

CONCEPTUALIZING AND MEASURING THE CONTEXT WITHIN PERSON

↔ CONTEXT MODELS OF HUMAN DEVELOPMENT:

IMPLICATIONS FOR THEORY, RESEARCH, AND APPLICATION¹

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What is the nature of human development and how may we study it? Answers to this question derive from the integrated use of the theoretical and methodological tools of the developmental scientist (e.g., Cairns & Cairns, 2006; Lerner, 2006; Magnusson & Stattin, 2006; Teti, 2005; Valsiner, 2006; Wohlwill, 1970).

Over the course of the past 30 years, the theoretical and metatheoretical bases of depictions of the course of human development have been discussed repeatedly (e.g., see Lerner, 2002; Overton, 2006). This literature has emphasized that choices of methodology are shaped by the metatheoretical (paradigmatic or world view) perspectives of developmental scientists and, in turn, by the theoretical models of ontogenetic change that derive from these philosophical presuppositions. Developmentalists infrequently recognize that views of human development derived from empirical work are shaped largely by methodological features that are not solely determined by theory (e.g., Dixon & Nesselroade, 1883; Lerner, Dowling, & Chaudury, 2005; Lerner, Skinner, & Sorell, 1980; Wohlwill, 1970). Simply, what we see in our data about the bases and course of human life are reflections of both our theoretical proscriptions and prescriptions and our window on the developmental landscape provided by the methodological tools of our science.

However, the window on reality provided by the methods of science is, in actuality, many different windows, with each providing a somewhat different exposure to the empirical world. For instance, as Ram and Nesselroade (this volume) explain, the methods of developmental science constitute filters through which our observations of both individuals and settings must pass. These filters determine, first, what observations are regarded as “data” and what are seen as noise or error. Second, our methodological

filters determine the substance, shape, and meaning of our data. Methodological choices determine whether our observations are, for instance: (a) treated as additive, interactive, or irrelevant to each other; (b) whether one observation is reducible to another, and therefore qualitatively continuous, or whether data involve non-commensurate variables or levels of organization; (c) whether the distribution of our observations across levels of independent variables are linear or curvilinear; (d) if the set of information we gather may be constituted as a unified phenomenon or if it can or should be partitioned into components, for instance, associated with individual, variable, and temporal sources of variance; (e) or whether our data reflect phenomena that are static and generalizable across time and place or, instead, are dynamic, plastic, and contingent on temporal conditions.

In past eras within developmental science, the theoretical models that framed decisions regarding the choice of methodological filters used to study ontogenetic change were associated with a set of options for research designs, measurement, and data analysis procedures that were quite similar to the methodologies employed in non-developmental areas of behavioral and social science. For instance, Bijou and Baer (1961, 1965) forwarded an approach to studying development that emphasized the precedence of experimental or quasi-experimental designs to understand the (environmental) bases of human development. In turn, Nunnally (1982) suggested that a between-within, mixed model analysis of variance design (with “time of measurement” being the within-subject, repeated measurement dimension) was the preferred analytic procedure for assessing longitudinal change.

Developmental scientists' approaches to methodology between the 1960s and 1980s reflected in large part a coupling of theoretical and methodological reductionism (Cairns & Cairns, 2006; Overton, 1998, 2003, 2006). For instance, the discipline of psychology focused on the conceptualization and measurement of the individual and of individual level contributions to the variance in outcomes of changes in developmental processes; however, relatively little attention was paid to the conceptualization and measurement of the changing ecology of human development more than a context within which individual development unfolded and/or as composed of proximal influences that acted on the individual's behavior (e.g., as the stimulus source for respondent or operant behavior, for example, as in Bijou & Baer, 1961, or Gewirtz & Stingle, 1968). Apart from the enormous contributions of Urie Bronfenbrenner (1977, 1979, 2001, 2005; Bronfenbrenner & Morris, 2006) and Glen Elder (1974, 1980; 1998; Elder & Shanahan, 2006), few efforts were made to conceptualize, measure, and model the multilevel context of human development as levels of organization qualitatively distinct from but impacting the individual.

