Advancing Responsible Adolescent Development

Richard Jessor

Problem Behavior Theory and the Social Context

The Collected Works of Richard Jessor, Volume 3

Springer

Advancing Responsible Adolescent Development

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Brief Overview

This series advances disciplinary and multidisciplinary inquiry into the individual, social, biological, and institutional responses to adolescents and their development. It champions research that examines conditions that either stifle or enhance responsible development.

Description

Responsible adolescent development - one that is healthy, fulfilling, engaged, and respectful of one's self and others - requires responsive relationships with families, peers, neighbors, schools, community organizations, religious institutions, and other socializing systems. All these socializing influences reach optimal effectiveness when reinforced by appropriate social policies and norms at local, cultural, state, national, international and global levels. This series examines the wide variety of sources that shape responses to adolescents and responsible development. This series explores these complex sources by exhibiting theories, models, research studies, and symposia that examine multiple dimensions of adolescent development.

Drawing from numerous disciplines, the series examines dimensions and experiences of adolescent development that contribute to responsibility (including irresponsibility) in multiple contexts and settings. The focus on multiple arenas of development necessarily encompasses the need to center on adolescents as well as on the conditions in which they live. Thus, the series publishes manuscripts that speak to issues adolescents face, but does not require that texts directly study adolescents themselves. Manuscripts may examine images and portrayals of adolescents through, for example, cultural assumptions of parenting, media depictions, religious groups' proselytizing, schooling's hidden curriculum, justice systems' presumptions, clinicians' interventions, and many other potential influences on adolescent development. The broadening of the disciplinary and multidisciplinary study of adolescence, however, does not mean that the series ignores core issues from adolescents' own perspectives, such as adolescents' experiences with significant others and with the wide variety of tasks, risks, and opportunities they encounter.

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ISSN 2195-089X ISSN 2195-0903 (electronic)
Advancing Responsible Adolescent Development
ISBN 978-3-319-57884-2 ISBN 978-3-319-57885-9 (eBook)
DOI 10.1007/978-3-319-57885-9

Library of Congress Control Number: 2016946354

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG Switzerland
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

For
Jane

Preface

This is the third and final volume in the series of my Collected Works. The selections in the first volume, *The Origins and Development of Problem Behavior Theory*, provided an overview of the theory's transformations from its initial formulation over a half century ago to its framing as currently employed in research across the globe. The second volume, *Problem Behavior Theory and Adolescent Health*, brought together writings that applied the theory to the large variety of behaviors that can compromise or enhance health, whether health is defined biologically or, in a broader sense, as social and personal and developmental well-being. The purview of the selections in Part I of this volume is the application of the theory to the social context, particularly the context of socioeconomic disadvantage. That focus is especially fitting since it was just such a context—a Native American reservation and, nearby, a small tri-ethnic community—that was the setting for the application of the initial version of Problem Behavior Theory.

Addressing the social context, the environment in which behavior and development take place, continues to be a problematic endeavor. How to constitute the social context, how to establish its perimeter and conceptualize its contents, remains a challenge for the social disciplines. The selections in this volume that apply Problem Behavior Theory in various disadvantaged settings all constitute the social context in a particular way, a way that reflects how the context is perceived or defined by the actor and that captures the meaning it has for the adolescent or young adult. That conceptual stance engages issues in the philosophy of science and in the methodology of inquiry, e.g., the role played by subjectivity in behavioral science explanation. The selections in Part II of this volume are those that articulate the philosophy of science perspective that has undergirded Problem Behavior Theory from its inception.

That this volume should have contexts of disadvantage as its focus should not be misinterpreted. That focus is not to be seen as the primary application of Problem Behavior Theory. Indeed, the selections in the two earlier volumes have already documented the application of the theory to the entire range of socioeconomic variation in samples drawn from the larger population. What has animated the particular

focus of this volume is the fact that much of the social problem literature has tended to concentrate on the domain of disadvantage, and it is important to demonstrate the relevance of Problem Behavior Theory to that domain, in addition to having demonstrated its more general applicability.

As was articulated most clearly in Volume 1, Problem Behavior Theory has sought to engage especially the disciplines of sociology and of psychology, the former the conceptual custodian of context and the larger social environment and the latter the conceptual custodian of the individual, the person, the adolescent in most of our studies. What is argued in this volume, in Chap. 1 and in the selections in Part II, is that a truly interdisciplinary behavioral science approach to explanation, even of the role played by the social context in behavior and development, requires engaging and conceptualizing the individual, the person, in that explanation as well.

Completion of this third and final volume in the series of my Collected Works stimulates more than the usual amount of reflection. It has been gratifying to look back over the decades of systematic inquiry about adolescent and young adult behavior, health, and development and to see that it has cumulated in a corpus of work with relevance for behavioral science and for human affairs. It has been a long journey, but I have had the good fortune of being accompanied by stellar companions—students and colleagues—who have contributed significantly to the larger endeavor and whose ideas and efforts are apparent in the selections in the volumes. It has been my enduring hope that this work of science—the findings of our research—will constitute a contribution, however small, to societal well-being.

It is a pleasure to acknowledge in this volume, as I have in the two published earlier, the enormous debt I owe to my students and my colleagues. Throughout my career, they have supported me, challenged me, and urged me onward. What has cumulated in these volumes could not have happened without them. I am indebted also to the director of the Institute of Behavioral Science, Myron Gutmann, for supporting the sustained effort required to complete all three volumes of my Collected Works. Deserving acknowledgement as well is the dedicated assistance of the staff of the Institute of Behavioral Science, most recently that of Ms. Lindy Shultz whose commitment and exceptionally diligent efforts have safeguarded the successful completion of this volume. The assistance of Tom Dickinson and Elisa Elvove is also gratefully acknowledged.

Finally, I have dedicated the volume to my wife and colleague, Jane Menken. Her support for the entire endeavor of gathering together my Collected Works has been unalloyed, and her encouragement has been unflagging. She has been stalwart and steadfast—and loving—throughout.

Boulder, CO, USA Richard Jessor

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About the Author

Richard Jessor, PhD, ScD is Distinguished Professor of Behavioral Science and Professor Emeritus of Psychology at the University of Colorado Boulder where he has spent his entire academic career. One of the founders of the university's Institute of Behavioral Science in 1959, he served as its director from 1980 to 2001. He was Founding Director of the Institute's Research Program on Problem Behavior and, later, its Research Program on Health and Society. From 1987 to 1997, he also directed the MacArthur Foundation's Research Network on Successful Adolescent Development among Youth in High Risk Settings. He is the author or editor of 13 books and has published over 135 articles and book chapters. In 2003, he was designated a "Highly Cited Researcher" in the Social Science: General category by the Institute for Scientific Information.

Educated at the College of the City of New York and Yale University, where he received his B.A. degree in Psychology in 1946, Jessor received an M.A. from Columbia University in 1947 and a Ph.D. in Clinical Psychology in 1951 from Ohio State University, where he was a student of Julian B. Rotter. He has been a consultant to various federal agencies and private foundations as well as the World Health Organization, Health and Welfare Canada, and UNICEF. He has served on several National Research Council panels and on the Carnegie Council on Adolescent Development. He was an invited fellow at the Center for Advanced Study in the Behavioral Sciences in 1995–1996, and he received the Outstanding Achievement Award in Adolescent Medicine in 2005 from the Society for Adolescent Health and Medicine. Jessor is, after 66 years, the longest-serving active faculty member at the University of Colorado. In May 2015, he was awarded the Doctor of Science degree, *honoris causa*, by the Regents of the University of Colorado.

