research has been done to promote or synthesize theory development in HPT and discuss its relationships within HR fields. Examining how each field compares in terms of major theory development can add new insights into the HR convergence perspective and broaden our understanding of where HPT fits or should be headed. The purpose of this study, therefore, is to examine the major theory development efforts in HR fields and discuss implications for HPT from a theoretical perspective.

Research Method and Questions

Ruona and Gibson (2004) suggested including HPT in future analyses of HR convergence issues. In addition, many HPT scholars have voiced the need for more theory development (Huglin, 2009; Johnsen et al., 2008; Klein, 2002; Marker et al., 2006; Pershing et al., 2008). In response, we conducted an integrative literature review following the procedure Torraco (2005) suggested. This form of literature review synthesizes a mature or emerging research topic by comparing, contrasting, and evaluating relevant concepts, theories, models, and empirical studies and adds value to the literature by creating a synthesized research framework or identifying research directions (Torraco, 2005).

We used related key words—theory development, research and practice, core theories, foundation, origin, human resource development, human resource management, organizational development, and (human) performance technology—in multisource searches, which included online university library search systems, journals, and handbooks published by professional associations of HR fields. In addition, secondary sources were referenced from works retrieved from the previous two methods. Based on
the examination of the literature, we formed the following research questions:

1. What are the major theory development efforts in HR fields?
2. What knowledge does theory development of HR fields add to understanding HR convergence?
3. What are the implications of theory development and HR convergence to HPT?

**Conceptual Framework: Pasteur’s Quadrant**

Before examining the convergence theme of HR fields through the lens of theory development, it is important to consider recent debates on basic research versus applied research from other applied fields, such as computer science and management research, whose impact on organizations is critical. The goal of basic research is the discovery of knowledge and the production of new knowledge, whereas applied research purports the discovery of new relationships in the knowledge within the domain to which the research is applied (Torraco, 2004). An important role for theory development in applied research is to bridge gaps in knowledge that exist along the research continuum from basic to applied (Lynham, 2002; Torraco, 2004).

For instance, recent discussion on research in computer science centers on Pasteur’s quadrant (Stokes, 1997), as shown in Figure 1. The major argument of this matrix model is that the current research trend of computer science is purely basic and theory oriented as in physics, but the future of the field should focus on use-inspired research to have more relevance to the field. This implies that the ideal type of research is a combination of foundational knowledge (i.e., theory development and advancement) and research motivated by potential uses, such as what Pasteur successfully accomplished through his research in microbiology and chemistry.

<table>
<thead>
<tr>
<th>Considerations of use</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quest for foundational understanding</td>
<td>Yes</td>
<td>Basic disciplinary research</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Pure applied research (consulting firms)</td>
</tr>
</tbody>
</table>


**FIGURE 1. PASTEUR’S QUADRANT: BASIC AND APPLIED RESEARCH**
The importance of use-based research is also recognized by management scholars (Tushman & O’Reilly, 2007). They maintain that management scholars pursue fundamental understanding of phenomena with the goal of tackling complex real-world problems in organizations. Instead of concentrating on pure theory testing and development, theory-driven practices, which should be a combination of theory and use, are necessary to address complex performance problems in organizations (Adler & Harzing, 2009; Bennis & O’Toole, 2005; Ghoshal, 2005; Mintzberg, 2004; Pfeffer & Fong, 2002). The importance of theory-driven practices in management research resonates in all HR fields (Short, Keefer, & Stone, 2009).

Theory Development Efforts in HR Fields

This section presents a summary of major theory development efforts in the fields of HRD, HRM, and OD and discusses which theories are relevant to HPT or how they have been applied within HPT.

Human Resource Development

Learning and development has been at the core of HRD roles (McLagan, 1989; Werner & DeSimone, 2009). Over the years, the scope of HRD has grown to address the development issues of nations and global communities (McLean & McLean, 2001). Major theories adopted in HRD include learning theories, systems theory, economic theory, performance theory, and culture (Jacobs, 1988, 1989; McLean & McLean, 2001; Pershing, 2006; Schein, 1996; Swanson & Holton, 2009; Weinberger, 1998). Table 1 shows the matrix of theory categories combined with common research examples at the individual, group and organizational, and community and societal levels (Garavan, McGuire, & O’Donnell, 2004).