However, beginning by at least the 1980s, burgeoning in the 1990s, and – at this writing – existing as the predominant metatheoretical and theoretical approach to the study of both human and non-human development (see Gottlieb, Walsten, & Lickliter, 2006; Lerner, 2006; Thelen & Smith, 2006), a dynamic, developmental systems theoretical model has been coupled with developmental methodology to constitute a new, non-reductionist, integrative, and multidisciplinary approach to describing, explaining, and optimizing ontogenetic change. Overton (1998, 2006) terms such models “relational,” and notes that their defining feature is a post-modern rejection of Cartesian

dualities that have mired developmental science across its history in counterproductive debates about counterfactual splits among the variables and processes involved in human development (for example, splits involving nature and nurture, organism and environment, maturation and learning, continuity and discontinuity, or stability and instability).

The emergence of a relational and dynamic approach to developmental science has involved mutually influential changes in theory and method. As evidenced by the rich and varied contributions to the present volume, developmental systems theory has required methodologies that measure and analyze the effects of a developmental context that is distinct from but fused with individuals across the life spans. As we explain in greater detail below, this focus exists because such models emphasize that the basic unit of analysis within the integrated and dynamic developmental system involves a mutually influential relation between a developing person and a multilevel and changing ecological context (represented as a person \leftrightarrow context relation). Brandtstädter (1998, 2006) explains that these bidirectional relations constitute developmental regulation that, when mutually beneficial to both person and context, reflect adaptation and the basis for the continuation of healthy and positive individual and ecological changes.

As the measurement, modeling, and analysis of contexts has advanced in relation to these theoretical requirements, theoretical innovations have emerged to accommodate new insights about the impact of the context on the course of individual development. Examples of such theoretical innovations deriving from methodological advances fill the pages of the present volume (e.g., Boker & Laurenceau, this volume, and Bolger & Shrouf, this volume, in regard to the social dynamics in dyads; Flora, Khoo, & Chassin,

in regard to substance use; Grimm & McArdle, this volume, in regard to life-span changes in cognitive development; Rodgers, this volume, in regard to social development; and Widaman, this volume, in regard to intrauterine influences on intellectual development). In turn, theoretical innovations in understanding the course of person \leftrightarrow context relations have derived from methodological innovations in other laboratories not represented in the present volume (e.g., Eccles, 2004, 2005) as well as in our own laboratory (e.g., Theokas & Lerner, in press).

In essence, the present volume both reflects and extends significantly the mutually influential theoretical and methodological contributions being made in contemporary developmental science to advancing a dynamic view of the person \leftrightarrow context relations that are the building blocks of the diverse life spans that comprise the landscape of human development. The important contributions of this volume to the description and explanation of human development and, through this work, to applications aimed at optimizing ontogenetic change for diverse groups, may best be discussed within a presentation of the developmental systems theoretical perspective that the scholarship in this book advances so significantly.

We present the conceptual features and foundations of developmental systems theories and point to how the features of such models provide a frame for the advances presented in this book about measures and methods useful for understanding the contributions of the context to the person \leftrightarrow context relations comprising human development. We will note some of the general methodological requirements for research that are designed to test models of human development derived from developmental systems theories. Within this discussion, we will indicate how the

contributions presented in this volume both reflect and extend these contributions and, through this discussion, we will make recommendations for directions for future advances in relational methods and measures pertinent to the integrated and changing developmental system.