Chapter 1
Introduction to the Volume

Richard Jessor

In this, the third volume in the series of my Collected Works, the next seven chapters seek to illuminate the critical role played by the social contexts in which the lives of young people are embedded. Nearly all of those selections engage contexts of disadvantage, limited resources, and barriers to opportunity, e.g., the slum communities surrounding Nairobi (Chaps. 6, 7, and 8) or the inner city of Denver and Chicago (Chap. 5), but the influence that social contexts have on behavior and development applies more generally and, indeed, must be considered a theoretical universal. As Kurt Lewin (1951) emphasized, all behavior is a function of person *and* environment, that is, $B = f(P, E)$.

The second set of nine chapters brings together selections that deal with issues in the philosophy of science and the methodology of inquiry, writings all of which have influenced the formulation and framing of Problem Behavior Theory from its beginning and have bearing, especially, on the role that context plays in behavior and development. Issues addressed include the environment *as perceived* (Chaps. 9 and 10), subjectivity in social inquiry (Chaps. 11 and 13), the social context as a logical barrier to biological reductionism (Chap. 12), methodological similarity of quantitative and qualitative research (Chap. 15), the shaping role of *problem-based* inquiry (Chap. 16), and the contribution of *theory* to the cross-context generality of research findings (Chap. 17).

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_1

Conceptualizing the Multiple Contexts of Adolescent Life

Despite widespread agreement about the importance of the social context, conceptualizing its *explanatory content* has remained problematic. The different disciplines have tended to approach context at very different levels of analysis, from physical and geographic to institutional, social organizational, demographic, and interpersonal, and specification of the content of the social context has varied from simply descriptive, e.g., "neighborhood," "family," or "school," to theoretical, e.g., the models, controls, supports, and opportunities that comprise it, as articulated in Problem Behavior Theory, for a relevant example.

A schematic representation of the three descriptive social contexts—family, school, and neighborhood—which an adolescent navigates in everyday life is shown in Fig. 1.1 (see also Chap. 2); additional descriptive contexts such as the peer group and the social media should, for thoroughness, be represented in Fig. 1.1, as well.

Several aspects of Fig. 1.1 warrant comment. First, all three of the descriptive contexts are shown to overlap, meaning that what happens in one can have impact on the others. Second, those three contexts are themselves shown as embedded in the larger social-structural, economic, political, and cultural environment, and what happens in that larger, more distal environment, e.g., an economic depression or a "cultural revolution," can impact the three descriptive contexts that are more proximal to the adolescent's experience and, through them, the adolescent's behavior and development.

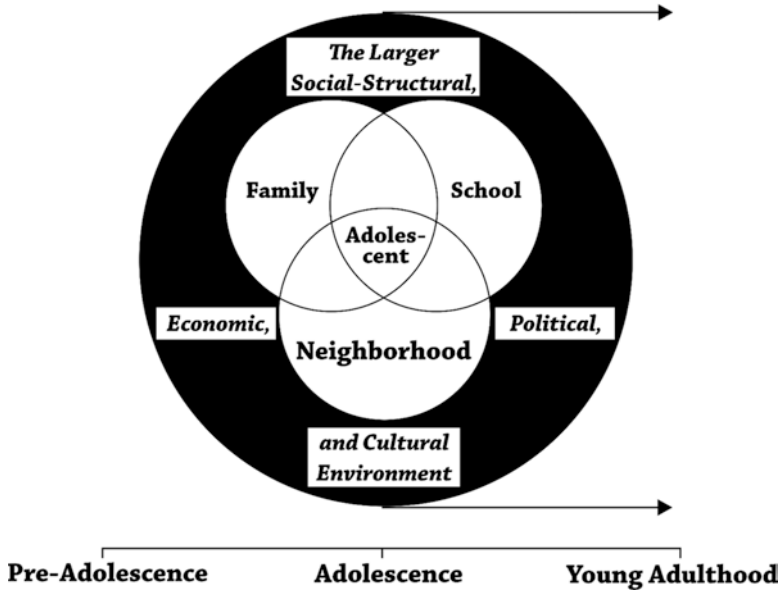

Fig. 1.1 Context and development over time (From Jessor, 1993)

And that larger, more distal environment is, itself, embedded in a conceptually even more remote physical/geographic environment (not shown), events in which, such as earthquakes or tsunamis or climate change, can reverberate throughout those other environments that are more proximal to the adolescent. Thus, the adolescent must be seen as embedded simultaneously in multiple environments or contexts, some of which are more distal from immediate experience than others.

Third, the figure shows that contexts develop and change across life stages, allowing for changes in the salience of particular contexts at different stages in the life course, the family context more salient early, for example, and the peer context later. Fourth, the figure makes apparent the limitations of so much of traditional social/developmental research which, by restricting its focus to only one context, the family or the school or the neighborhood, thereby precludes an understanding of the important impacts on that context that the other contexts can have.

The Causal Closeness of the Various Contexts to Behavior and Development

Implicit in the figure, finally, is an important *theoretical or explanatory dimension* along which the different contexts may be ordered when accounting for variation in behavior and development, a dimension of conceptual or explanatory or, indeed, *causal* closeness to behavior. Although adolescents—as do all of us—live in multiple environments simultaneously, some contexts are more distal from behavior in the theoretical or explanatory or causal chain, e.g., the physical environment (light, temperature, radiation), the geographic environment (spatial location, altitude), or the demographic environment (racial/ethnic composition, educational level, socioeconomic structure), while others are conceptually more proximal to immediate experience, e.g., the family environment. And while the family context can be considered theoretically more proximal to behavior than those other contexts, there is further variation in conceptual closeness to behavior and development even within the family context. For example, whether the structure of the family is intact or not is still more distal, theoretically, from influencing behavior than how—intact or not—the family context is *perceived or experienced*; is it seen by the adolescent as supportive or not, or controlling or not, etc.? It is the perceived support or perceived control that, theoretically, is causally closest and most immediately determinative of behavior. According to this logic, accounting for an adolescent's risk or other behaviors is best achieved by engaging the context that is theoretically most causally proximal to action, in this example, the perceived context of support and control within the family context.

The Concept of a Perceived Social Context

In the historical development of the separate social and behavioral sciences, the environment or social context that is most proximal to behavior has been differentially conceptualized. Within psychology, for example, at the height of the behaviorist era, the sovereign concept for the environment was the *stimulus*, most often conceptualized in physical or geographical terms, e.g., amount of illumination, intensity of shock, or location in the maze, and while suitable for animal studies in laboratory experiments, largely uninformative for understanding the role that context plays in complex social behavior. An important contribution to psychology was made by the social psychologist, Kurt Lewin (1951), who posited a *subjective* context in which behavior occurred, the *life space*, which represented the social context *as perceived or experienced*, thereby capturing the meaning the context has for the person or actor. This notion of a perceived environment has been employed, in one form or another, by other psychological theorists as well (see Chaps. 9, 10, 11, and 13). Along a dimension of theoretical closeness to behavior or action, from physical and geographic environments, as most distal, to institutional environments, social-structural environments, demographic environments, and descriptive environments, as increasingly more proximal, it is the *perceived environment* that constitutes the environment or context most proximal to and, therefore, most immediately determinative of behavior.

In the discipline of sociology, the environment has generally been conceptualized in social-structural (social class) or demographic (racial/ethnic composition) terms, but the distal remoteness of such characterizations from behavior-relevance was challenged by the symbolic interactionists who pointed out the large behavioral variation that obtains within any social-structural or demographic location. The widely cited apothegm of the sociologist, W.I. Thomas (1928), *If men define situations as real, they will be real in their consequences*, represents a similar emphasis, now in sociology, on *the context as perceived and defined*, that is, on the context that is theoretically most proximal to behavior. Chapters 9 and 10, especially, elaborate the proximal/distal dimension underlying contexts and the role of the perceived environment as the context most proximal to behavior.

