A Theorist's Toolbox

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A Theorist's Toolbox

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Like other craftsmen, theorists need tools and resources to construct, use, and evaluate theoretical products. Three fundamental resources for theorists are provided in this article: criteria for evaluating theory, definitions of key terms, and a reading list of seminal works on several types of theory and theory-building methodologies. The following sections provide a concise review of the best work to date on the conceptual materials needed for productive theorizing. We offer this information to help contributors to *Human Resource Development Review* along their theory-building journey.

Definitions

First, it is useful to look at definitions of *theory* and related terms that have appeared in the literature. Tables in this section are taken from Lynham and Torraco (2001).

Definitions of *Theory* and Related Terms (Lynham & Torraco, 2001)

Author(s)	*Definition*	*Paradigm*
Kerlinger (1973)	Set of interrelated constructs, definitions, and propositions that present a systematic view of phenomena by specifying relationships among variables, with the purpose of explaining and predicting the phenomena	Traditional view; monoparadigm-functionalist
Mouly (1978)	A convenience—a necessity, really—organizing a slough of facts, laws, concepts, constructs, and principles into a meaningful and manageable form	Toolshed view; monoparadigm-functionalist

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Human Resource Development Review Vol. 1, No. 1 March 2002 129-140

Definitions of *Theory* and Related Terms (Lynham & Torraco, 2001) Continued

Author(s)	*Definition*	*Paradigm*
Chamber (1988)	A loose explanatory idea (contrasted with fact)	Multiparadigm
Chamber (1988)	Opposite of practice	Multiparadigm
Chamber (1988)	Evolving explanation—accumulating a body of knowledge	Multiparadigm
Chamber (1988)	Practical theory or reflective practice	Multiparadigm
Chamber (1988)	Cluster of ideas surrounding the notion of a hypothesis, model, or heuristic	Monoparadigm-functionalist
Chamber (1988)	Presupposition—a set of orienting principles or antecedent assumptions	Multiparadigm
Chamber (1988)	Normative theory—a clearly developed argument that has evolved under pressure of rigorous criticism	Multiparadigm
Chamber (1988)	Empiricist theory (or craft knowledge): accumulation of technical knowledge through doing	Monoparadigm-functionalist
Chamber (1988)	Scientific theory: sets of propositions and rational and empirical connections between concepts	Monoparadigm-functionalist
Bacharach (1989, p. 496)	A statement of relations among concepts within a set of boundary assumptions and constraints	Multiparadigm
Bacharach (1989)	Theory is a statement of relationships between units observed or approximated in the empirical world	Monoparadigm-functionalist
Bacharach (1989)	A system of constructs and variables in which the constructs are related to each other by propositions and the variables are related to each other by hypotheses—the whole system is bounded by the theorist's assumptions	Monoparadigm-functionalist
Dubin (1978, p. 26)	An attempt of man to model some theoretical aspect of the real world	Monoparadigm–hypothetico-deductive
Dubin (1978)	A theory tries to make sense out of the observable world by ordering the relationships among elements that constitute the theorist's focus of attention in the real world	Monoparadigm–hypothetico-deductive

Definitions of *Theory* and Related Terms (Lynham & Torraco, 2001) Continued

Author(s)	*Definition*	*Paradigm*
Reynolds (1971, p. 11)	A theory refers to abstract statements that are considered part of scientific knowledge in either the set of laws, the axiomatic, or the causal process forms	Monoparadigm
Gioia and Pitre (1989, p. 587)	Any coherent description or explanation of observed or experienced phenomena	Multiparadigm
Cohen (1991)	A way of explaining something	Multiparadigmatic
Cohen (1991)	A statement of proposition of a relationship between factors (hypothesized relationship)	Monoparadigm–hypothetico-deductive
Cohen (1991, p. 71)	A set of interrelated statements, some of which are definitions and some of which are relationships assumed to be true, together with a set of rules for the manipulation of these statements to arrive at new statements	Monoparadigm–hypothetico-deductive
Torraco (1994)	A system for explaining a set of phenomenon that specifies the key concepts that are operative in the phenomena and the laws that relate the concepts to each other	Monoparadigm–hypothetico-deductive
Torraco (1994)	An attempt to model some aspect of the real world	Multiparadigm
Torraco in Swanson and Holton (1997)	A theory simply explains what a phenomenon is and how it works	Multiparadigm
Senge (1994)	A fundamental set of propositions about how the world works, which has been subject to repeated tests and in which we have gained some confidence	Multiparadigm