DEFINING FEATURES OF DEVELOPMENTAL SYSTEMS THEORIES

We have noted that the focus within the contemporary study of human development is on concepts and models associated with developmental systems theories (Cairns & Cairns, 2006; Gottlieb, et al., 2006; Lerner, 2002, 2006; Overton, 2006). The roots of these theories may be linked to ideas in developmental science that were presented at least as early as the 1930s and 1940s (e.g., Maier & Schneirla, 1935; Novikoff, 1945a, 1945b; von Bertalanffy, 1933), if not even significantly earlier, for example, in the concepts used by late 19th century and early 20th century founders of the study of child development (see Cairns & Cairns, 2006). There are several defining features of developmental systems theories. These include:

A relational metatheory

Predicated on a post-modern philosophical perspective that transcends Cartesian dualism (which splits the world into discrete categories, such as “mind vs. body,” or “nurture vs. nurture;” Overton, 1998; 2006), developmental systems theories are framed by a relational metatheory for human development. There is a rejection of all splits between components of the ecology of human development (e.g., between nature- and nurture-based variables), and between continuity and discontinuity and between stability and instability. Systemic syntheses or integrations replace dichotomizations or other reductionist partitions of the developmental system.

The integration of levels of organization

Relational thinking and the rejection of Cartesian splits is associated with the idea that all levels of organization within the ecology of human development are integrated, or fused. These levels range from the biological and physiological through the cultural and historical.

Developmental regulation across ontogeny involves mutually influential individual \leftrightarrow context relations

As a consequence of the integration of levels, the regulation of development occurs through mutually influential connections among all levels of the developmental system, ranging from genes and cell physiology through individual mental and behavioral functioning to society, culture, the designed and natural ecology and, ultimately, history. These mutually influential relations may be represented generically as Level 1 \leftrightarrow Level 2 (e.g., Family \leftrightarrow Community) and, in the case of ontogeny may be represented as individual \leftrightarrow context.

Integrated actions, individual \leftrightarrow context relations, are the basic unit of analysis within human development

The character of developmental regulation means that the integration of actions – of the individual on the context and of the multiple levels of the context on the individual (individual \leftrightarrow context) – constitutes the fundamental unit of analysis in the study of the basic process of human development.

Temporality and plasticity in human development

As a consequence of the fusion of the historical level of analysis – and therefore temporality – within the levels of organization comprising the ecology of human

development, the developmental system is characterized by the potential for systematic change, by plasticity. Observed trajectories of intraindividual change may vary across time and place as a consequence of such plasticity.

Relative plasticity

Developmental regulation may both facilitate and constrain opportunities for change. Thus, change in individual $\leftarrow \rightarrow$ context relations is not limitless, and the magnitude of plasticity (the probability of change in a developmental trajectory occurring in relation to variation in contextual conditions) may vary across the life span and history. Nevertheless, the potential for plasticity at both individual and contextual levels constitutes a fundamental strength of all human's development.

Intraindividual change, interindividual differences in intraindividual change, and the fundamental substantive significance of diversity

The combinations of variables across the integrated levels of organization within the developmental system that provide the basis of the developmental process will vary at least in part across individuals and groups. This diversity is systematic and lawfully produced by idiographic, group differential, and generic (nomothetic) phenomena. The range of interindividual differences in intraindividual change for a given functional or structural characteristic of human development that is observed at any point in time describes the potential plasticity (i.e., in this case the range of systematic between-person variation) for that characteristic. Focus on such variance gives the study of diversity fundamental substantive significance for the description, explanation, and optimization of human development.

Optimism, the application of developmental science, and the promotion of positive human development

The potential for and instantiations of plasticity legitimate an optimistic and proactive search for characteristics of individuals and of their ecologies that, together, can be arrayed to promote positive human development across life. Through the application of developmental science in planned attempts (i.e., interventions) to enhance (e.g., through social policies or community-based programs) the character of humans' developmental trajectories, the promotion of positive human development may be achieved by aligning the strengths (operationized as the potentials for positive change) of individuals and contexts.

Multidisciplinarity and the need for change-sensitive methodologies

The integrated levels of organization comprising the developmental system require collaborative analyses by scholars from multiple disciplines. Multidisciplinary knowledge and, ideally, interdisciplinary knowledge is sought. The temporal embeddedness and resulting plasticity of the developmental system requires that research designs, methods of observation and measurement, and procedures for data analysis be change-sensitive and able to integrate trajectories of change at multiple levels of analysis.