Contextual Content in Problem Behavior Theory

Problem Behavior Theory has, from the outset, been concerned with how adolescents constitute the contexts of their daily lives, how they define the situations in which they are embedded, and what meanings their everyday settings have for them, that is, the theory has consistently engaged and conceptually articulated adolescents' perceived environments. The key concepts in the theory and their measurement in questionnaires and surveys are fundamentally perceptual. Figure 1.2 represents the theoretical structure of Problem Behavior Theory as most recently formulated.

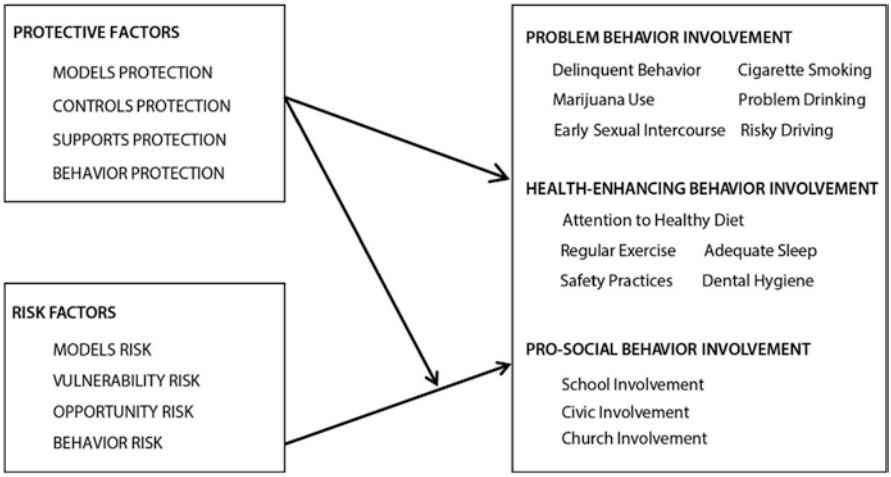

Fig. 1.2 Problem Behavior Theory explanatory model for adolescent risk behavior (From Jessor, 2016)

Models Protection in Fig. 1.2, for example, refers to the prevalence of pro-social models that the adolescent is aware of, that is, perceives and reports, in the various contexts traversed in everyday life, in the family, at school, in the neighborhood, among peers, or in the media. Controls Protection implicates the adolescent's perception of regulations and sanctions for transgressions in the everyday environment. Similarly, Support Protection refers to the perception of support and approval from significant others in the adolescent's social environment. In short, the proximal social context of behavior in problem behavior theory, the perceived environment, is constituted of perceived protective factors (models, controls, and supports) and perceived risk factors (models, opportunity, and vulnerability), which, together, provide its conceptual or explanatory content.

Acknowledging Subjectivity in Behavioral Science

Engaging the notion of a perceived environment to represent the most immediate social context in which behavior and development occur requires a coming to terms with subjectivity in behavioral science. Anathema to psychologists determined to emulate physics during the ascendancy of behaviorism, subjectivity entails recognition of the linguistic and symbolic capacities of human actors and their propensity to endow their immediate surroundings with meaning, i.e., to define the situation in which they are embedded or, in Lewinian terms, to characterize their current life space. Thus, a classroom may be perceived by one adolescent as a situation in which admiration for achievement is available from peers and teacher; for another adolescent, the very same classroom may be perceived as a potential failure situation with

a high probability of criticism from a teacher and taunting from peers. It is these students' perceptions or subjective definitions of the classroom context—their *perceived* environments—that most proximally determine their differential behavior in what is, objectively, the very same descriptive social context, their classroom.

Consideration of a perceived environment and of subjectivity helps to restore the place of the individual in behavioral science inquiry. Consider the example of the extensive research on *the neighborhood context* in sociology; it has generally relied on geographic specification of context—census tracts or block groups—to circumscribe the neighborhood perimeter, and it has conceptualized the content of the neighborhood context with such characterizations as poverty level, ethnic composition, crime rate, housing stock quality, etc. These descriptive characterizations remain theoretically distal from behavior and, unavoidably, tend to homogenize all those who live in that neighborhood, assuming they all see it the same way. *The individual variation in perceiving or defining the neighborhood by its residents is elided from such sociological specification*. Yet, as the neighborhood research has consistently shown, there is large variation *within* neighborhoods; indeed, the within-neighborhood variation is often greater than that between neighborhoods.

Accounting for such within-neighborhood variation, indeed for the variation that exists at every sociological location, requires that attention be paid to *individual differences among the neighborhood residents,* individual differences that generate different *perceived* contexts which, in turn, explain the observed, within-neighborhood variation in behavior (see Chap. 5).

It was this psychosocial orientation to context that animated the MacArthur Foundation's Research Network on Successful Adolescent Development in High-Risk Settings (Jessor, 1993). In contrast to the conventional literature that tended to homogenize the poor and that emphasized pervasive neighborhood dysfunction, the objective of the network was to try to understand how it is that so many youth growing up in such disadvantaged and resource-poor neighborhoods nevertheless *manage to make it*, to stay in school, to avoid contact with the law, not to get pregnant or heavily involved with drugs, and to remain on track toward a successful transition to adulthood. The converging MacArthur studies, carried out in the inner city of Philadelphia (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999), Denver, and Chicago (Elliott et al., 2006) and in the rural communities of central Iowa suffering from the farm crisis (Elder & Conger, 2000), all found it essential to gain a grasp on the social contexts theoretically most proximal to behavior and development and, within those, a grasp on the adolescents' perceived environments. In addressing the influence not only of the social contexts but also of the individual variation that existed within those socially defined contexts, the studies yielded what might be called a truly *behavioral science* account, rather than the usual disciplinary account, of adolescent behavior and development; they were therefore able to illuminate more clearly the factors that promoted pro-social behavior and positive development within those proximal contexts.

A salutary aspect of the engagement with subjectivity entailed by employing a perceived environment concept is worth noting. Despite the persistent polarization that has long obtained between traditional quantitative research, usually involving

surveys, and traditional qualitative research, usually involving participant observation and interviews, it turns out that, methodologically, both traditions employ a hermeneutic approach that relies on subjective experience or interpretation and, in this regard, both share an engagement with subjectivity. Quantitative surveys that ask adolescents to respond to such questions as "How many of your friends have used marijuana?" or "Are your parents involved with church and other religious organizations in the community?" or "At your school, do most of the kids work hard and try to get good grades?" are actually placing the adolescent respondents in the role of *quasi-ethnographers* and requesting them to report their subjective perceptions of their everyday environments. On close examination, then, the seemingly irreconcilable quantitative *vs.* qualitative antinomy appears to be an unwarranted opposition. Indeed, recognizing their commonality, the MacArthur projects employed *both* quantitative and qualitative research approaches and, thereby, were able to enrich understanding of contextual and individual variation in adolescent success and resilience despite contexts of pervasive and enduring adversity (see Chap. 15).

Problem-Oriented Research as Requiring Both Context and Person

Although the emphasis of this volume is on the role of the social context, the underlying assumption throughout the development of Problem Behavior Theory has been, as represented by Kurt Lewin's formula, $B = f(P, E)$, that all behavior is a function of the interaction of person and environment. All the chapters in the two earlier volumes and those in the first section of this volume have implemented that orientation. Historically, the discipline of sociology has remained encapsulated within context, generally eliding person variation, and the discipline of psychology has restricted its concerns to the person, generally eliding contextual variation. It has been the confrontation with the complexity of societal problems, however, that has revealed the explanatory insufficiency of either disciplinary approach alone. Engaging with societal problems has generated pressure toward inter- or transdisciplinary formulations, e.g., that of behavioral science (see Chap. 16). In Problem Behavior Theory, for example, there are concepts for the person, the adolescent, as well as for the social context: personal controls, value on health, self-esteem, etc. The articulation of person variation and of the stability of individuality across the adolescence-to-young adult life course is dealt with in Chap. 14. The yield from this problem focus in contemporary social inquiry has been more comprehensive, interdisciplinary, explanatory frameworks, engaging *both* person and environment; such frameworks not only provide deeper understanding of variation, both individual and contextual, but also greater translational contributions to social policy and program interventions.