Definitions of *Theory Building*

Author(s)	*Definition*	*Paradigm*
Gioia and Pitre (1989, p. 587)	Theory building is the process or cycle by which such representations are generated, tested, and refined	Multiparadigm

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Definitions of *Theory Building* *Continued*

Authority	*Definition*	*Paradigm*
Torraco in Swanson and Holton (1997, p. 123)	Theory building is the process of modeling real-world phenomena	Multiparadigm
Mott (1996)	Reflective theory building is the process . . . In which the practitioner consciously reflects on the challenges of practice, reiteratively engages in problem posing, data gathering, action, evaluation, and reflection, and then shares the knowledge produced with others in the practice.	Multiparadigm
Lynham (2000, p. 161)	The process or recurring cycle by which coherent descriptions, explanations, and representations of observed or experienced phenomena are generated, verified, and refined.	Multiparadigm

Definitions of Other Key Theory-Related Terms (Lynham & Torraco, 2001)

Key Terms	*Definitions*	*Author(s)*
Product/intended outcome of theory	Theory has a twofold nature: (a) outcome knowledge, in the form of, for example, explanation and predictive knowledge and (b) process knowledge, in the form of, for example, increased understanding of how something works	Dubin, 1976
Knowledge base	The collection and integrated system of intellectual and practical concepts, components, principles, theories, and practices that undergird and form the foundations of a discipline or field of study and practice. A knowledge base defines the unique body of knowledge and thus the boundaries of knowledge for thought and practice in a field	Lynham (2000), informed by Chalofsky (1996); Passmore (1997)
Research	"Scholarly or scientific investigation or inquiry; close and careful study"	Swanson (1997, p. 10)
Product of research	"New [professional] knowledge and understanding"	Swanson (1988, pp. 69-70)

Definitions of Other Key Theory-Related Terms (Lynham & Torraco, 2001) Continued

Key Terms	*Definition*	*Author(s)*
Basic research	"Is also called scientific or fundamental research," the object of which is "to expand knowledge in scientific disciplines, both natural and social"	Swanson (1988, p. 70)
Objective of applied research	"The formulation of concepts and methods and the invention of devices and techniques that can be used as inputs into some human-originated process, product, or event"	Swanson (1988, p. 70)
Idea	Represents the scientists conceptualization or orientation toward or perspective on the phenomenon that is central to the theory	Reynolds (1971, p. 21)
Construct	A concept that is inferred from commonalities among observed phenomena and that can be used to explain those phenomena. In theory development, a concept refers to a structure or process that is hypothesized to underlie particular observable phenomena	Gall, Borg, and Gall (1996, p. 756)
Concept	A general idea derived or inferred from specific instances or occurrences; something informed in the mind; a thought or notion. The scientific value of concepts can only be judged in terms of the scientific utility of the statements containing them; clarity of concepts is measured by the degree of agreement among the users of the concept on its meaning. Concepts are also referred to as units, that is, the things or variables whose interactions constitute the subject matter of attention to the researcher-theorist	American Heritage Dictionary (1996, p. 390); Reynolds (1971, p. 45); Dubin (1978)
Model	A preliminary work or construction that serves as a plan from which a final product is to be made; a schematic description of a system, theory, or phenomenon that accounts for its known or inferred properties and may be used for further study of its characteristics	American Heritage Dictionary (1996, p. 1160)

Criteria for Evaluating Theory

Second, to be a good theoretician requires knowing the characteristics of a good theory. Following are four core sets of criteria for evaluating theory that identify such characteristics.

