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What is This?

Three Approaches to Multilevel Theory Building

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Abstract

Human resource development (HRD) is a dynamic field requiring multilevel considerations in the use and development of theory and theory-building approaches. Despite considerable support in HRD literature for systems and multilevel perspectives, commonly featured general theory-building models do not overtly include or integrate related considerations. It is has been argued by scholars that failures to address inherent levels across HRD have led to reductionism and a micro–macro divide that is, in the long run, an ineffective dichotomy leading to a focus on either large system or individual issues in HRD. Theorizing holistically about multiple levels concurrently has been advocated by HRD scholars as a realistic approach to the naturalistic work environment. Three multilevel theory-building frameworks are introduced, explored, and critiqued as important developments for HRD. Recommendations for advancing HRD theory building based on the aforementioned multilevel theory-building examination are outlined.

Keywords

theory, theory building, multilevel theory building, human resource development, applied behavioral social science

The basic notion that human resource development (HRD) is composed of and influenced by interacting and interrelating structures and activities has become essential and implicit in virtually all HRD literature. Ongoing discussions among HRD scholars and practitioners have supported multiple-level (Garavan, McGuire, & O'Donnell, 2004), holistic (Swanson, 2007), and systems (Jacobs, 1988) perspectives for HRD. Such logically expansive views of HRD have led to more frequent discussions

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regarding various units or levels, from individual career development (McDonald & Hite, 2005) to community, social, and even national considerations for HRD (McLean, 2004). It is becoming extremely rare to read an article in either scholarly or practice literature that does not either examine implications or expand the focus of discussion to include several scopes or levels of consideration. Such perspectives are only logical given the now generally accepted nature of HRD. Although general theory-building models (see Storberg-Walker, 2003) may not intentionally support reductionism, the absence of an overt, planned approach to addressing the multilevel influences in the context of HRD may present serious challenges regarding relevance and application for the theories devised or in the systemic contexts in which HRD is situated. To the extent that HRD-related theory is an attempt to depict or represent a phenomenon (Dubin, 1978) relevant to the field, the multilevel nature of HRD must also be overt. Although HRD literature provides much support for the notion that systems or layered perspectives of HRD are essential, existing literature and frameworks have failed to reflect this seemingly enduring perspective.

Purpose and Focus Questions

Because of the evolving nature of multilevel research in which "no single source exists to cut across [the theoretical framework] differences and to guide the interested researcher in the application of multilevel concepts" (Kozlowski & Klein, 2000, p. 4), the purpose of this article is to explore multilevel theory-building methods used by scholars in HRD-related fields as a way to address the misalignment that exists between individual- and organization-oriented research. This is accomplished by examining three specific multilevel frameworks that provide important perspectives regarding the development of theory in HRD contexts (Kozlowski & Klein, 2000; Morgeson & Hofmann, 1999; Reynolds Fisher, 2000). Presented within each of these frameworks are principles, guidelines, and processes for use in multilevel theory development. The focus questions for this inquiry include the following: (a) What are the similarities and differences between identified multilevel theory-building frameworks? and (b) In general, what is the potential usefulness of identified multilevel theory-building frameworks for HRD? Although the frameworks identified often involve contrasts between individual and organizational levels, multilevel can also refer to other micro or macro contexts common to HRD literature, such as group, team, subculture, community, industry, regional, national, and international.

Rationale

The rationale for this investigation and explication is that HRD is a multilevel field and that multilevel theory-building approaches are a logical consideration for the field. From an HRD strategic practice perspective, Korte (2008) noted, "Viewing organizations as multilevel systems requires that [HRD] planners attend to the influences of unique

elements within each level of analysis and attend to cross-level interactions" (p. 181). Scholars in fields other than HRD who have introduced and elaborated on multilevel theory building have done so as a cogent response to naturalistic environments commonly found, and theorized about, in HRD. Theory-building researchers often focus only on a single level, although theory building can be aimed at understanding multiple levels. Specific explanation of the importance of multilevel theory building to researchers and practitioners is provided by Klein, Tosi, and Cannella (1999):

> Multilevel theories span the levels of organizational behavior and performance, typically describing some combination of individuals, dyads, teams, businesses, corporations, and industries. Multilevel theories, thus, begin to bridge the micro-macro divide, integrating the micro domain's focus on individuals and groups with the macro domain's focus on organizations, environment, and strategy. (p. 243)

In proposing multilevel theory building as important for HRD and HRD theory building, we must compare differences between Dubin's (1978) seminal definition of theory building and definitions of multilevel theory building. Dubin stated that a theory is "a model of some segment of the observable . . . [that] describes the face appearance of a phenomenon [of interest] in such terms as structures, textures, forms and operations" (p. 216). Similarly, Reynolds Fisher (2000), whose work was based largely on Dubin's approach to theory building, defined multilevel theory building by stating that a multilevel theory "is still a simplified view of the complexity of organization [life] in the real world" (p. 16). Furthermore, a comparison of Dubin's theory-building model to Reynolds Fisher's multilevel theory-building model reveals that theory building, whether at a single level or at multiple levels, has the same purpose, but that by using the multilevel process there is the potential to glean additional insight and capture a more systematic or layered perspective regarding the focal phenomenon. Table 1 provides a side-by-side comparison of Dubin's theory building and Reynolds Fisher's multilevel theory-building models (the Reynolds Fisher model will be described in detail in a later section).

Klein et al. (1999) also stated that "multilevel theory building fosters much needed synthesis and synergy . . . connect[ing] the dots, making explicit the links between constructs previously unlinked . . . [and] illuminat[ing] the context surrounding individual-level processes, clarifying precisely when and where such processes are likely to occur within organizations" (p. 243). Finally, "multilevel theory is not necessarily one that considers every level within a hierarchical system equally, but rather one that takes into account the effects of levels subordinate and supraordinate to the focal level" (Reynolds Fisher, 2000, p. 11). The first step to exploring the potential of multilevel theory building as a central approach for HRD theory building, elaboration of existing multilevel theory-building approaches, is the focus of this article.