The Contribution of Theory to Cross-Context Generality of Research Findings

Finally, it is worth emphasizing that the selections in this and the earlier two volumes, as well as articles by numerous other scholars employing Problem Behavior Theory, e.g., Vazsonyi et al. (2010), all report the successful application of the theory across a remarkably disparate set of societal contexts from schools in the USA and in Beijing, China, to the slums of Nairobi in Africa and to settings in various European countries, as well as in countries as different from the USA as Iran and Indonesia. Findings that have generality across such widely differing societies and contextual settings call attention to the unique contribution that *theory* makes to social inquiry. Conventional approaches to such contextual diversity, e.g., many anthropological studies, tend to emphasize the uniqueness of the contexts and to focus on *how they differ* one from another. Such approaches, it needs emphasizing, remain at the *descriptive level,* capturing the obvious or apparent or observable aspects of a society or a setting or a particular social context. Indeed, at a descriptive level, there is vast diversity to acknowledge, whether in dress, food, social organization, political system, or the pattern of everyday life. It is at the *theoretical level*, however—the underlying, causal level—that the focus is on *similarity*, i.e., on *the similarity* of *relations among the explanatory variables.* Those relationships should remain invariant despite the diversity across contexts that obtains at the descriptive level.

The impact on an adolescent of a pro-social adult model (Models Protection) should be the same, theoretically, whether in Tibet or California; Support Protection, whether it is from a parent in the USA or from a teacher in Nairobi, should have a similar promotive effect theoretically; and informal controls (Controls Protection) implemented, say, by an older sib should restrain transgression similarly whether in Italy or in Indonesia (see Chap. 17).

It is only *theory*—inquiry that is at the *theoretical level*—that can yield generality across such descriptively different societal contexts or settings. That contribution of theory, in this case of Problem Behavior Theory, is what has animated this volume and the two that preceded it. If the volumes, together, have stimulated greater interest in problem-focused, psychosocial theory—in formulations that encompass *both* person and context—they will have served their purpose and satisfied their author.

References

Elder, G. H., Jr., & Conger, R. (2000). *Children of the land: Adversity and success in rural America*. Chicago: University of Chicago Press.

Elliott, D. S., Menard, S., Rankin, B., Elliott, A., Wilson, W. J., & Huizinga, D. (2006). *Good kids from bad neighborhoods: Successful development in social context*. New York: Cambridge University Press.

Furstenberg, F. F., Jr., Cook, T. D., Eccles, J., Elder, G. H., Jr., & Sameroff, A. (1999). *Managing to make it: Urban families and adolescent success*. Chicago: University of Chicago Press.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48*(2), 117–126.

Jessor, R. (2016). *The origins and development of problem behavior theory: The collected works of Richard Jessor*. New York: Springer International Publishing.

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers*. New York: Harper & Row.

Thomas, W. I. (1928). *The child in America: Behavior problems and programs*. New York: Alfred A. Knopf.

Vazsonyi, A. T., Chen, P., Jenkins, D. D., Burcu, E., Torrente, G., & Sheu, C. J. (2010). Jessor's problem behavior theory: Cross-national evidence from Hungary, the Netherlands, Slovenia, Spain, Switzerland, Taiwan, Turkey, and the United States. *Developmental Psychology, 46*(6), 1779–1791.

Part I
Problem Behavior Theory and the Social Context of Disadvantage

Chapter 2
"Making It" Among At-Risk Youth: The Role of the Social Context

Richard Jessor

There are compelling signs that a new paradigm for research on adolescence has been emerging in developmental psychology. Its influence on the form and content of psychological inquiry over the past decade or two is already evident: increased complexity of research objectives; greater reliance on time-extended research designs; expanded attention to the social context; more frequent recourse to concepts from neighboring disciplines; greater interest in research on important social problems; and, more recently, a readiness to study populations of adolescents hitherto largely ignored. It seems appropriate to characterize the evolving paradigm as *developmental behavioral science,* because it reaches beyond the traditional boundaries of psychology to encompass the concerns that neighboring disciplines have with the social environment of human action. Because it is inherently an interdisciplinary paradigm, its implementation continues to present a daunting challenge. Notwithstanding the challenge, developmental behavioral science, as an approach, holds promise for a more comprehensive, more differentiated, and more situated understanding of adolescent behavior and development than has been achieved thus far.

In this chapter I provide a brief description of a program of research on adolescent development sponsored by the John D. and Catherine T. MacArthur Foundation. The research is part of an effort—still taking form and still largely promissory—to implement the main imperatives of the new paradigm. It will be useful, as prolegomenon, to review the circumstances that paved the way for the emergence of the paradigm and to identify some limitations of traditional research on adolescence that recent efforts, ours included, have sought to overcome.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_2

The Emerging Paradigm in Historical Perspective

A sense of self-confidence and optimism pervaded psychology right after World War II, but it was quickly replaced by an equally pervasive sense of disquietude, disappointment, and doubt. The meager yield of its sovereign theories of learning—until then, psychology's proudest achievement—and their conceptual ambiguity (Estes et al., 1954) had become painfully apparent. Skepticism was also growing about the generality of findings from controlled laboratory experiments and about the utility of animal models for illuminating complex, verbally mediated human behavior. Koch's (1959) influential "Epilogue" to Volume 3 of *Psychology: A Study of a Science* raised serious questions about the accomplishments of basic or general psychology, and also challenged its epistemological orientation. Less than a decade later, Ring (1967) invoked the term *crisis* to describe the state in which he found his own field of social psychology. The fact that the other social sciences were also experiencing disappointment over their accomplishments (Shweder & Fiske, 1986) raised even larger questions about the limitations of disciplinary inquiry in human affairs.

This time of searching self-examination and, indeed, of widespread malaise, resulted ultimately in salutary consequences both for psychology and for behavioral science more generally. With wider recognition that the prevailing scientific paradigm was constraining and impoverishing, the way was opened for psychologists to challenge long-established rules for making science and to explore new, previously unacceptable alternatives. These have helped to shape the contours of developmental behavioral science.

The key developments that contributed to the newer model of inquiry need only be noted here, as they have been elaborated elsewhere (Jessor, 1991). One change in the Zeitgeist was the growing sense that adopting a multidisciplinary perspective was essential and, indeed, unavoidable. Psychology's inability, as a discipline, to encompass the socially organized environment of human action was increasingly seen as a critical shortcoming. In his topological elaboration of the *life space,* for example, Kurt Lewin (1951) did surround it with a distal environmental region that he called the *foreign hull.* However, despite his recognition of its importance, that region remained totally undifferentiated. The fact that, logically, its structure and content influenced transactions with the life space was never exploited. This example illustrates the need for constructs from other disciplines—such as sociology, anthropology, and economics—that would enable articulation of psychological processes with those of the foreign hull or non-psychological environment.

A second important development in the discipline was the decline and gradual abandonment of attachment to positivist epistemology. As a philosophy of science, positivism came increasingly to be seen as logically untenable. Its restriction of psychological attention only to so-called objectively observable and operationally definable phenomena also imposed severe limitations on the subject matter of the discipline. A third development, the openness of the postpositivist climate, promoted a "coming to terms with subjectivity" (Jessor, 1981**,** p. 297)**—**that is, a wider

recognition of the central role of language and meaning in human action, and a new appreciation for inner experience, interpretive data, and the relevance of hermeneutics.