The history of the HRD field reflects a shift from employees’ learning and development orientation to organizational and societal performance upholding human values (Ruona & Gibson, 2004; Swanson & Holton, 2009). This shift points to the significance of performance improvement models (Jabobs, 1988; Weinberger, 1998) and systems theory (Jacobs, 1989). There is a close link between HRD and HPT.

Major theories and the expanding scope of HRD work inform us that the field has developed unique positions and research streams, such as defining HRD (see the special issue of Human Resource Development International, Volume 4, Number 3; Woodall, 2001); theory-building efforts (Holton, 2002; Lynham, 2000; Torraco, 2004); the Dimensions of Learning Organization Questionnaire and related studies (Egan, Yang, & Bartlett, 2004; Watkins & Marsick, 2003); debates on learning and performance (Kuchinke, 1998, 2007b; Swanson & Holton, 2009); the debate on rigor versus relevance (Gilley, 2006; Short, Keefer, & Stone, 2009; Woodall, 2006); and international and national HRD (McLean & McLean, 2001; Ardichvili & Kuchinke, 2002).

In particular, positioning international and national HRD at the community and societal levels is unique because most theories of organizations
and performance technology have been developed in Western contexts (Korpiaho, Päiviö, & Räsänen, 2007; Lau, 2002; Palmer, 2006; Rynes, 2007b; White, 2002).

**Human Resource Management**

HRM refers to practices and systems that influence employees’ behavior, attitudes, and performance (Noe, 2008). Werner and DeSimone (2009) divided the functions of HRM into primary and secondary functions, placing HRD as a part of HRM’s primary functions. Table 2 summarizes major theoretical efforts developed in HRM over the past 20 years.

Quantitative analysis has dominated research methods in the field of HRM in the names of strategic HRM, resource-based view, and evidence-based management to demonstrate evidence about HR functions and the organization’s financial performance outcomes. Theories and research in HRM have consistently been targeted at all levels of analysis.

The 20-year longitudinal study of HR competence conducted at the University of Michigan has contributed to establishing the credibility of HR for organizational competitiveness and suggested that it should play more strategic roles (Ulrich & Brockbank, 2005). In addition, recent debates on relevance center on the effectiveness of management education (Armstrong & Fukami, 2009; Bennis & O’Toole, 2005; Ghoshal, 2005; Mintzberg, 2004; Pfeffer & Fong, 2002). Critiquing the disparity between the production of research studies and actual use of them, scholars have suggested that management research should be based in use- and application-centered studies that are relevant to organizational phenomena (Adler & Harzing, 2009; Rynes, 2007a; Tushman, O’Reilly, Fenollosa, Kleinbaum, & McGrath, 2007), as emphasized in Pasteur’s quadrant.

<table>
<thead>
<tr>
<th>THEORY</th>
<th>INDIVIDUAL LEVEL</th>
<th>GROUP AND ORGANIZATIONAL LEVEL</th>
<th>COMMUNITY AND SOCIETY LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning theories</td>
<td>Adult learning theory</td>
<td>Organizational learning</td>
<td>Development of communities and society</td>
</tr>
<tr>
<td></td>
<td>Motivation, efficacy</td>
<td>Learning organization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learning transfer</td>
<td>Team learning (e.g., action learning)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Job satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance theory</td>
<td>Process models of improving an organization’s performance through change of behaviors</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Systems theory</td>
<td>Systems theory applied to HRD (HPT)</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Economic theory</td>
<td>Strategic HRD/HRM</td>
<td>NA</td>
<td>Social capital</td>
</tr>
<tr>
<td></td>
<td>Human capital theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Culture</td>
<td>Organizational behavior</td>
<td>Organization development</td>
<td>International/ national HRD</td>
</tr>
</tbody>
</table>

*Note. NA means not available and in need of further investigation.*
Recently scholars within the field have pointed out the lack of studies from different cultures and nations (Korpiaho et al., 2007; Lau, 2002; Palmer, 2006; Rynes, 2007b; White, 2002). It is noticeable that no studies in the HRM literature we reviewed mentioned HPT. One possible explanation is that HPT is commonly addressed in programs that teach instructional design and training (Medsker, Hunter, Stepich, Rowland, & Basnet, 1995), while HRM is frequently situated in business schools or departments of industrial and labor relations.