Table 1. A Comparison of Dubin's Model of Theory Building and Reynolds Fisher's Multilevel Theory-Building Model

Dubin's Model of Theory Building (1978)	Reynolds Fisher's Multilevel Theory Building Model (2000)
Units of the theory	Definition of theoretical units and collective constructs
Laws of interaction	Specification of levels including boundaries
Boundaries of the theory	Determination of theoretical boundaries
	Identification of laws of interaction among units or constructs
	Specification of functional relationships among levels
	Specification of sources of variability among levels
System states of the theory	Definition of system states
Propositions of the theory	Statement of propositions

Critique of Current HRD Theory Building

In Storberg-Walker's (2003) comparison of the theory-building methods of Dubin (1978), Lynham (2002b), and Van de Ven (2003), she stated, "Future theory building in HRD will be well served by using [general] theory building research methods [such as Lynham's and Van de Ven's methods] as a roadmap for theories that are relevant in today's organizational environment" (p. 221). This recommendation is based on the assumption that Dubin's framework is insufficient for HRD theory building because his model was framed within the positivistic paradigm and thus has limited utility in the multiparadigm field of HRD. It also suggests that the organization is the focal level of analysis for HRD. In addition, Storberg-Walker asserted that the featured general approaches to theory building by Lynham and Van de Ven "both validate the contributions of multiple paradigms toward theory building . . . and include both deductive and inductive reasoning" (p. 218), which present broader epistemological assumptions. Storberg-Walker also stated that Dubin's method "lacks the flexibility to address the complex, multidimensional, contextual, and temporal social phenomena that HRD theoreticians are often faced with today" (p. 218).

Focusing specifically on the comparison between Dubin's (1978) and Lynham's (2002b) models, Storberg-Walker (2003) indicated that the flexibility allowed in Lynham's method comes from its general nature. Because it does not provide a stepwise process to follow for theory building, the assertion is that it allows for flexibility in examining the issues that face HRD scholars and practitioners. Lynham's general theory-building approach achieves much in terms of practicality and orientation toward the important goal of HRD theory building, while neglecting exhaustive assertions by Garavan et al. (2004), Jacobs (1988), Lynham (2000, 2002b), Storberg-Walker (2003), Swanson (2001, 2007), Swanson and Holton (2001, 2009), and many others regarding the centrality of systems theory and multilevel orientations for HRD.

As emphasized by Swanson (2007), "the theory framework should function at multiple levels from establishing and confirming disciplinary boundaries down to the smallest possible unit deemed logical and potentially useful" (p. 327). We strongly agree with this assertion. However, the general theory-building models most often endorsed in the HRD literature, including Lynham's (2002b) general theory-building model, do not overtly function at multiple levels nor do they advance HRD theory building beyond a compressed examination of issues in the field. By failing to include multilevel considerations in the theory-building process itself, the systems perspective is not advanced in the theories that are developed, and one of the elements claimed to be essential for HRD is severely encumbered. Such general theory-building approaches are vulnerable to reductionism that fails to adequately reflect the nature of the phenomenon on which the theorist is focused (Kozlowski & Klein, 2000).

In addition, by failing to clearly articulate a systems or multilevel perspective on theory building, Dubin (1978) and Lynham (2002b) lead theorists away from practicality, particularly in HRD-related theory building, by perpetuating individual–organization or other divisions between other micro and macro levels of interest. Wright and Boswell (2002) emphasized that the failure to bridge this divide limits researcher and practitioner capacity "to explore how those intersections [between individual and organization research and practice] can result in more profound research progress in the field" (p. 248).

Storberg-Walker (2003) indicated that HRD research agenda topics involve complicated processes "that are embedded with multiple forces acting upon the human learners/performers in the organization" (p. 221). The reality of multiple forces, from multiple levels, affecting individuals in an organization is further support for multilevel theory development in HRD. In support of theory building, Lynham (2000) stated "that the development of good HRD theory and theory-building methods are essential for advancing the maturity, credibility, and professionalism of both thought and practice in HRD" (p. 163). Is it possible for "good HRD theory and theory building" to be formulated without ongoing, overt representation of the multilevel nature of the practice, profession, and field?

The cost for ignoring multilevel examination as a feasible option for advancing HRD research and practice is the aforementioned individual versus organization, or micro-versus macro-level, competition (Wright & Boswell, 2002) that may present a major barrier to progress of the field and to the aspired practical connections between theory and practice (Lewin, 1951). In advance of Swanson's (2007) assertion, Wright and Boswell also stated that in conducting organizational research, "organizational processes should be properly aligned to produce synergy and compatibility in organizational direction thus helping to support strategic success. . . . It is equally important to consider the degree to which the actual human resources (i.e., individual employees) are aligned with and contributing to the organization's strategic goals" (p. 265). Theory building framed at multiple levels provides the type of insight encouraged by Wright and Boswell to integrate the individual, group, organization, and other levels of research. For example, a specific topic often included as a subset of HRD is career

development (CD; McLagan, 1989; Swanson & Holton, 2001). Egan, Upton, and Lynham (2006) stated that multilevel theory building "may very well be the key to bridging predominantly individually oriented CD theories with HRD theory-building efforts" (p. 470). A theory-building approach containing no explicit elaboration regarding the handling of specific systems issues likely supports an individual-organization divide and is counterproductive for a systems oriented field (Garavan et al., 2004; Wright & Boswell, 2002).