A fourth major development was the reinvigoration of interest in context and setting and place in a way that was simply beyond the grasp of the psychological notion of *stimulus*. The need for a language of description for context and setting that could capture its meaning and its significance for action was made salient in psychology by the person-situation debate (Magnusson, 1981). Fully situated explanatory efforts predicated on a thorough understanding of context began to be more widely appreciated in psychology. Finally, the antinomy between basic and applied research, so often an invidious distinction, was being rejected by more and more investigators. Research on important social problems, conventionally dismissed as *applied,* was increasingly being seen instead as a particularly advantageous way of testing theory in full social context and thereby gaining a greater claim on external validity. Again, it was Kurt Lewin (1951) who led the way, espousing the desirability of theory-oriented research on social problems. More recently, in the same spirit, Featherman (1991) has argued that "problem-focused research provides the seedbed for breakthroughs in fundamental theory and methods"; he added the reminder, parenthetically, that to carry out such research requires we "modify our commitment to the preeminence of disciplinary science" (p. 75)**.**

This handful of historical developments is, of course, not exhaustive; taken together, however, they reflect some of the profound dynamics that have helped in recent decades to transform the larger discipline of psychology. That transformation has provided the opportunity for developmental psychologists to pursue approaches to research more apposite to the complexity of the phenomena under investigation. What I have referred to here as developmental behavioral science is one such approach: multidisciplinary in perspective; concerned with inner experience and meaning as well as with overt behavior; attentive, equally, to the socially organized context and to the individuality of the person; driven by an interest in important societal problems; and committed to an understanding of the process of development and change over time in both the person and the social setting.

The Emerging Paradigm and Traditional Research on Adolescence

Despite impressive advances in recent years in our understanding of behavior and development over the adolescent stage of the life course, there are troubling lacunae that become even more apparent when viewed from the perspective of developmental behavioral science.

For a particularly egregious example, neither research nor theory in the adolescent field has had much to say about young people growing up in poverty. As a matter of fact, a large segment of the American adolescent population has been

excluded from our studies—those who are poor. At the end of an important volume sponsored by the Carnegie Council on Adolescent Development and designed to take stock of the current state of knowledge about adolescence, the editors remarked, "Perhaps the most striking observation across all the chapters in this volume is the degree to which research on normal development has been restricted to middle class whites" (Feldman & Elliott, 1990, p. 488), and, they added, "The poor youth of this nation receive little explicit attention in this volume" (p. 492). How are we to understand such an extraordinary gap in our knowledge?

Certainly, in light of recent statistics, it cannot be dismissed as too trivial to warrant scientific concern. "During early 1988, nearly one of every five adolescents [ages 13 to 18] was a member of a family with an income below the poverty line" (Sum & Fogg, 1991, p. 37); that implies a segment of youth numbering about 4 million. When the proportion of adolescents aged 13 to 18 living in poverty is examined by race and ethnicity, the percentage in 1988 was 11% for Whites, 37% for Hispanics, and 44% for Blacks. A recent report by the U.S. Congress, Office of Technology Assessment (1991) showed close to 8.5 million of the 31 million adolescents aged 10 to 18 in the United States living at or below 150% of the federal poverty level. Keeping in mind the bureaucratic arbitrariness that enters into defining the so-called poverty line and the worsening plight of those at the bottom of the economic ladder, these figures in all likelihood underestimate the extent of poverty among America's youth.

The lacuna of scientific knowledge about poor youth and about the context of poverty is disturbing; it illustrates as well as anything could the parochial limitations of traditional adolescent research and the importance of implementing more fully a developmental behavioral science approach. Driven by an interest in social problems, the latter approach could hardly avoid focusing on a problem such as poverty. More important, perhaps, the multidisciplinary orientation it entails would enable an articulation of the social, cultural, and economic context of poverty while, at the same time, delineating the pervasive individual differences that exist among those growing up poor. Its imperative that developmental knowledge be fully situated makes it incompatible with a psychology of adolescence that is confined largely to middle-class, White adolescents.

Lest this exegesis be read only as a lament that some subpopulation of adolescents has been ignored, it is important to stress that research on adolescents growing up in poverty can yield knowledge unlikely to be gained from more traditional samples—knowledge about psychosocial development under conditions of concentrated and chronic adversity, knowledge about the factors that influence whether adversity will or will not be overcome, and finally, knowledge that is not only important for developmental theory but essential for the formulation of social policy.

Another arena of research that has received the same kind of neglect is research on the role of race and ethnicity, racial and ethnic discrimination, and minority status in adolescent behavior and development. Race and ethnicity are central issues that reverberate throughout contemporary American society. They are linked to major differentials in socially organized access to opportunity, are institutionalized in stereotypical social definitions, and are inescapably implicated in adolescent self-definitions. Given that, it is remarkable how little attention race and ethnicity have

received in research and how little they have figured in theoretical formulations about adolescent development. The interaction of poverty with race and ethnicity also begs for attention. The limited interest of traditional adolescent research in social problems has, unfortunately, allowed issues of race and ethnicity and racial discrimination to lie fallow.

Researchers on adolescence in psychology have traditionally concentrated on the organism, giving markedly less attention to the role of context in behavior and development. Dannefer (1984) referred to this tradition as a reflection of the "ontogenetic fallacy" in developmental psychology: "the conception of human development as a process of maturational unfolding" (p. 103), rather than an outcome of person-context interaction. Another kind of encapsulation is evident even when context is engaged in psychological research, namely, encapsulation within that particular context alone, as if it existed in isolation from other contexts or from the larger social environment. In an illuminating and influential article on the ecology of the family, Bronfenbrenner (1986) noted in this regard that "most studies of the family as a context of human development . . . have concentrated on intrafamilial processes of parent-child interaction" (p. 723); "the impact of the external environment on particular family processes . . . represents a fairly recent scientific development" (p. 724). The traditional preoccupation with socialization and patterns of interaction within the family has usually meant that extrafamilial transactions—those with other institutions and other contexts, such as church, and school, and neighborhood, all of which can have important consequences for an adolescent's development—would largely be ignored.

Cronbach (1982) has made the same point with regard to another developmental context, the school:

> Understanding an adolescent's experience. . . seems to require a community-wide ecological perspective. Even though an educational study, for example, may have to concentrate on classrooms, classroom events are influenced by the community, the school structure, and events in the home, and the investigator will enrich his interpretation by acquainting himself with the context in which his limited unit is embedded, (p. 74)

Encapsulation of mainstream adolescent research within the organism, within a particular segment of the population, or within a selected context has limited the scope and the texture of our understanding of adolescent behavior and development. The multidisciplinary orientation of developmental behavioral science, its interest in research on social problems, and its appreciation of both proximal and distal context should help overcome those limitations and enrich the yield of developmental research on adolescents.

The Emerging Paradigm and the Issue of Complexity

The various considerations discussed above suggest that developmental psychology has evolved to a stage in the ontogeny of inquiry that is vastly more complex now than earlier in its history. Overcoming the encapsulations inherent in earlier research traditions can best be accomplished, it now seems clear, by larger and more complex

research endeavors that involve teams of collaborators from multiple disciplines; are guided by larger, more complex, interdisciplinary conceptual frameworks; are capable of mapping the various and changing settings in which adolescence is played out; and can capture the various and changing characteristics of adolescents as they grow from childhood to young adulthood. It is the complexity of this kind of inquiry that presents the daunting challenge noted at the outset of this chapter.

An illustration of the evolution of developmental psychology toward greater complexity can be drawn from the domain of adolescent risk behavior. The rapid accumulation of knowledge about adolescent risk behavior over the past two decades has revealed its intractability to simple explanation—whether focused on a single variable, such as self-esteem, a single setting, such as the inner-city neighborhood, or a single explanatory domain, such as personality, the environment, or genetic disposition. Research in this field has evolved from early descriptive accounts and epidemiological surveys to more and more complex explanations implicating multiple interacting domains that now range from biology to the social environment. This "web of causation" (MacMahon, Pugh, & Ipsen, 1960, p. 18), that is, the explanatory schema for adolescent risk behavior that has achieved some degree of consensus over recent years, is illustrated in Fig. 2.1.