Patterson's (1983) Criteria for Evaluating Theory

Criterion	*Definition*
Importance	A measure of the importance of a theory is its applicability to more than a limited, restricted situation. Another measure of the importance of a theory is its persistence over time in the research literature.
Preciseness and clarity	A theory is clear and precise if it is understandable, internally consistent, and free from ambiguities. These qualities of a theory can be tested by the ease with which a theory can be related to practice and the degree to which a theory yields hypotheses that can be tested.
Parsimony or simplicity	Parsimony means that a theory contains a minimum of complexity, is economically constructed with a limited number of concepts, and contains few assumptions.
Comprehensiveness	A theory is comprehensive if it completely covers the area that is modeled by the theory. Comprehensiveness means that a theory accounts for all known data in the field to which it applies.
Operationality	Operationality is the extent to which a theory can be reduced to procedures for testing its propositions. Its concepts must be precise enough to be measurable.
Empirical validity or verifiability	The degree to which a theory is supported by experience and experiments that confirm its validity.
Fruitfulness	The potential of a theory to yield hypotheses or predictions that can be tested.
Practicality	A theory is practical if it is useful to researchers and practitioners in organizing their thinking about the phenomenon modeled by the theory.

Bacharach's (1989) Criteria for Evaluating Theory

Criterion	*Definition*
Falsifiability	The degree to which a theory is constructed such that empirical refutation is possible. Falsifiable theories are coherent enough to be refuted.
Utility	Utility is the usefulness of a theoretical system. A theory is useful if it can both explain and predict the phenomenon that is modeled by the theory.

Corbin and Strauss's (1990) Criteria for Evaluating Grounded Theory

Criteria for Evaluating the Research Process	
Criterion 1:	How was the original sample selected? On what grounds was the sample selected?
Criterion 2:	What major categories emerged?
Criterion 3:	What were the events, incidents, actions, and so on that indicated some of these major categories?
Criterion 4:	On the basis of what categories did theoretical sampling proceed? That is, how did theoretical formulations guide some of the data collection? How representative did these categories prove to be?
Criterion 5:	What were some of the hypotheses pertaining to relations among categories? On what grounds were they formulated and tested?
Criterion 6:	Were there instances when hypotheses did not hold up against what was actually seen? How were the discrepancies accounted for? How did they affect the hypotheses?
Criterion 7:	How and why was the core category selected? Was the selection sudden or gradual, difficult or easy? On what grounds were the final analytic decisions made?
Criteria for Evaluating the Empirical Grounding of Findings	
Criterion 1:	Are concepts generated?
Criterion 2:	Are the concepts systematically related?
Criterion 3:	Are there many conceptual linkages and are the categories well developed? Do the categories have conceptual density?
Criterion 4:	Is there much variation built into the theory?
Criterion 5:	Are the broader conditions that affect the phenomenon under study built into its explanation?
Criterion 6:	Has "process" been taken into account?
Criterion 7:	Do the theoretical findings seem significant and to what extent?

Whetten's (1989) Criteria for Evaluating Theoretical Papers

Criterion	*Definition*
What's new?	This is assessed in terms of the scope and degree of the theoretical/conceptual contribution. The degree of the contribution is reflected in the radicalness of the changes proposed by the theory or conceptual framework (how different is this from current thinking?). In addition, the contribution should be applicable to more than a limited, restricted situation.

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Whetten's (1989) Criteria for Evaluating Theoretical Papers Continued

Criterion	*Definition*
So what?	This is the capacity of the theory or conceptual framework to change research and/or practice in the field. The paper should offer linkages to research and/or practice that are either explicitly laid out or easily and reliably deduced from the theory or conceptual development. This criterion asks, Will the contribution likely change research or practice by stimulating further inquiry that leads to new knowledge?
Why so?	"Why so" explains the logic underlying the theory or model. A theoretical paper should substantially contribute to advancing knowledge that explains the psychological, economic, organizational, or other dynamics that justify the selection of factors and relationships that constitute the theory or conceptual framework—the why of the phenomenon that is modeled by the theory or conceptual framework.
Well done?	Are multiple theoretical elements (what, how, why, when, where, who) covered, giving the paper a conceptually well-rounded, rather than a superficial, quality? Do the arguments reflect a broad, current understanding of the subject? Does the paper reflect seasoned thinking, conveying completeness and thoroughness? Does it appear that the author has developed these thoughts over an extended period of time, informed by extensive peer input?
Done well?	Is the theoretical paper well written? Does it flow logically? Are the central ideas easily accessed? Is it enjoyable to read? Is the paper long enough to the cover the subject but short enough to be interesting? Does the paper's appearance reflect high professional standards?
Why now?	Is the paper's topic of contemporary interest to scholars in this area? Will it likely advance current discussions, stimulate new discussions, or revitalize old discussions?
Who cares?	What percentage of the academic readers are interested in this topic? A paper may be technically adequate but inherently uninteresting to most readers. Theoretical papers written on topics with narrow appeal are typically held to a higher standard for the "what's new?" and "so what?" criteria above. That is, they are expected to make a more significant contribution to current thinking and research practice.