According to Garavan et al. (2004), "The HRD field is characterized by a predominance of the individual- and organizational-level contributions" with few research studies proposing multilevel considerations, thus creating "a significant gap in the current body of HRD theory and research" (p. 418). Specifically, the gaps are related to three areas of multilevel research:

> First . . . a lack of compositional or integrated models that examine a variable at multiple levels of analysis. Second . . . few cross-level models that investigate relationships between independent and dependent variables at different levels of analysis. Finally . . . few studies focus on examining relationships among variables generalized across two or more levels. (Garavan et al., 2004, p. 418)

We are not proposing that all research within HRD needs to be multilevel, but continuing to explore phenomenon from a generic perspective with levels consolidated for a single-level examination by using theory-building methods that do not account for multiple levels of analysis is insufficient for advancing theory building in HRD. One contribution to the advancement of multilevel theory building in HRD is the articulation, comparison, and assessment of available multilevel theory-building approaches.

Examining Identified Multilevel Theory-Building Frameworks

According to Kozlowski and Klein (2000), Lewin's interactionist perspective originated efforts to "conceptualize and study organizations as multilevel systems" (p. 9) and organizational psychology advanced the development of multilevel research frameworks from the 1950s onward. "Although interest in the development and testing of multilevel theoretical models has increased dramatically in the past decade [1990s], there have been relatively few efforts to provide [specific] multilevel theoretical frameworks" (Kozlowski & Klein, 2000, p. 11) for utilization by multilevel researchers for theory development.

In reviewing the multilevel research literature, the first specific work on the topic was identified in a special topic forum written for the *Academy of Management Review* by Klein et al. (1999). The literature review process then included examining this initial work and reviewing work published both previous to and after this initial article. The discovery of Kozlowski and Klein's (2000) comprehensive work on multilevel theory building proved to be the key to unlocking our examination of multilevel theory

building as a viable alternative to the previously mentioned single-level focus in HRD theory building. Ultimately, the works of Kozlowski and Klein (2000), Morgeson and Hofmann (1999), and Reynolds Fisher (2000) were identified as the primary examples of developed guidelines or synthesized process models for developing multilevel theory. Kozlowski and Klein's work was selected because it represents the most comprehensive set of guidelines for multilevel theory building, is based on their own multilevel theory-building work, and synthesizes the majority of previous multilevel theory-building research. Morgeson and Hofmann's work is included because they provide the necessary insight into the definition and use of collective constructs in multilevel theory building (although Kozlowski and Klein do not specifically incorporate Morgeson and Hofmann's concept of collective constructs, the concept was presented in the original special topic forum) and was found to be the key support for the only identified multilevel theory-building work found in HRD (by Reynolds Fisher, 2000). Finally, Reynolds Fisher provides the only explicit multilevel theory-building process formed exclusively within an HRD context and, as a result, was included in this discussion. A comparison and critique of the three identified multilevel theory-building processes is detailed below.

As with all theory-building approaches, each of the identified multilevel theory-building approaches has strengths and weaknesses. Kozlowski and Klein (2000) emphasized that "the maturation of the multilevel paradigm . . . has not proceeded without pain. The roots of the multilevel perspective are . . . obscured by barriers of jargon, and confused by competing theoretical frameworks" (p. 4). No discussions detailing multilevel theory-building approaches were identified in the HRD literature, nor were articles contrasting multilevel theory-building approaches found in general social science journals; therefore, this work is a unique contribution to theory-building literature in HRD. The following three subsections present each model to highlight the guidelines and/or process suggested by these multilevel theory-building scholars.

Kozlowski and Klein's Multilevel Approach

Recognizing that the existing multilevel theory development frameworks were scattered across disciplines, the focus of Kozlowski and Klein's (2000) work was to "synthesize and extend existing frameworks, and identify theoretical principles to guide the development and evaluation of multilevel models" (p. 11). Their work culminated in the development of 21 principles to guide the work of multilevel theorists. The first 11 principles describe the "what, how, where, when, why, and why not" (p. 26) of multilevel theory building and provide the essential framework for developing a multilevel theory. The final 10 principles they offer guide the operationalization of the theory—the alignment of research designs and analytical strategies with levels specific to the theory of interest (Dubin, 1978; Kozlowski & Klein, 2000). Table 2 details the guidelines and processes suggested by Kozlowski and Klein.

The principles highlighted by Kozlowski and Klein (2000) included in-depth information and insight into the multilevel theory-building process. Although Kozlowski

Table 2. Multilevel Research Principles Developed by Kozlowski & Klein (2000)

Principle/Process	Description
1. Designate and define theoretical phenomenon of interest and constructs/dependent variables.	Aimed at preventing development of a misspecified theory and relies on the dependent variable(s) to be the driving force of the levels, constructs, and processes of the theory while focusing on the phenomenon of interest.
2. Determine if the processes within the phenomenon of interest change across contexts or levels.	Requires identifying the influence of higher and lower level units on the phenomena of interest.
3. Specify how the phenomenon is linked at differed levels. Characterize links as:	This process is foundational for the future operationalization of the construct(s).
4. Top-down processes (also referred to as contextual influences); or	Top-down processes refer to the influence of higher level contextual factors on lower levels either directly or through shaping and moderating relationships.
5. Bottom-up processes (also referred to as emergence	Bottom-up process refer to lower level properties that emerge into collective phenomena and are categorized into composition processes that emerge virtually unchanged across levels and compilation processes that emerge distinctively changed as across levels.
6. Specify organizational levels, units, or elements relevant to theory construction. Specify whether units are formal or informal.	The theory of the phenomena of interest is the driving factor when specifying units as formal versus informal.
7. Specify temporal reference points as time may make phenomenon appear top-down, bottom-up, or both at various times.	In an effort to increase "the rigor, creativity, and effectiveness" of multilevel theory building, examining how time can be incorporated into the multilevel model is important.
Take temporal requirements (time-scale variations) into account:	By taking time-scale variations into account, the theorist can account for the manifestation of the phenomena of interest at different levels at different times.
8. Top-down effects on lower levels manifest quickly; and	
9. Bottom-up emergent effects manifest over longer periods of time.	
10. Specify time cycles in entrained phenomenon.	By addressing the appropriate time cycles in entrained phenomena (tightly coupled phenomena that are normally only loosely coupled), the precision of the resulting theory will likely be increased.