Because its purpose here is only to be illustrative, it is not necessary to review Fig. 2.1 in detail (see Jessor, 1992). Rather, what is most important to note about the schema is its complexity—the multiple explanatory domains involved; the reciprocal or bidirectional causality represented by the two-headed arrows; the differentiation of constructs within domains and their further segregation into categories of risk and protective factors; the emphasis on perceived and interpreted as well as objective factors; the direct and indirect paths that link the various explanatory domains with the risk behaviors and the risk outcomes; the potential for risk behaviors to covary and to be organized into broader life-styles; and the contingent linkage of risk behaviors to longer term life outcomes. Difficult to represent in a two-dimensional schema, but intrinsic to its complexity, is the fact that the outcomes of engaging in risk behavior, shown at the bottom of the figure, depend on the nature of the social context and the other explanatory domains shown at the top of the figure. Furthermore, the entire explanatory schema has to be seen as time extended and undergoing dynamic change with aging and with history (see Jessor, Donovan, & Costa, 1991). Understanding contextual change becomes as important as understanding individual change. Figure 2.1 illustrates that a research enterprise seeking to capture the bulk of the variance in adolescent risk behavior and trying to understand the role of risk behavior in development requires a model of inquiry such as that sketched out in the preceding sections of this chapter.

Full implementation of the paradigm of developmental behavioral science will always remain problematic and conditional on the resources available. However, recognition of the inherent complexity of adolescent behavior and development, even in a domain as circumscribed as adolescent risk behavior, puts the limitations of traditional, disciplinary inquiry in sharp relief.

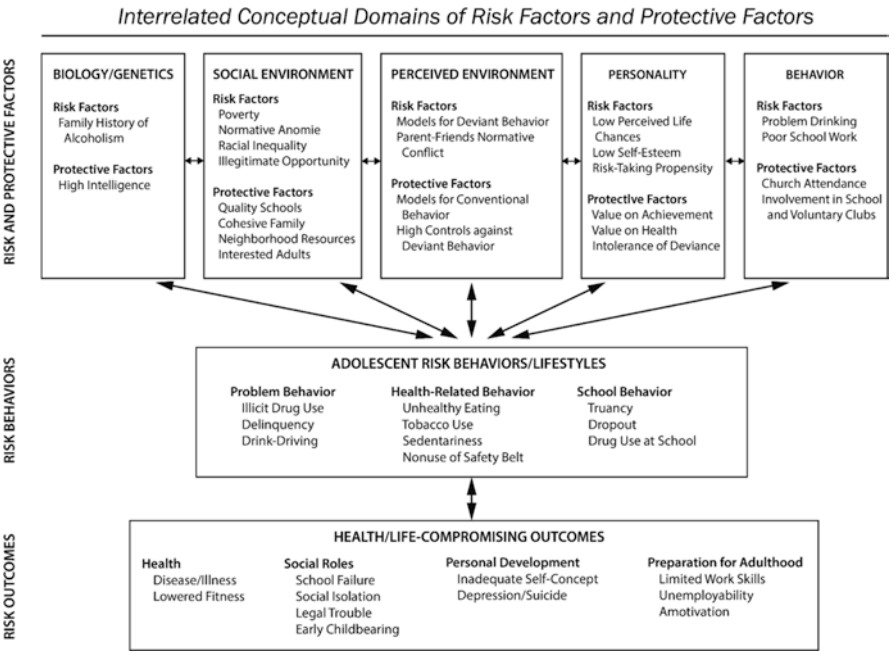

Fig. 2.1 A conceptual framework for adolescent risk behavior: risk and protective factors, risk behaviors, and risk outcomes

The MacArthur Foundation Research Network

Rationale for the Network

The Research Network on Successful Adolescent Development Among Youth in High-Risk Settings was organized to advance knowledge about development among youth growing up in social contexts that place them at risk—contexts of disadvantage and poverty, limited access to opportunity, and racial and ethnic marginality. Because the current store of developmental knowledge was not accumulated from such youth, the network's focus on them is a deliberate effort to help right the balance. Also deliberate was the decision to focus on those factors and processes that safeguard and promote success in such contexts and are responsible for adolescents "making it" despite the adversity, malignancy, risk, and even dangers that characterize the transactions of their daily lives.

This perspective is important because it orients inquiry toward the elucidation of strengths and potentials and supports and resources at all levels—personal, social, and institutional—and it serves as counterpoint to an excessive and often univocal

preoccupation with risk that tends to homogenize and caricature those who are poor. In concluding a review of the experiences of adolescent Black males growing up poor, Taylor (1991) made a profound observation: "Given these cumulative disadvantages, it is remarkable that the proportion of black male adolescents who survive to become well-adjusted individuals and responsible husbands and fathers is so high, or that the percentage who drop out of school, become addicted to drugs, involved in crime, and end up in jail is not considerably greater" (p. 156). That observation resists illumination by a focus on risk alone. It is consonant, however, with the emphasis that some investigators (Garmezy, 1985; Rutter, 1990) have placed on *protective factors*—those personal, social, and institutional resources that can promote successful adolescent development or buffer the risk factors that might otherwise compromise development. That emphasis is salutary in another way: It suggests that a social policy agenda should be concerned not only with the reduction of risk but with the strengthening of protection as well.

The network on successful adolescent development has been guided by several of the research imperatives mentioned earlier: first, that research has to be longitudinal or extended in time in order to provide developmental understanding of young lives as they grow and change and are transformed between childhood and young adulthood; second, that research has to achieve a thorough grasp of the content and the dynamics of the social context, and a textured sense of the settings—both proximal and distal—in which behavior and development take place; third, that research has to capture the individual differences that are ubiquitous in any population of youth, whatever the setting; and fourth, that the knowledge sought has to encompass subjective experience and personal meanings as well as overt action and social behavior. These are all central concerns of the paradigm of developmental behavioral science.

The Collaborative Process in the Network

Before summarizing the studies that the network has initiated, I should say something about how the program works and about the process by which the research is formulated and carried out. In describing the larger Program on Mental Health and Human Development at the MacArthur Foundation, Bevan (1989) characterized it as a "research institute without walls," (p. 5) that fostered an "alternative scientific lifestyle" (p. 4) committed to "interdisciplinary and problem-oriented" (p. 7) research collaboration. Although the network on successful adolescent development is only one component of the larger program Bevan was describing, his description applies to it as well. A recently completed study of all of the networks in the Program on Mental Health and Human Development referred to them as "an experiment in scientific organization" (see Kahn, 1992, p. iv).

The collaborators in our "research institute without walls" are 14 senior scholars[1] representing a multiplicity of disciplines or subdisciplines, including psychology, sociology, child psychiatry, pediatrics, criminology, demography, life course development, child psychopathology, and education. Four or five times a year, the collaborators come together for two- or three-day meetings that constitute a kind of ongoing seminar. At these meetings, members discuss ideas, present reports, review progress, set goals, and make plans. More subtle, but in the long run perhaps more important, disciplinary traditions are transcended during the meetings, disciplinary boundaries are freely crossed, and a climate of interdisciplinary communication prevails. As ideas come to focus on possible research endeavors, a structure of intellectual collaboration emerges, one or another network member assumes the role of lead investigator, and resources are allocated to provide the needed support. As a result, the network's projects are collaborative and multidisciplinary and reflect the contributions of the entire network. There is also considerable and growing convergence of theoretical concepts and empirical measures across the separate projects. Although difficult and somewhat artificial at first, interdisciplinary, intellectual collaboration has become the normative style of inquiry by this stage of the network's development.