**Organization Development**

OD is a process used to enhance both the effectiveness of an organization and the well-being of its members through planned interventions (Werner & DeSimone, 2009). It aims to accomplish these complementary goals through planned interventions in order to manage changes. Action research, the primary methodology in OD, is based on a collaborative problem-solving relationship between researcher and client (Coghlan & Brannick, 2005). Appreciative inquiry, a less commonly implemented methodology, is a new approach to action research for social innovation through sharing of positive practices (Cooperrider & Srivastva, 1987).

From its inception, OD has emphasized both the practice and the scholarship of planned organizational change (Austin & Bartunek, 2006). Due to the field’s focus on change, OD interventions have been implemented by practitioners, while theories of change were formulated by academics, resulting in separations between the two (Austin & Bartunek, 2006). Major theories of OD, shown in Table 3, can be grouped into two categories: change process theory and implementation theory (Austin & Bartunek, 2006; Porras & Robertson, 1987; Van de Ven & Poole, 1995; Werner & DeSimone, 2009).
Change process theories explain the dynamics through which organizational improvement and change take place, while implementation theories focus on activities that change agents must undertake in effecting organizational change. The lack of a comprehensive theory, particularly a well-formulated theory of the change process, impedes practice, evaluation, and research in OD (Porras & Robertson, 1987).

Although OD’s central focus on managing change in an organization is distinguishable from other HR fields’ focus (developing and managing human resources), OD is an important part of HR fields, because OD activities focus on sociotechnical systems and are affected by numerous HR activities (Rothwell & Sullivan, 2005). Our observation of the intersection between OD and HR fields is also supported by the fact that personal and organizational learning are the major goal of organizational changes (Grieves, 2000). OD and HPT are highly practice-oriented fields; OD has produced theories of change and implementation, while HPT lacks theory development efforts.

Convergence of HR Fields From Theoretical Perspectives

Our analysis and comparison of HR fields through the lens of theory development and main research topics indicate that perceptions of divergence lie in, first, the extent of theory development efforts. Adopting interdisciplinary approaches to theory development (e.g., learning theories, systems theory, and economic theory) is most evident in HRD. Theory-building efforts for competitive advantages through human capital is strongest in the literature of HRM, while the core of OD remains applying theories of change and implementation to improve organizational effectiveness. The second difference concerns the application of work scope. Levels and scope of work are constantly targeted at the organizational level in HRM and OD, whereas HRD sees the predominance of analysis at the individual and the organizational levels and is moving into community and societal levels of analysis (Garavan et al., 2004). The third difference is research methods used. Both quantitative and qualitative research methods are used in HRD, while quantitative analysis is clearly dominant in HRM research, and action research is the most common research method in OD.

Despite these differences, it is apparent that the HR fields share more commonalities in line with (1) focusing on learning and development at individual, group, and organizational levels; (2) improving organizational performance through people; (3) moving into implementing interdisciplinary and macro- and multilevel systems perspectives; and (4) attempting to improve practice through theory building and trying to bridge the gap between theory and practice (because HR fields are fundamentally applied sciences). Critiques and voices for future directions within each field emphasize those elements (Swanson & Holton, 2009; Ulrich & Brockbank, 2005; Werner & DeSimone, 2009).
In view of Pasteur’s quadrant, scholars of HRM (Bennis & O'Toole, 2005; Ghoshal, 2005; Mintzberg, 2004; Pfeffer & Fong, 2002) and HRD (Gilley, 2006; Short et al., 2009; Woodall, 2006) clearly see the promotion of use-inspired research as the future direction of research. Our review of the OD literature also supports the growing concern of bridging the gap between practice and theory development (Austin & Bartunek, 2006; Porras & Robertson, 1987; Van de Ven & Poole, 1995).