(continued)

Table 2. (continued)

Principle/Process	Description
11. Answer the whys and why-nots of the model by explaining the assumptions that undergird the model.	Allows for explicit specification and provides insight to scholars who are interested in the new multilevel theory, regardless of their field of expertise or study.
Specification and Operationalization	Description
12. Specify the level of each construct in the theory.	Construct level hypothesizes where the construct will manifest in the theoretical model and the theorist must also define the level and provide justification for specifying the construct at this level.
13. For emerging higher-level constructs, specify the level of origin and of the construct, and the nature of the emergent process	Level of origin and nature of emergent process is driven by the type of unit-level construct (see next guideline for specific process).
14. Models containing unit-level constructs must specify whether constructs are global unit, shared unit, or configural unit properties.	• Global unit properties—originate and manifest at the unit (organization or group) level; are single-level phenomenon. • Shared unit properties—based on composition models of emergence and are shared/common to individual members of the unit. • Configural unit properties—based on compilation models of emergence; do not coalesce/converge among members of a unit.
15. Configural unit properties are further categorized into descriptive characteristics.	Descriptive characteristics reference either manifest and observable features or latent constructs, which reference hypothetical and unobserved properties of the unit in question.
16. Specify the level of measurement of each construct.	Measurement form and representation for analyses are determined by the type of unit-level construct. • Global properties should be assessed at the unit level. • Shared and configural properties should be assessed at the level of origin. • For both shared and configural properties, the theories should represent the form of emergence in the model of aggregation, combination, and representation.
Sampling in Multilevel Research	Description
17. Individuals as sources of data	See Kozlowski and Klein (2000) for details of sampling in multilevel research.
18. Sampling within and across units	_____
19. Sampling across time	_____
20. Time cycles and entrainment	_____
21. Analytic strategies	_____

and Klein are not the only contributors to multilevel research, the principles they outlined are largely generated by their own research on multilevel theory. Their work reveals that although multilevel theory building may be underdeveloped in or even new to the field of HRD, the focus on multilevel research is far from being "new." The next theory-building approach examined for this study is by Morgeson and Hofmann (1999) and focuses primarily on the structure and function of what they term "collective constructs."

Morgeson and Hofmann's Structure and Function of Collective Constructs

Morgeson and Hofmann (1999) described the term *collective* as "any interdependent and goal-directed combination of individuals, groups, departments, organizations, or institutions" (p. 251). Accordingly, they also stated that because their work focused on these combinations, their model "is applicable to any set (or grouping) of entities and, thus, represents a general model for developing multilevel theories" (p. 251). Citing additional work by Klein and Kozlowski (2000), Morgeson and Hofmann (1999) defined constructs as "hypothetical concepts that are not directly observable" and "abstractions used to explain some apparent phenomenon" (p. 250). Combining the two concepts, collective constructs are defined as follows:

> The structure of any given collective (e.g., a work team) can be viewed as a series of ongoings, events, and event cycles between component parts (e.g., individuals) . . . the collective action (which is composed of ongoings and events) [then] enables collective phenomena to emerge. Labels then can be affixed to this phenomenon, resulting in what could be termed the emergence of a collective construct. (Morgeson & Hofmann, 1999, p. 252)

Finally, the authors discussed the function of describing collective constructs. "Within the organizational sciences, a number of researchers have discussed constructs that exist at both individual and collective levels. In multilevel research, questions often arise with respect to what characteristics these constructs have in common" (Morgeson & Hofmann, 1999, p. 254). Table 3 provides additional details about the process of developing multilevel theories by identifying the structure and function of collective constructs.

Morgeson and Hofmann (1999) focus on the structure and function of collective constructs to "provide a . . . mechanism for discussing collective phenomena and integrating constructs across levels" (p. 256) and ultimately facilitate multilevel theory development. Although the work conducted by Morgeson and Hofmann is important to multilevel theory building, their focus on structure and function "does not preclude other perspectives on collective phenomena" (p. 256). Their work concluded by providing 11 guidelines (detailed in Table 4) for issues to be considered in multilevel theory building, further categorized into implications of structure, implications of function, and integration of structure and function. The final guideline integrating structure and

Table 3. Structure and Function of Collective Constructs by Morgeson & Hofmann (1999)

Process

    Identify collective phenomena that emerge from collective action of individuals/groups/ departments/organizations/institutions (collective constructs).

    Identify systems of ongoings and events that leads to understanding interactions that define and reinforce the collective phenomena.

    Specify the emergence process of collective constructs recognizing that the context of operation may limit interaction possibilities resulting in influence on emergence of a construct.

    Specify construct function to allow for integration of functionally similar constructs into broader networks of constructs.

    Identify the role the outcome of the construct plays in the collective with regard to goal accomplishment to explain why the construct persists/fails to persist.

    Identify commonalities of a given construct across levels using a functional analysis of the construct.

    Specify the structure of a construct at each level to provide an accounting of the function and identify contextual factors/structural properties that regulate the divergence of outcomes in the theory.

Specification and operationalization

    Account for interaction, integration, coordination, and interdependence to gain a fuller understanding of the collective constructs.

    Individual-level data can be collected to inform collective phenomena; must focus on collective phenomena and frame questions in collective terms.

    In theory operationalization, specify whether the constructs' structure or function was assessed to facilitate appropriate operationalization.