Theory Reading List

Third, we have prepared a core reading list about theory and theory building. This list is designed to be short, not comprehensive, so it can be used by those starting the theoretician's journey or to supplement graduate classes. You will also find this list on our Web site at www.lsu.edu/hrdr. We view this list as a work in progress, so we invite suggestions of additional readings that you find valuable enough to be considered part of a core reading list. We will maintain an updated list on the Web site.

Philosophy of Theory

Campbell, J. P. (1994). The role of theory in industrial and organizational psychology. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 39-74). Thousand Oaks, CA: Sage.

Kaplan, A. (1998). Theories. In A. Kaplan (Ed.), *The conduct of inquiry* (pp. 294-325). New Brunswick, NJ: Transaction.

Kuhn, T. S. (1977). The essential tension: Tradition and innovation in scientific research. In T. S. Kuhn (Ed.), *The essential tension: Selected studies in scientific tradition and change* (pp. 225-239). Chicago: University of Chicago Press.

Kuhn, T. S. (1996). The nature of normal science. In T. S. Kuhn (Ed.), *The structure of scientific revolutions* (pp. 23-51). Chicago: University of Chicago Press.

Theory Construction

Cohen, B. P. (1989). From simple knowledge structures to theories. In B. P. Cohen (Ed.), *Developing sociological knowledge: Theory and method* (2nd ed., pp. 177-197). Chicago: Nelson-Hall.

Cohen, B. P. (1989). Ideas, observations, and knowledge claims. In B. P. Cohen (Ed.), *Developing sociological knowledge: Theory and method* (2nd ed., pp. 67-87). Chicago: Nelson-Hall.

Cohen, B. P. (1989). A theory and its analysis. In B. P. Cohen, (Ed.), *Developing sociological knowledge: Theory and method* (2nd ed., pp. 199-225). Chicago: Nelson-Hall.

Dubin, R. (1976). Theory building in applied areas. In M. D. Dunnette (Ed.), *Handbook of industrial and organizational psychology* (pp. 17-39). Chicago: Rand McNally.

Eisenhardt, K. M. (1995). Building theories from case study research. In G. P. Huber & A. H. Van de Ven (Eds.), *Longitudinal field research methods: Studying processes of organizational change* (pp. 65-90). Thousand Oaks, CA: Sage.

Klimoski, R. (1991). Theory presentation in human resource management. *Human Resource Management Review*, *1*, 253-271.

Lewis, M. W., & Grimes, A. J. (1999). Metatriangulation: Building theory from multiple paradigms. *Academy of Management Review*, *24*, 672-690.

Weick, K. E. (1989). Theory construction as disciplined imagination. *Academy of Management Review*, *14*, 516-531.

Weick, K. E. (1995). What theory is not, theorizing is. *Administrative Science Quarterly*, *40*, 385-390.

Grounded Theory

Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory. In *The discovery of grounded theory: Strategies for qualitative research* (pp. 1-43). Hawthorne, NY: Aldine.

Strauss, A., & Corbin, J. (1994). Grounded theory methodology: An overview. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 273-285). Thousand Oaks, CA: Sage.

Middle-Range Theory

Gilfillan, D. P. (1968). Characteristics of middle range organizational theories and their implications for operationalization and testing: A conceptual analysis with empirical illustrations. In R. K. Merton (Ed.), *Social theory and social structure* (pp. 45-60). New York: Free Press.