Conclusions

What, then, becomes the key empirical question for developmental scientists interested in describing, explaining, and promoting positive human development by focusing on person \leftrightarrow context relations, as the basic unit of analysis within developmental systems theories? The key question is actually five (5) interrelated "what" questions:

1. What attributes?; of
2. What individuals?; in relation to
3. What contextual/ecological conditions?; at
4. What points in ontogenetic, family or generational, and cohort or historical, time?;
may be integrated to promote
5. What instances of positive human development?

Therefore, to advance theory and method in an integrated manner, developmental scientists must be able to measure, model, and analyze changes in individuals and settings, with variables from each level of organization within the developmental system of concern in a given study potentially serving as both a product and a producer of changes in variables at the other levels of interest in the study. Most certainly, this is a complex and arduous scientific task. As illustrated throughout the present volume, developmental scientists must focus principally on both intraindividual *and* intracontextual change (e.g., Ram & Nesselroade, this volume) – in their measures, models, and analytic methods and, in fact, their dependent variables as well as their independent or predictor variables must be able to reflect change in both the individual and/or the ecology (e.g., Embretson, this volume).

Indeed, such sensitivity to change, and to the dynamics of the developmental system, necessitates a more plastic understanding of the status of variables that may play moderator or mediator roles at given points in ontogeny, for specific groups of people, studied in regard to specific variables within specific settings (e.g., Flora, et al., this volume; Little, Card, Bovaird, & Crandall, this volume). As well, developmental scientists must attend, often simultaneously, to the complex and dynamic interactions

between individual and contextual levels involved in person \leftrightarrow context relational models (e.g., Bauer & Shanahan, this volume; Curran, Edwards, Wirth, Hussong, & Chassin, this volume; Grimm & McArdle, this volume), and thus to devising and testing multilevel models of growth in the person \leftrightarrow context system (e.g., Bovaird, this volume), often through the use of innovative procedures for partitioning the changing nature of covariance between individuals and settings (e.g., Hedeker & Mermelstein, this volume; Little, Card, Slegers, & Ledford, this volume; Preacher, Cai, & MacCallum, this volume). All this difficult and innovative change-, context-, and relationally-sensitive work must be accomplished within the context of longitudinal research designs that, while affording the repeated measures of individuals and contexts that enable change to be assessed, are fraught with statistical problems encountered when research participants present at one time of testing are not assessed (for a myriad of reasons) at a subsequent time or times (e.g., Hofer & Hoffman, this volume; Nesselroade & Baltes, 1979; Widaman, this volume).

How may such work be accomplished? This volume offers cutting-edge instances of theoretically-predicated methodological scholarship exemplifying the possible answers to this question. It is useful to discuss some of the instances of change-, context-, and relationally-sensitive methodological options presented both in the present volume and in other facets of the methodology literature of developmental science. By pointing to how these options enable key issues of development to be brought to the fore, we will be able to point to the not-too-distant horizon of a new, integrated theoretical and methodological frame for the study of human development.

**REPRESENTATIVE INSTANCES OF CHANGE-, CONTEXT-, AND
RELATIONALLY-SENSITIVE METHODOLOGIES:
FRAMING THE RESEARCH AGENDA OF HUMAN DEVELOPMENT**

Answering the above-noted five-part question requires a non-reductionist approach to methodology. Neither biogenic, psychogenic, nor sociogenic approaches are adequate. Developmental science needs integrative and relational models, measures, and designs (Lerner, Dowling, & Chaudhuri, 2005).