Sampling in multilevel research

    Not addressed in this model.

function is what they consider "most useful" in developing multilevel theories. This guideline also provides limited information on the operationalization of the theory being developed.

Morgeson and Hofmann (1999) emphasized that "the most important insight in this article is that constructs can be described in terms of their structure and function . . . [but that] these are not mutually exclusive ways of examining collective constructs" (p. 262). By addressing both structure and function, the researcher can articulate more fully the construct(s) of interest. They also pointed out that the structure and function of collective constructs should only be explored when useful for solving problems in multilevel theory development and testing.

Reynolds Fisher's Integrated Model of Multilevel Theory Building

Although Garavan et al. (2004) pointed out that levels issues are an important area of research that needs to be explored within HRD, only one example of multilevel theory building was identified in the HRD literature. The sole example of multilevel theory

Table 4. Implications of Structure and Function of Collective Constructs (Morgeson & Hofmann, 1999)

Summary	Implications of Structure
Interaction	Organizational member interaction defines and reinforces collective phenomena.
Emergence	Collective construct emergence (top-down, bottom-up).
Limitations	Collective construct structure adds limitations to interaction.

Summary	Implications of Function
Integration	Allows for integration of functionally similar constructs.
Persistence	Construct outcome gives insight into persistence or failure of the construct(s).

Summary	Integration of Structure and Function
Identify structure at each level	Across-level commonalities of a construct may be used to identify structure at a specific level.
Identify function structures	Identifying structures that account for function.
Divergence	Identifying influence of factors in divergence of outcomes.
Measurement	Collective or multilevel phenomena measurement also requires consideration of interaction, integration, and coordination of constructs.
Individual-level data collection	Individual-level data inferences must include consideration of individual role in the collective.
Operationalization	Construct operationalization must be clearly defined.

building found specifically in the HRD literature was conducted by Reynolds Fisher (2000) in her dissertation and emerged from insights garnered from "multilevel scholars . . . synthesized with Dubin's (1978) framework" (p. 55). The multilevel theory-building model proposed by Reynolds Fisher builds on the foundation provided by Dubin's first five theoretical components, with additional insight from more recent scholarship. The more recent scholarship used was from the work of Rousseau (1985), Klein, Dansereau, and Hall (1994), Chan (1998), and Morgeson and Hofmann (1999). It should be noted that Reynolds Fisher's model stops short of detailing steps for the validation and verification, or operationalization, of the resulting theory, leaving that process to future research.

Although similar in many ways to Dubin's (1978) model of theory building, Reynolds Fisher (2000) indicated that the additional work in the multilevel theory-building process comes in defining collective constructs (Morgeson & Hofmann, 1999) and in specifying levels, functional relationships, and sources of variability among levels (Klein et al., 1994), resulting in a total of eight steps (which extend Dubin's original five steps). A side-by-side comparison of Dubin's and Reynolds Fisher's models was presented earlier in Table 1. Each step of Reynolds Fisher's process is described in detail in Table 5. Although Dubin's (1978) original work was referenced in this process,

Table 5. Reynolds Fisher's Multilevel Theory-building Model

Process	Description
Definition of theoretical units and collective constructs	Theoretical units—the theory is constructed from the defined units that are informed by "literature and experience" and are one of five types: enumerative, associative, relational, statistical, or summative. Defined units also impact the type of studies used to gather data for theory verification and refinement. Criteria for unit development include rigor and exactness, parsimony, completeness, logical consistency, and degree of conformity (Dubin, 1978; Lynham, 2002a). See Morgeson and Hofmann (1999) for more on collective constructs.
Specification of levels including boundaries	Specifying the level(s) of the theory ensures congruency between the level of theory, level of measurement, and level of statistical analysis. Level of theory specification also includes predicting whether members of groups are homogeneous, independent, or heterogeneous (Klein, Dansereau, & Hall, 1994). Determining the level of the theory before determining the level of measurement or analysis is an absolute necessity if there is to be any chance of successful validation of the resulting theory.
Determination of theoretical boundaries	Establishing theoretical boundaries is intended to clarify the domains in which the theory should apply and are determined through the use of logic. Boundaries are defined as either open or closed (Dubin, 1978; Torraco, 1994; Lynham, 2002a).
Identification of laws of interaction among units or constructs	Used to describe the interaction of the units of the theory are categorized into three broad areas: categoric, sequential, and determinant (Dubin, 1978; Lynham, 2002a).
Specification of functional relationships among levels	Specifying the functional relationship among individuals in groups requires that the function of constructs identified by the theorist also be specified (Morgeson & Hofmann, 1999).
Specification of sources of variability among levels	The level of the proposed theory is what determines where to look for sources of variability among levels. For example, a theory situated at the level of "individuals within the group" would want to look at variability at the same level. Klein et al (1994) provide additional insight in their discussion on levels of measurement.
Definition of system states	A system state represents a specific condition of the system when all units in that system take on characteristic values and actually persist for a meaningful period of time. Verification criteria are inclusiveness, persistence, and distinctiveness (Dubin, 1978; Torraco, 1994, 2000).
Statement of propositions	The first step to operationalizing the theory of interest. Both Dubin (1978) and Lynham (2002a) provide additional information on how to construct propositions, types of proposition statements and criteria for consideration.

Lynham's (2002b) presentation of the material from the HRD perspective was most useful in providing an appropriate understanding of the theory-to-research strategy for theory building in HRD and is used frequently in the following descriptions.

The three frameworks highlighted above detail principles to guide the process and theory operationalization of developing a multilevel theory. For ease of reference, Table 6 is a side-by-side comparison of the three sets of guidelines described in the preceding sections (Kozlowski & Klein, 2000; Morgeson & Hofmann, 1999; Reynolds Fisher, 2000).