**Implications for Human Performance Technology**

What does this discussion of theory-building efforts and the convergence theme in HR fields mean to the field of HPT? Despite Jacobs’s (1988, 1989) early critique of the lack of theory development in HPT, few attempts have been made to place theory building as a core research agenda in the field. Rummler (2007) expressed this concern succinctly:

Almost all the advances in instructional design and performance analysis methodology came from consulting practitioners solving client problems. The resulting reality is that these players were always...
trying to build a personal brand—trying to distinguish themselves from each other in the marketplace: performance analysis versus performance audit versus front-end analysis; human performance system, behavioral engineering model, analyzing performance problems. These were different configurations of the same variables influencing behavior and performance. (p. 9)

Theory building is the general process of gathering facts and then proposing new explanations for their relationships (Jacobs, 1989). Lynham (2000) noted that theory building is important to develop multiple and inclusive research methods to advance a field. For an applied field to grow and gain recognition, advancing science (i.e., theory and research) and technology (i.e., process and conceptual tools, design, and evaluation) is crucial (Merrill & Wilson, 2007). In other words, good theory is practical because it advances knowledge in a field, guides research toward crucial questions, and enlightens the profession through evidence-based practices (Van de Ven, 1989). The use-based research we emphasized in this study is clearly aligned with that direction (Tushman & O’Reilly, 2007; Woodall, 2006).

Lynham (2002) stated that the process of theory building should move through the phases of concept development, operationalization, confirmation or disconfirmation, and application in a recursive manner, and this can be done either deductively (from theorizing to practice) or inductively (from practice to theorizing). Torraco (2004) reviewed strengths and weaknesses of various research methods commonly used for deductive theory building (e.g., Dubin’s hypothetico-deductive quantitative approach and meta-analytic theory building) as well as inductive theory building (e.g., grounded theory, case study research, and social constructionist research). He emphasized that the main purpose of research (e.g., theory testing or concept development) should determine the use of research methods. In addition, scholars suggested the use of developmental research (Richey & Klein, 2005) and design-based research (Wang & Hannafin, 2005) to improve the quality and accountability of work through continuous cycles of theory-based design, implementation, analysis, and redesign.

For HPT to advance and be considered as a relevant HR field, adhering to sound research practice is important. More needs to be done than positioning itself as a strategic partner of organizations. To pursue this urgent endeavor, examining how other (and probably more established) HR fields have evolved at the beginning, diverged to different areas of focus, and converged over time maintaining theory development research efforts, and, most important, how and where HPT fits or complements HR fields can be a first step. More details on the origins and growth of each field reviewed in this study are found for HRM (Agarwal & Hoetker, 2007; Colquitt & Zapata-Phelan, 2007; Podsakoff, MacKenzie, Podsakoff, & Bachrach, 2008), HRD (Hatcher, 2009; Kuchinke, 2007a; Swanson & Holton, 2009), OD (Gallos, 2006; Loveridge, Willman, & Deery, 2009), and HPT (Ferond, 2006; Rummler, 2007; Stolovitch, 2007).
HPT’s relevance to HRM and OD has been asserted by many scholars, but its relationship with HRD has not been discussed as much. Rosenberg, Coscarelli, and Hutchison (1999) stated that HPT uses core concepts and principles from behavioral psychology, instructional systems design, OD, and HRM. Huglin (2009) added systems and communications theory as relevant cognate fields agreed on by leading scholars of HPT. Swanson and Holton (2009) identified systems theory, psychology, and economics as core foundations of HRD, and McLagan’s (1989, 1996) work clearly showed that training development, OD, and career development are the core of HRD (to be combined with HRM to comprise the entire HR wheel). Therefore, conceptual relevance between HRD and HPT is clearly seen in the literature.