Gilfillan, D. P. (1968). On sociological theories of the middle range. In R. K. Merton (Ed.), *Social theory and social structure* (pp. 39-72). New York: Free Press.

Moore, L. F., Johns, G., & Pinder, C. C. (1980). Toward middle range theory. In C. C. Pinder & L. F. Moore (Eds.), *Middle range theory and the study of organizations* (pp. 1-16). Hingham, MA: Martinus Nijhoff.

Taxonomies/Typologies

Bobko, P., & Russell, C. (1991). A review of the role of taxonomies in human resources management. *Human Resource Management Review*, *1*, 293-316.

Doty, D. H., & Glick, W. H. (1994). Typologies as a unique form of theory building: Toward improved understanding and modeling. *Academy of Management Review*, *19*, 230-251.

Pinder, C. C., & Moore, L. F. (1980). The resurrection of taxonomy to aid the development of middle range theories of organizational behavior. In C. C. Pinder & L. F. Moore (Eds.), *Middle range theory and the study of organizations* (pp. 187-211). Boston: Martinus Nijhoff.

Multilevel Theory

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology*, *83*, 234-246.

Dansereau, F., Yammarino, F. J., & Kohles, J. C. (1999). Multiple levels of analysis from a longitudinal perspective: Some implications for theory building. *Academy of Management Review*, *24*, 346-357.

Gioia, D. A., & Pitre, E. (1990). Multiparadigm perspectives on theory building. *Academy of Management Review*, *15*, 584-602.

Kozlowski, S.W.J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In S.W.J. Kozlowski & K. J. Klein (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3-90). San Francisco: Jossey-Bass.

Evaluation Criteria for Theory Building

Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review*, *14*, 496-515.

Corbin, J., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, *13*(1), 3-20.

Patterson, C. H. (1986). Preface. In *Theories of counseling and psychotherapy* (4th ed., pp. xiii-xxvii). New York: Harper & Row.

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Exploratory Research

McCall, M. W., & Bobko, P. (1983). Research methods in the service of discovery. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. 1, pp. 381-418). Palo Alto, CA: Consulting Psychologists Press.

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Kerlinger, F. N. (1973). *Foundations of behavioral research* (2nd ed.). New York: Holt, Rinehart & Winston.

Lynham, S. A. (2000). Theory building in the human resource development profession. *Human Resource Development Quarterly*, *11*(2), 159-178.

Lynham, S. A., & Torraco, R. J. (2001). *HRD theory and theory building preconference*. Tulsa, OK: Academy of Human Resource Development.

Mott, V. J. (1996). Knowledge comes from practice: Reflective theory building in practice. In R. Rowden (Ed.), *Workplace learning: Debating five critical questions of theory and practice* [New Directions for Adult and Continuing Education, No. 72] (pp. 57-63). San Francisco: Jossey-Bass.

Mouly, G. J. (1978). *Educational research: The art and science of investigation*. Boston: Allyn & Bacon.

Passmore, D. L. (1997). Ways of seeing: Disciplinary bases of research in HRD. In R. A. Swanson & E. F. Holton (Eds.), *Human resource development research handbook*. San Francisco: Berrett-Koehler.

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Senge, P. M., Roberts, C., Ross, R. B., Smith, B. J., & Kleiner, A. (1994). *The fifth discipline fieldbook: Strategies and tools for building a learning organization*. New York: Currency Doubleday.

Swanson, R. A. (1988). Research and development (and other life and death matters). *Performance Improvement Quarterly*, *1*(1), 69-82.

Swanson, R. A., & Holton, E. F. (1997). *Human resource development research handbook*. San Francisco: Berrett-Koehler.

Torraco, R. J. (1994). *The development and validation of a theory of work analysis*. St. Paul, MN: University of Minnesota, Human Resource Development Research Center.

Torraco, R. J. (1997). Theory building research methods. In R. A. Swanson & E. F. Holton (Eds.), *Human resource development research handbook*. San Francisco: Berrett-Koehler.

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