Comparing and Contrasting the Three Approaches

Each set of guidelines presented in Table 6 is organized in a manner that combines principles presented individually in the authors' original works, based on commonality of purpose. Furthermore, two of Kozlowski and Klein's (2000) guidelines are excluded from this comparison below because neither provides specific guidance for a process of developing, specifying, or operationalizing a multilevel theory. These guidelines instead provide cautionary instructions that the theorist may want to consider.

As is evident in the side-by-side comparison of these three multilevel theory-building approaches, Kozlowski and Klein (2000) offer the most thorough multilevel theory-building process. This is the result of their overarching purpose to provide a thorough summary of multilevel theory-building process as developed to date. They accomplished their purpose by thoroughly detailing the multilevel theory-building process from specifying the phenomenon of interest and dependent variables to specifying within- and between-level components to outlining guidelines for specifying and operationalizing the resulting theory. These scholars also carefully integrated, within their framework, consideration of the work of other multilevel theory-building scholars (Dansereau, Alutto, & Yammarino, 1984; House, Rousseau, & Thomas-Hunt, 1995; Roberts, Hulin, & Rousseau, 1978; Rousseau, 1985). The primary weakness of their approach is the lack of inclusion of the collective constructs concept supported by Morgeson and Hofmann (1999).

With regard to Morgeson and Hofmann's work, the critique is that it focuses almost exclusively on the interaction of individuals in dyads, triads, teams, etc., thus failing to offer a fully multilevel perspective. In addition, their methodology stops short of thorough guidelines for theory specification and operationalization, instructing the theorist only to specify if assessing the structure or function of the identified collective constructs. Finally, Reynolds Fisher (2000) provides an integration of seminal theory building (based on Dubin, 1978) and more recent multilevel theory-building research (based on Chan, 1998; Klein et al., 1994; Morgeson & Hofmann, 1999; Rousseau, 1985), but in doing so, her perspectives rely heavily on Dubin's theory-building work while only moderately incorporating the multilevel theory-building research from other theorists. For both the Morgeson and Hofmann and Reynolds Fisher studies, each

Table 6. Comparison of Multilevel Research Principles Developed by Kozlowski and Klein (2000), Morgeson and Hofmann (1999), and Reynolds Fisher (2000)

Kozlowski & Klein (2000) Principles for Multilevel Research Process	Morgeson & Hofmann (1999) Structure and Function of Collective Constructs Process	Reynolds Fisher (2000) Multilevel Theory-Building ModelProcess
Designate and define theoretical phenomenon of interest and constructs/ dependent variables	Identify collective phenomena that emerge from collective action of individuals/groups/ departments/organizations/ institutions (collective constructs)	Specify and define theoretical units and collective constructs (from Morgeson & Hofmann)
Specify how the phenomenon is linked at different levels	Identify systems of ongoings and events, which leads to understanding interactions that define and reinforce the collective phenomena	Specify levels of the theory, including boundaries
Specify organizational levels, units, or elements relevant to theory construction; specify whether units are formal or informal	Specify the emergence process of collective constructs recognizing that the context of operation may limit interaction possibilities resulting in influence on emergence of a construct	Establish theoretical boundaries (through logic)
Specify temporal reference points as time may make phenomenon appear top-down, bottom-up, or both at various times	Specify construct function to allow for integration of functionally similar constructs into broader networks	Identify laws of interaction among units or constructs
Take temporal requirements into account	Identify the role the outcome of the construct plays in the collective with regard to goal accomplishment to explain why the construct persists/ fails to persist	Specify functional relationships among levels and function of related constructs
• Top-down effects on lower levels manifest quickly • Bottom-up emergent effects manifest over longer periods of time		
Specify time cycles in entrained phenomenon	Identify commonalities of a given construct across levels using a functional analysis of the construct	Specify sources of variability among levels by focusing on the level of the theory

(continued)

Table 6. (continued)

Kozlowski & Klein (2000) Principles for Multilevel Research Process	Morgeson & Hofmann (1999) Structure and Function of Collective Constructs Process	Reynolds Fisher (2000) Multilevel Theory-Building Model Process
Answer the "why" and "why not" of the model by explaining the assumptions that undergird the model	Specify the structure of a construct at each level to provide an account of the function and identify contextual factors/structural properties that regulate the divergence of outcomes in the theory	Specify system states of the theory in which units take on characteristic values that persist over a given time
Specification and operationalization	Specification and operationalization	Specification and operationalization
Specify the level of each construct in the theory at which it is hypothesized to manifest and include the definition of the level with justification of why it is specified at that level	Account for interaction, integration, coordination, and interdependence to gain a fuller understanding of the collective constructs	Specify propositions of the theory; types include:
		• About values of a single unit of the theory • About continuity of a system state • About the oscillation of the system
For emerging higher level constructs, specify the level of origin and of the construct and the nature of the emergent process	Individual-level data can be collected to inform collective phenomena; must focus on collective phenomena and frame questions in collective terms	
Specify the level of measurement of each construct using the following guidelines:	In theory operationalization, specify whether the constructs' structure or function was assessed to facilitate appropriate operationalization	
Global properties—assess/ represent at the unit level		
Shared properties—assess at the level of origin		

(continued)

Table 6. (continued)

Kozlowski & Klein (2000) Principles for Multilevel Research Process	Morgeson & Hofmann (1999) Structure and Function of Collective Constructs Process	Reynolds Fisher (2000) Multilevel Theory-Building ModelProcess
Configural properties—assess at the level of origin		
Shared and configural properties—represent the form of emergence in the model of aggregation, combination, and representation		
Sampling in multilevel research	Sampling in multilevel research	Sampling in multilevel research
Data collection/sampling	Not addressed in this model	Not addressed in this model
Individuals as informants		
Sampling within and across units		
Sampling across time		
Time cycles and entrainment		
Analytic strategies		

approach is largely aimed at quantitative verification, often overlooking the potential for qualitative evaluation.