Examples of the use of such methodology within developmental systems oriented research are the scholarship of Eccles and her colleagues on stage $\leftarrow \rightarrow$ environment fit (e.g., Eccles, 2004; Eccles, Wigfield, & Byrnes, 2003); of Damon and his colleagues on the community-based youth charter (Damon, 1997, 2004; Damon & Gregory, 2003); of Theokas (2005; Theokas & Lerner, in press) on the role of actual developmental assets associated with families, school, and neighborhoods on positive youth development; and of Leventhal and Brooks-Gunn (2004), and of Sampson, Raudenbush, and Earls (1997) on the role of neighborhood characteristics on adolescent development. In addition, the work of Bolger and Shrout (this volume), on the use of multilevel models and structural equation models (SEMs), in accounting for statistical dependency in longitudinal data about dyads, and of Boker and Laurenceau, on methods useful in the analysis of dynamic interdependencies between couples (i.e., treating dyadic data through either a focus on a single individual at a time or a focus on dyads as a single, mutually regulating system) extend the methodological innovations of other laboratories to the study of ongoing person $\leftarrow \rightarrow$ person relationships in ontogeny.

The methodology employed in individual $\leftarrow \rightarrow$ context integrative research must also include a triangulation among multiple reports and, ideally, both qualitative and quantitative approaches to understanding and synthesizing variables from the levels of organization within the developmental system. Such triangulation may usefully involve the “classic” approach offered by Campbell and Fiske (1959) regarding convergent and discriminant validation through multitrait-multimethod matrix methodology. Simply, triangulation across different observational systems is needed to establish convergent and divergent validation.

Of course, diversity-sensitive measures are needed within such approaches. That is, indices need to be designed to measure change and, at the same time, to possess equivalence across temporal levels of system (age, generation, history), across differential groups (sex, race, religion), and across different contexts (family, community, urban-rural, culture). Moreover, to reflect the basic, integrative nature of the developmental systems, researchers should seek to use scores derived from relational measures (e.g., person-environment fit) as their core units of analysis. Accordingly, trait measures developed with the goal of excluding variance associated with time and context are clearly not optimal choices in such research. In other words, in order to reflect the richness and strengths of our diverse humanity, our repertoire of measures must be sensitive to the diversity of person variables, such as race, ethnicity, religion, sexual preferences, physical ability status, and developmental status, and to the diversity of contextual variables such as family type, neighborhood, community, culture, physical ecology, and historical moment. Bauer and Shanahan’s work (this volume) on distinctions between modeling complex interactions within person-centered versus

variable-centered approaches to data analysis constitutes an important analytic approach to capitalizing on data about the person-related variation in human development.

Diversity- and change-sensitive measures must of course be used within the context of change-sensitive designs. Options here include longitudinal or panel designs (Cairns & Cairns, 2006; Lerner, et al., 2005; Magnusson & Stattin, 2006) and the various sequential designs proposed by Schaie (1965; Schaie & Baltes, 1968). Ram and Nesselroade (this volume) note that it is critical that both intraindividual and intracontextual change be modeled appropriately within such designs.

It is particularly important that our change-sensitive designs and measures be sensitive as well to the different meanings of time. Divisions of the x-axis in both our designs -- and in the analyses of our data -- should be predicated on theoretical understanding or estimation of the nature of the changes prototypic of a given developmental process.

For example, are the changes continuous or abrupt? For instance, are their periods of “punctuated equilibria” (e.g., Gould & Eldridge, 1977) that are preceded or followed by rapid change in the slope of growth? Are changes linear or curvilinear? Since understanding of the developmental process is of paramount importance in such analyses, developmental scientists should consider inverting the x- and the y-axis, and make age the dependent variable in analyses of developmental process (Wohlwill, 1970). That is, if we believe that a process is linked systematically to age, we should be able to specify points along the x-axis that reflect different points in the process and these points should then be associated with distinct ages.

Widaman (this volume) points as well to the usefulness of Wohlwill's (1970) ideas, in the context of a discussion of the importance of the intrauterine environment in influencing infant and child intellectual development. As Widaman (this volume) suggests, these ideas are consistent with the classic work of Schneirla (1957), which may be seen as presaging Widaman's developmental systems-oriented discussion of the role of intrauterine development for later-life developmental outcomes.