We strongly believe that the performance improvement process has learning at its foundation because learning enables performance (through newly obtained skills, knowledge, and attitude) and performance builds up learning through prior knowledge, mental models, and confidence (Brinkerhoff, 2005; Kuchinke, 1998). The concept of learning in organizations (Brown & Duguid, 1991; Esterby-Smith, 2000; Marsick, 2009; Nemanich, Banks, & Vera, 2009; Reynolds, 2009; Senge, 1990; Tushman et al., 2007) marries the idea of workplace learning and performance (Rothwell & Sullivan, 2005) by balancing the two separate but complementary approaches to impact and effectiveness in organizations.

Added emphasis on learning enables HPT professionals to selectively apply behavioral, cognitive or psychological, and social, situated, and interactional views of human learning and interactions (Driscoll, 2005), which will lead to human performance improvement. Huglin’s (2009) citation analysis within HPT also found that psychology was the most frequently identified subject category of journals cited, followed by business, education, and sociology. This is not to say that learning is more important than performance. Learning is a mature topic of research and practice that has been established in core cognates, such as psychology, management, education, and sociology, whose theoretical and research frameworks are inseparable from human performance.

An important topic for theory building in HPT is the relationship of learning and performance in organizations that has long been a common theme in HR fields: improving organizational performance through human resources. Particularly, learning in organizations has not been paid enough attention in HPT. Several reasons for HPT’s bias toward performance are possible:

- The field began its positioning as emphasizing performance improvement as opposed to individual learning-based training.
- Learning is equated to training in terms of individual knowledge acquisition and development, which do not necessarily lead to organizational performance.

For HPT to advance and be considered as a relevant HR field, adhering to sound research practice is important.
The founding fathers of the field (e.g., Thomas Gilbert) were strongly influenced by Skinner’s behaviorism and systems theory to emphasize observable and controllable behaviors for performance improvement models.

However, HR fields have identified the central role of learning for enhancing individual development, team effectiveness, leadership, innovation, and competitive advantage (Torraco, 2000). A recent study of citation network analysis of four primary HRD journals (Human Resource Development Quarterly, Human Resource Development International, Advances in Developing Human Resources, and Human Resource Development Review) evidenced that the primary focus in the field involves the learning and performance approaches (Jo, Jeung, Yoon, & Park, 2009). A similar approach to two journals, Performance Improvement Quarterly and Performance Improvement, might deliver meaningful results on the relationship between learning and performance in the field because as Price (1970) counseled researchers: “If you want to make [your] field firm and tight and hard and crystalline you have to play with your peers and keep on the ball by citing their recent work” (p. 856). The importance of the academic community in the field also resonated in Moody and Light’s (2006) saying: “In a field without strong boundaries, scientists are faced with two challenges: finding an audience and filling a niche” (p. 83).

In line with all levels of analysis, HR fields have weighed research on organizational learning and learning organization constructs and variables to realize organizational performance and effectiveness (Edmonson, Dillon, & Roloff, 2008; Gallos, 2006; Watkins & Marsick, 2003). HPT’s efforts at theory building on separate but complementary foci, workplace learning and performance, can enrich observable behavior-focused and performance improvement models (which are limited) to explain the complex and multifaceted nature of organizational life.

Pfeffer (1993) showed that the level of a field’s theory development has a number of substantively important effects. He strongly argues that more highly developed fields fare better in the context of resource allocations. Such theory development efforts in HPT as the exploration of the origins and growth of HPT and workplace learning and performance in organizations through the lens of other HR fields’ perspectives, as well as citation network analysis of the major journals in the field, will set the foundation for the field’s role as a recognized HR field as well as strategic partners in the organization and will lead to better positioning in resource allocation. In this context, we conclude with the pointed remark of Elinor Ostrom, the 2009 Nobel laureate in economic sciences, on the future direction of the social sciences: “Narrow disciplinary boundaries limit our science’s progress” (Ostrom, 2009).


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