By examining these three processes here, HRD scholars have the opportunity and necessary information to begin exploring HRD-related topics from a multilevel perspective. Although some have indicated that the differences between multilevel theory-building approaches is lacking common ground (George & James, 1994; Klein, Dansereau, & Hall, 1994), there are differences across general theory-building frameworks as well (Storberg-Walker, 2003). Although differences exist, there are clear commonalities across multilevel theory-building approaches, and these well-developed approaches avoid reductionistic, general theory-building processes. The more recent efforts to frame multilevel theory building outlined in this article address many of the differences and similarities across multilevel theory-building approaches (Klein & Kozlowski, 2000, is to date the strongest example of such synthesis). Upton (2006) has more recently contributed to further synthesis of core concepts and methods associated with multilevel theory building. These efforts represent progress in multilevel theory building that HRD scholars are just beginning to grasp and enhance with their own contributions and inclusion of unique aspects of this multilevel field.

Discussion

HRD is, in itself, multilevel and is situated in the context of multilevel systems. HRD scholars and practitioners have regularly reinforced the notion of HRD as a systems approach. Such reinforcements have included general systems theory (Jacobs, 1989; von Bertalanffy, 1968), sociotechnical systems theory (Emery & Trist, 1960), Likert's theory of organizational effectiveness (1961), Lewin's field theory (1951), learning organization and organization learning (Argyris & Schon, 1978; Watkins & Marsick, 1992), continuous quality improvement (Deming, 2000), adult learning (Freire, 1970; Knowles, 1968), and even the Hawthorne studies (Roethlisberger & Dickson, 1939) to name just a few. It is important that HRD scholars and practitioners reconsider and expand theory-building discussions to include multilevel theory building as a central approach. The need for growth in HRD-related theory building, as argued in foundational HRD literature and seminal HRD articles, appears generally accepted. The next step is to extend current discussions in a manner that links the multilevel phenomenon of HRD with a theory-building approach that best reflects the natural or real contexts in which HRD is situated—and that better aligns with the core theories and frameworks espoused by many HRD scholars.

There are well-developed multilevel theory-building frameworks, outlined herein, that will support discussions and development of multilevel theory building in HRD. Despite some of the limitations outlined above, these multilevel approaches offer more promise in terms of the ability of theory builders to more accurately represent the phenomena about which they are theorizing. Kozlowski and Klein (2000) emphasized, "The primary goal of the multilevel perspective . . . is to identify principles that enable a more integrated understanding of phenomena that unfold across levels in organizations" (p. 7) and that bridge micro–macro issues across any human system, large and small. Should the same not be said of HRD theory building? In fact, we would argue that such "integrated understanding" is central to HRD and HRD-related theorizing.

Insights From the Three Multilevel Theory-Building Approaches

In reviewing the work of Kozlowski and Klein (2000), Morgeson and Hofmann (1999), and Reynolds Fisher (2000) each approach provides important insights regarding theory building in general and multilevel theory building in particular; however, there is a clear opportunity for refinement and improvement of the multilevel theory-building process by systematically analyzing, critiquing, and integrating the strengths of each approach and, simultaneously, the specific guiding principles essential for multilevel theory building. The reason for refining the theory-building methods described in these three studies resulted from Kozlowski and Klein's previously cited assertion that "no single source exists to cut across [the theoretical framework] differences and to guide the interested researcher in the application of multilevel concepts" (p. 4) Although their work was intended to cut across those differences, integrating these three methods

results in an improved approach to theory building overall and multilevel theory building in particular.

Improving On Existing Approaches

Through the analysis and critique of the three multilevel theory-building methods featured herein, an improved multilevel theory-building approach could be developed. Such a new multilevel theory-building process should take the thoroughness of Kozlowski and Klein's (2000) approach and expand it. The expansion should occur as a result of the appropriate integration of Morgeson and Hofmann's (1999) research on specifying collective constructs into Kozlowski and Klein's emergence processes (specifying whether collective constructs emerge as the result of top-down or bottom-up emergent processes). In addition, an improved multilevel theory-building process should leave room for qualitative evaluation and, thus, the validation process for both the process and resulting theory should be expanded beyond the quantitative focus of the three identified studies.

In an effort to provide clarification, the following example of the relevant integration of the work of Kozlowski and Klein (2000), Morgeson and Hofmann (1999), and Reynolds Fisher (2000) is provided. Building on Morgeson and Hofmann's (1999) call to specify collective constructs and their function within each level of the resulting theory, Kozlowski and Klein (2000) assert the importance of specifying how these collective constructs emerge and the type of unit-level constructs that emerge. Reynolds Fisher (2000) also used Morgeson and Hofmann's collective construct work to inform her research methodology and added that boundary specification, included by Kozlowski and Klein, should detail whether the boundary is open or closed. By integrating these three works into one "new and improved" multilevel theory-building approach, the intention is to enhance the theory building and, specifically, the multilevel theory-building process for this and future research.

Formation of a New Approach

Taking on the formation of a new multilevel theory development process will be a complex task. In the formation of an improved multilevel theory-building methodology, there should be three distinct components or aspects of the theory that must be established in the multilevel theory development process: theory components; levels components, consisting of within level considerations and between level considerations; and theory specification and operationalization components.

The first aspect of an improved multilevel theory-building methodology should be the specific theoretical components. The foundation of the theory includes (a) describing the theoretical phenomenon of interest and the resulting endogenous constructs and/or dependent variables (Kozlowski & Klein, 2000); (b) then specifying organizational levels, units, or elements relevant to theory construction (Kozlowski & Klein, 2000;

Reynolds Fisher, 2000); (c) specifying the level of the theory by predicting whether members of the organization are homogeneous, independent, or heterogeneous (Klein et al., 1994; Reynolds Fisher, 2000); and (d) establishing and/or specifying theoretical boundaries, either open or closed, through logic (Reynolds Fisher, 2000).