Wohlwill's (1970) work also provided an early foundation for developmental scientists to more creatively use representations of the form of the developmental process to understand the bases of ontogenetic change. Methodological innovations that are reflective of Wohlwill's pioneering work are found in the contributions of Embretson (this volume), on the impact of measurement scales in modeling developmental processes and ecological factors that are antecedents of dependent variables reflecting trends (changes) over time); of Rodgers (this volume), on using developmental curves to "diagnose" (estimate) the types of social processes that generated the curves; and of Curran, et al. (this volume), on the use of categorical measurement models in the analysis of individual growth.

Not unrelated here, of course, is the selection of participants in developmental research. Theory should decide what types of individuals are studied at what points in ontogenetic time. For instance, researchers should decide whether it is important theoretically to use age as the selection criterion for participants or whether different status along a developmental process should be used as the basis for the selection of individuals and for the partitioning of participant variance. Often, of course, several groups of participants are selected for study within a developmental design (e.g., groups

that are differentiated by birth cohort, gender, race, etc.) and, in such situations, the work of Little, Card, Slegers, and Ledford (this volume), on representing contextual effects in multiple-group mean and covariance structures models for examining the effects of ecological/contextual influences on ontogenetic development, and of Hedeker and Mermelstein (this volume), on the use of mixed-effects regression models with heterogeneous variance in the analysis of ecological momentary assessment data, seem especially important.

Insightful formulations about the different meaning of time within the dynamic developmental system have been provided by Elder (1998; Elder & Shanahan, 2006), Baltes (Baltes, et al., 2006), and Bronfenbrenner (2005; Bronfenbrenner & Morris, 2006). Our methods must appraise, then, age, family, and historical time and must be sensitive to the role of both normative and non-normative historical events in influencing developmental trajectories.

Choices of data analytic procedures should also be predicated on optimizing the ability to understand the form and course of changes involving multiple variables from two or more levels of organization. Accordingly, multivariate analyses of change, involving such procedures as structural equation modeling, hierarchical linear modeling, or growth curve analysis, should be undertaken. It is important to note here that, over the course of the last decade or so, there have been enormous advances in quantitative statistical approaches, arguably especially in regard to the longitudinal methods required to appraise the changing relations within the developmental system between the individual and the context (e.g., see Duncan, Magnuson, & Ludwig, 2004; Laub & Sampson, 2004; McArdle & Nesselrode, 2003; Molenaar, 2004; Nesselrode & Ram,

2004; Phelps, Furstenberg, & Colby, 2002; Singer & Willett, 2003; Skrondal & Rabe-Hesketh, 2004; von Eye, 1990; von Eye & Bergman, 2003; von Eye & Gutierrez Pena, 2004; Willett, 2004; Young, Savola, & Phelps, 1991). Additional contributions to this methodological scholarship about the analysis of person \leftrightarrow context developmental data have been provided by Bovaird (this volume), Flora, et al. (this volume), Grimm and McArdle (this volume), Little, Card, Bovaird, and Crandall (this volume), and Preacher, et al. (this volume).

The importance of qualitative methods has been increasingly appreciated, both as valuable tools for the analysis of the life course and as a means to triangulating quantitative appraisals of human development. As such, there has been a growth in the use of traditional qualitative methods, along with the invention of new qualitative techniques (e.g., Mishler, 2004).

In addition, to enhance the ecological validity of developmental scholarship and to increase the likelihood that the knowledge gained from research will be used in communities and families to improve the lives of people, our research methods should be informed by colleagues from multiple disciplines with expertise in the scholarly study of human development. Our methods should be informed as well by the individuals and communities we study (Lerner, 2002, 2004a, 2004b, 2004c; Villarruel, Perkins, Borden, & Keith, 2003). They too are experts about development, a point our colleagues in cultural anthropology, sociology, and community youth development research and practice have been making for several years.