The network sponsors other activities in addition to its research program: It organizes conferences to enlarge its understanding in particular areas, it seeks to stimulate thinking in the field about theoretical issues or methods,[2] it provides opportunities for interdisciplinary training for graduate students, and it tries to draw out and communicate the implications of its research for social policy. The network's primary task, however, is to advance understanding of the process by which young people growing up in contexts of limited opportunity and pervasive disadvantage nevertheless manage to make it—to avoid life-compromising experiences, such as school dropout or trouble with the law; to fulfill expected roles at home and school; to develop the necessary human capital of skills, knowledge, and interests; to achieve a sense of personal adequacy and competence; to pursue second chances if they have gotten off track; and to prepare themselves to enter the roles that characterize young adulthood.

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[1] Albert Bandura (Stanford University), James P. Comer (Yale University), Thomas D. Cook (Northwestern University), Jacquelynne S. Eccles (University of Colorado), Glen H. Elder, Jr. (University of North Carolina), Delbert S. Elliott (University of Colorado), Frank F. Furstenberg, Jr. (University of Pennsylvania), Norman Garmezy (University of Minnesota), Robert J. Haggerty (William T. Grant Foundation), Beatrix A. Hamburg (Mt. Sinai School of Medicine), Richard Jessor (University of Colorado), Arnold Sameroff (Brown University), Marta Tienda (University of Chicago), and William J. Wilson (University of Chicago). Marilyn Sena (University of Colorado) has been network administrator from the outset. William Bevan, former director of the Mental Health and Human Development Program, Denis J. Prager, its present director, and Idy Barasch Gitelson, foundation liaison to the network, have all made fundamental and invaluable contributions to the network's perspective and to its work.

[2] These include a European Conference on Adolescent Development Among Youth at Risk, a Workshop on Ethnicity and Adolescent Development, and a Conference on Ethnographic Methods in the Study of Human Development.

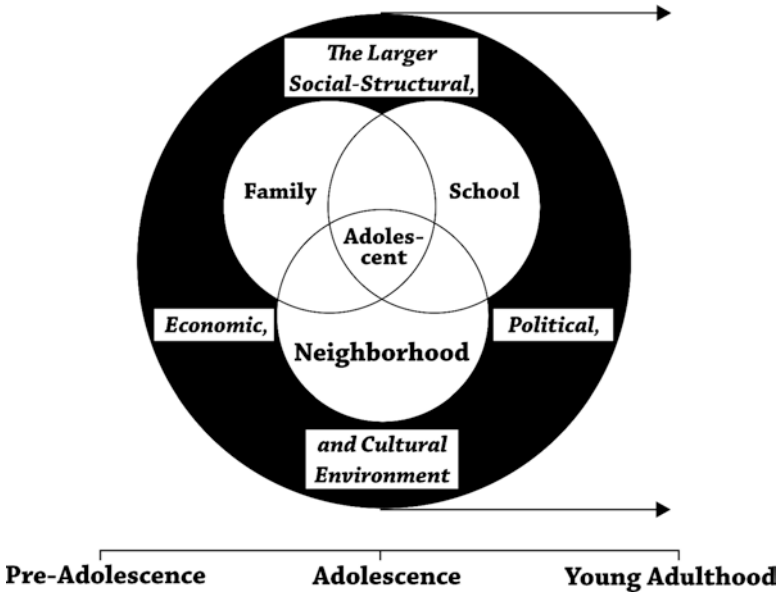

Fig. 2.2 Context and development over time

The Commitment to Context in the Network

The challenge for the network, at the outset, was how to organize the initial studies for this endeavor. After much discussion, the members decided to organize the studies around the key settings of adolescent life—the family, the school, and the neighborhood. From the very outset, salience was given to the social context.[3] As shown in Fig. 2.2, an adolescent can be represented as occupying the space at the intersection of the major contexts usually traversed during the course of daily life. The diagram shows that the adolescent is embedded simultaneously in all three contexts, although traditional research adolescents has tended to be restricted to only one or another of them. Additional properties of Fig. 2.2 bear mention besides the concurrent linkage of the adolescent to all of the contexts. First, each context has interactions with both of the other two contexts; such connections, as Bronfenbrenner (1986) noted for the family, are generally overlooked in traditional studies. Second, all three of the contexts and the adolescent are embedded in a larger, distal environment with which there are ongoing transactions. This larger environment is rarely engaged in developmental research (but see Elder, 1974). Finally, the entire representation is pictured as dynamic and moving through time, allowing for

[3] Although it is possible to consider the media and the peer group or friendship network as additional contexts, they are treated here as aspects of the contexts already mentioned.

development and change in the adolescent and in the contextual envelope in which the adolescent is located and with which the adolescent interacts. The relative importance of the different contexts would be expected to vary with different stages of development.

It is obvious from the topological relations among the various regions represented in Fig. 2.2 that what happens in any region can affect the developing adolescent. Because the family, school, and neighborhood contexts are proximal to the adolescent, their influence can be direct, whereas the larger environment, being distal from the adolescent, usually has an indirect influence, mediated through one or more of the proximal contexts. The reverberating consequences of distal environment changes (e.g., in access to jobs and employment, child support and health care, or funding for education; in patterns of immigration; or in subsidies for low-income housing) are transmitted ultimately to the adolescent’s life space by their impact on the proximal contexts of daily life experience.

Ideally, understanding the transactions between adolescents and their family, school, and neighborhood contexts and the transactions among those contexts would require mapping all three contexts and samples of the young people in them in the very same study, and then monitoring both contextual and individual change over time. Although that somewhat Olympian aspiration still animates the network collaborators, its implementation was set aside for a later stage in the network’s development. Instead, separate but converging studies were undertaken; each is focused on one or more contexts, and all are concerned with assessment of the adolescents in those contexts and with change over time. The plan has been for this initial series of studies to serve as preparation for the more ambitious effort that was deferred: The studies underway should enable us to achieve a conceptualization of both person and context that illuminates the process of “making it”; they should permit the development of systematic measures that reflect the requirements of the conceptual framework; and they should provide the experience in interdisciplinary collaboration in field research that will be essential for launching that next phase of work.

Initial Studies of Successful Adolescent Development

In the remainder of this chapter, I present brief descriptions of four of the studies currently underway in the network. Details of design, sample, measures, and procedures for data collection may be obtained directly from the lead investigator in each case. My aim is simply to convey a sense of the concerns of each study and to suggest the degree to which, although separate endeavors, they seek to converge on the same set of inferences.

Family Management Study

The focus of the Family Management Study is on the strategies that families use to protect adolescents from the risks and dangers and illegitimate opportunities characteristic of disadvantaged neighborhoods and to promote adolescents' development despite limited family resources, the failure of local institutions, and the disorganization of the immediate social context. This longitudinal study is being carried out in inner-city neighborhoods in Philadelphia by a multidisciplinary team with Frank F. Furstenberg, Jr., as lead investigator and Jacquelynne S. Eccles, Thomas D. Cook, Glen H. Elder, Jr., and Arnold Sameroff as key collaborators.

Perhaps the most important contribution of this study is its effort to move inquiry about child rearing and socialization beyond the traditional preoccupation with intrafamilial interactions and to bring scientific attention to the importance of extrafamilial transactions for safeguarding successful adolescent development, especially in settings of poverty and disadvantage. The problematic nature of the extrafamilial environment was not likely to capture the attention of developmental investigators as long as the usual populations studied were White, middle-class families with adequate resources. For families trying to rear their children under disadvantaged circumstances, however, the extrafamilial environment may well be profoundly problematic: Health care is often beyond reach, educational systems are inadequate, prosocial role models may be less available, access to welfare and support agencies can be difficult, and children are frequently exposed to organized antisocial peer groups and to the attractions of illegitimate opportunity.