The next set of considerations provides a means for addressing specific aspects of the developing theory within each of the identified levels of the theory, which may include the individual, group, organization, industry, or other relevant levels. Identifying the collective constructs that result from collective action of organizational players at each level of analysis is of utmost importance (Morgeson & Hofmann, 1999). In addition to identifying the collective constructs, Kozlowski and Klein (2000) indicated that the theorist should specify how these constructs emerge through either top-down contextual influences or bottom-up emergent processes. In addition, the theory must include specific temporal reference points that may make the constructs appear top-down or bottom-up at various times (Kozlowski & Klein, 2000). Top-down processes refer to the influence of higher level factors on lower levels, and the effects of these processes generally manifest quickly through either direct or moderating effects (Kozlowski & Klein, 2000). In addition, bottom-up processes refer to lower level entities emerging to form constructs and generally manifest over longer periods of time through either compilation or composition processes (Kozlowski & Klein, 2000).

Composition processes result in constructs that are essentially the same as they emerge upward across levels and compilation processes result in constructs that comprise a common domain, but are different as they emerge upward (Kozlowski & Klein, 2000). In specifying the emergence of any higher level constructs, an improved multilevel theory-building approach should begin by specifying the level of the construct's origin, the current level of the construct, and the emergence process as described above (Kozlowski & Klein, 2000). In general, the type of unit-level construct drives the form of measurement and representation for analyses. Specific unit-type categories developed for a new approach should include global unit, shared unit, and configural unit properties and are described below:

- global unit properties originate and are manifest at the unit level and are single-level phenomenon;
- shared unit properties are based on composition models of emergence and are shared/common to individual members of the unit; and
- configural unit properties are based on compilation models of emergence, but do not coalesce/converge among members of a unit (Kozlowski & Klein, 2000).

Within each level, the theory development process must also specify the function of each identified construct in an effort to integrate functionally similar constructs into networks of constructs (Morgeson & Hofmann, 1999). Identifying the role that the outcome of the construct plays in the overall organization may also provide insight into why that construct persists or fails to persist over time (Morgeson & Hofmann, 1999).

In addition, specifying the structure of each construct at each level will provide for an accounting of the function of the construct (Morgeson & Hofmann, 1999). Within each level, the theorist will find it useful to identify interactions among units, specified in the foundation of the theory, and may want to use Reynolds Fisher's (2000) nomenclature of labeling those interactions as categoric, sequential, or determinant; however, this labeling may not be helpful in all multilevel theory-building efforts. Finally, by specifying the level of each construct in the theory, the theorist will be better able to specify the level of measurement of each construct (Kozlowski & Klein, 2000). Guidelines for representing the level of measurement are as follows: global unit measurement should be assessed at the unit level, and shared unit and configural unit measurement should be assessed at the level of origin. In addition, for shared unit and configural unit properties, the form of emergence should also be represented in the model of aggregation, combination, and representation (Kozlowski & Klein, 2000).

The final piece of the multilevel theory development process relates to aspects of the theory that are interacting. Having established the foundation for the theory and the aspects of the theory within each level, there is room for improvement to current multilevel theory-building processes by describing what occurs between those levels. Kozlowski and Klein (2000) indicated that the theorist must specify how the constructs and theoretical phenomenon of interest are linked at different levels of the theory. Identifying commonalities of a construct across levels using a functional analysis of the construct may also result in the articulation of the structure of the construct at each level (Morgeson & Hofmann, 1999). In multilevel theory development, the researcher also wants to specify the functional relationship among levels and function of the constructs to better understand the interaction between those constructs and levels (Reynolds Fisher, 2000). In addition, sources of variability among levels must be identified by focusing on the level of the theory (Reynolds Fisher, 2000). Doing so allows the theorist to prepare for assessment of the theory through specification, operationalization, and analysis. Finally, by using both the strengths of the three approaches discussed and including improvements as outlined, an improved multilevel approach will not only provide theorists across fields and disciplines a new framework to consider, but it will provide the opportunity for such refinements to include closer examination of how to best elaborate a multilevel theory-building approach for HRD.

Conclusion

The aim of our presentation of three specific multilevel theory-building frameworks (Kozlowski & Klein, 2000; Morgeson & Hofmann, 1999; Reynolds Fisher, 2000) is to continue and increase the dialogue regarding the development of theory in HRD contexts beyond the predominant single-level contributions (Garavan et al., 2004). Although the conversation about theory building in HRD has focused on Dubin's (1978) seminal work and follow-up work by Lynham (2000, 2002a, 2002b), Storberg-Walker (2003) and others, no such research offers a "multilevel conception of HRD" (Garavan et al., 2004, p. 418). As a result, the field of HRD may be headed down the

path toward an individual versus organization competition (Wright & Boswell, 2002) and fail to integrate other levels (such as community- and national-level HRD) reflected in current conceptualizations of HRD. Such limited perspectives on theory and theory building may hinder connections between HRD theory and practice because single-level examinations provide an unnaturally constrained view of the systemic context of HRD. Furthermore, multilevel examinations increase the potential to provide a more layered perspective of the focal phenomenon. To avoid this competition, we believe the next step for advancing theory building in HRD is to further refine the multilevel theory-building processes presented here, up to and including the development of a more comprehensive multilevel theory-building process, for HRD and related fields. HRD scholars must then also work collectively to develop cogent multilevel theories using these processes. In addition, future development of multilevel theory building in HRD should involve staying abreast of multilevel theory-building advancements in fields such as industrial and organizational psychology and management, where much of multilevel theory development began. We believe it to be essential that the concept of multilevel theory building become central to the theory development conversation in HRD.

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