Most certainly, participants in our community-based research and applications are experts in regard to the character of development within their families and

neighborhoods. Research that fails to capitalize on the wisdom of its participants runs the real danger of lacking authenticity, and of erecting unnecessary obstacles to the translation of the scholarship of knowledge generation into the scholarship of knowledge application (Jensen, Hoagwood, & Trickett, 1999).

In sum, the possibility of adaptive developmental relations between individuals and their contexts and the potential plasticity of human development (Baltes, et al., 2006; Gottlieb, et al., 2006; Thelen & Smith, 2006) stand as distinctive features of the developmental systems approach to human development and provide a rationale for making a set of methodological choices that differ in design, measures, sampling, and data analytic techniques from selections made by researchers using split or reductionist approaches to developmental science. Moreover, the emphasis on how the individual acts on the context to contribute to the plastic relations with the context that regulate adaptive development (Brandtstädter, 2006) fosters an interest in person-centered (as compared to variable-centered) approaches to the study of human development (Magnusson & Stattin, 2006; Overton, 2006; Rathunde & Csikszentmihalyi, 2006).

Furthermore, given that the array of individual and contextual variables involved in these relations constitute a virtually open set (e.g., there are over 70 trillion potential human genotypes and each of them may be coupled across life with an even larger number of life course trajectories of social experiences; Hirsch, 2004), the diversity of development becomes a prime, substantive focus for developmental science (Lerner, 2004a; Spencer, 2006). The diverse person, conceptualized from a strength-based perspective (in that the potential plasticity of ontogenetic change constitutes a fundamental strength of all humans; Spencer, 2006), and approached with the expectation

that positive changes can be promoted across all instances of this diversity as a consequence of health- supportive alignments between people and setting (Benson, et al., 2006), becomes the necessary subject of developmental science inquiry.

CONCLUSIONS

Contemporary developmental science – predicated on a relational metatheory and focused on the use of developmental systems theories to frame research on dynamic relations between diverse individual and contexts – constitutes an approach to understanding and promoting positive human development that is both complex and exciting. It offers a means to do good science, work informed by philosophically, conceptually, and methodologically useful information from the multiple disciplines having knowledge bases pertinent to the integrated, individual \leftrightarrow context relations comprising the ecology of human development. Such science is admittedly more difficult to enact than the ill-framed methodological approaches to research that were involved in pursuing the split and reduction paths taken often within the field during prior historical era (Cairns & Cairns, 2006; Overton, 2006).

However, the richness of the science and the applications that derive from developmental systems perspectives (e.g., see the four volumes of the Handbook of Applied Developmental Science; Lerner, Jacobs, & Wertlieb, 2003), as well as the internal and ecological validity of this work, are reasons for the continuing and arguably still growing attractiveness of this approach to developmental science. This approach to developmental science underscores the diverse ways in which humans, in dynamic exchanges with their natural and designed ecologies, can create for themselves and others opportunities for health and positive development. As Bronfenbrenner (2005, p. 1)

eloquently puts it, it is these relations that are essential in “making human beings human.” Accordingly, the relational, dynamic, and diversity-sensitive scholarship that now defines excellence within developmental science may both document and extend the power inherent in each person to be an active agent in his or her own successful and positive development (Brandtstädter, 2006; Lerner, 1982; Lerner & Busch-Rossnagel, 1981; Lerner, Theokas, & Jellicic, 2005; Magnusson & Stattin, 2006; Rathunde & Csikszentmihalyi, 2006).

A developmental systems perspective leads us to recognize that, if we are to have an adequate and sufficient science of human development, we must integratively study individual and contextual levels of organization in a relational and temporal manner (Bronfenbrenner, 1974; Zigler, 1998). Anything less will not constitute adequate science. And if we are to help develop successful policies and programs through our scholarly efforts, then we must accept nothing less than the integrative temporal and relational model of diverse and active individuals that is embodied in the developmental systems perspective. The present volume is a key, indeed an essential, tool in providing researchers with the methodological means to conduct “best-practice” research using a developmental system perspective.

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