The strategies that families use to manage such problematic environments—to negotiate with local institutions, such as the school or the police, when a child is having difficulties; to seek out resources for their children that, despite their paucity, may nevertheless still be available in the ecology; to provide monitoring and support as insulation against the drug use and other problem behaviors modeled by their children's peers; or to locate a safer niche, such as a parochial school, for their children when the regular school and neighborhood contexts become too dangerous—can have consequences that enhance successful development. Variation in the use of such strategies by inner-city families may help explain why the impact of poverty is never monolithic, as the earlier quote from Taylor (1991) pointed out.

A year-long qualitative study of a small number of families in different areas of the city was preliminary to the larger Philadelphia endeavor. The information gleaned by the fieldworkers was influential in the design of the household interview survey, and it also yielded initial impressions about the linkage between variation in neighborhood characteristics and variation in family management strategies (see Furstenberg, 1993). Data for the main study were collected in five poor or less well-to-do areas of the city in 1991, each with predominant representation of Black or White families. Close to 500 families with an adolescent between 11 and 15 years of age participated in the survey. Interviews and self-administered questionnaires were obtained from the adolescent and a parent.

The extensive data set includes measures of neighborhood characteristics, family management strategies, intrafamilial process, individual difference attributes, and adolescent behavior. Current analyses are focusing on the linkage between neighborhood characteristics and family strategies (Furstenberg, 1992); on the relative efficacy of preventive and promotive family management strategies (Eccles, McCarthy, & Lord, 1992); and on the ways that disadvantaged families cope with increasing economic pressure (Elder & Ardelt, 1992). In addition, Thomas D. Cook is analyzing the relation of various forms of capital (social, cultural, and psychological, as well as financial) to neighborhood characteristics and to strategies of family management. When the second wave of data collection is completed, the study should advance understanding of the role that family management strategies play in promoting successful development among youth growing up in high-risk settings.

Middle School Intervention Study

The focus of the Middle School Intervention Study is, of course, on the school context, more particularly on those aspects of the school context that may influence the life paths of the students. Unlike the other studies in the network, this one seeks to illuminate the processes that contribute to successful adolescent development by intervening to change a key context—the school—and by examining the effects of that change on adolescent psychosocial and behavioral outcomes over time. The research is being carried out in a large Maryland school district outside of Washington, DC. The lead investigators are James P. Comer and Thomas D. Cook; collaboration has come from Albert Bandura and Norman Garmezy.

The Comer School Development Program was chosen as the intervention modality because of its rationale and its demonstrated success in two largely Black New Haven, Connecticut, elementary schools (Comer, 1988). Key components of the program include the establishment of a school governance committee sharing authority and decision making between school officials and parents, the installation of a mental health team to help teachers understand issues of growth and development, and the involvement of parents and family members in a broad range of school activities. The aim of the Comer program is to create an open and democratic school climate with sensitivity to developmental issues and a strong tie between school and home—an educational environment conducive to learning and positive development that enhances a sense of consonance, rather than contrast, between home life and school life. The theory of the Comer program has been articulated recently by Anson et al. (1991).

After pilot implementation of the program in two largely Black middle schools, the full-scale intervention was mounted in the fall of 1990 in 11 additional, randomly selected middle schools in the school district. There are 10 no-treatment control schools, although most of these do have some kind of ongoing enrichment program. The research has involved the development of measures to monitor the

adequacy of implementation of the Comer program, to assess changes in school climate, and to evaluate change in psychosocial attributes, school performance, and behavior of the adolescents as they experience the effects of the intervention. The seventh-grade cohort was assessed at baseline in the fall of 1990, and then again in the spring of 1991 and 1992. Assessment of a new seventh-grade cohort was carried out in the fall of 1991 and again in spring of 1992; it will be assessed once again in spring of 1993. Thus, two successive cohorts will have been followed over time, the later one entering seventh grade when the implementation of the Comer program was more fully established than it had been for the earlier cohort.

Because an adolescent's family is theoretically a crucial link in mediating between the changes deliberately brought about in the school context and the changes assessed in the adolescent, the family was also included in the research. The study of parent involvement enables the capture of an additional context and also yields direct measures of parental engagement with the school and of the factors that influence parental participation in their children's education. The parent involvement study, led by Jacquelynne S. Eccles, has involved home interviews with more than 1,500 parents of adolescents in the middle schools and home interviews with the target adolescents themselves. Many of the measures are the same as those used in the Philadelphia study. Together, the Middle School Intervention Study and its component, the Parent Involvement Study, promise to illuminate the role that school and family play in successful development among minority and disadvantaged adolescents.

Rural Youth Study

The distinctive features of the Rural Youth Study are, first, its focus on adolescents growing up outside of urban settings who are not from ethnic and racial minority families, and, second, its concern for tracing the consequences of distal environmental change—the severe economic decline of the 1980s farm crisis, the most severe since the Great Depression—for adolescents whose parents have had to cope with persistent economic hardship. The study, longitudinal in design, is being carried out in eight agriculture-dependent counties of north-central Iowa with farm, displaced farm, and nonfarm families. The lead investigator is Glen H. Elder, Jr., and primary collaboration involves team members from the Philadelphia study. (This study was built onto and has benefited greatly from a larger endeavor, supported by the National Institute of Mental Health, of which the principal investigator is Rand Conger at Iowa State University.)

The general orientation of the Rural Youth Study is modeled after Elder's classic inquiry, "Children of the Great Depression: Social Change in Life Experience" (1974), with the family's adaptation to economic hardship mediating between the macroenvironmental change and its consequential impact on the adolescent. Two-parent households with a seventh grader and a near sibling were sampled, and more than 450 families participated in the first wave of data collection in the spring of

1989. The fourth data wave was completed in 1992. Assessment procedures are unusually comprehensive and elaborate, including parent and adolescent interviews, self-administered questionnaires, and videotaped interactions of family, siblings alone, and parents alone dealing with problem-solving and interaction tasks. Key measures of economic hardship, family distress, and parenting strategies have been developed to represent the pathways eventuating in successful and unsuccessful child outcomes (Elder, 1992). Some of the measures of strategies parallel those in the Philadelphia study.

The comparative perspective that the Rural Youth Study provides in relation to the other studies, which involve urban minority youth, is an especially valuable aspect of its contribution. Overall, its linkage of the macroeconomic environment to the family context and, in turn, to the adolescent, promises to illuminate the processes that compromise or promote successful adolescent development in circumstances of disadvantage.

Neighborhood Study

Unlike the studies described above, with their primary focus on the family or the school, the salient concern of the Neighborhood Study is with the immediate social ecology in which the other two institutions are located and with which they engage in important transactions. Despite a long tradition of attention to the neighborhood context, especially in sociology, the empirical yield has been disappointing (see Jencks & Mayer, 1990). In psychology, there has been almost no systematic articulation of ecological constructs, and social variation has been represented for the most part by "social address" measures such as socioeconomic status or father's education. In sociology, reliance has generally been placed on census tract information, which may not capture well the characteristics of the more immediate neighborhood and which is often very distal from adolescent behavior and development. The major aims of the Neighborhood Study were to advance the conceptualization of neighborhood beyond the census tract approach; to consider alternative neighborhood units, including block groups and perceived neighborhoods; and to identify neighborhood characteristics that may constitute risks for the developing adolescent or may insulate the adolescent from those ecological risks.

The Neighborhood Study is being replicated in two different urban sites: one is Denver, Colorado, where the lead investigator is Delbert S. Elliott, and the other is Chicago, Illinois, where the lead investigator is William J. Wilson. Collaboration has involved Albert Bandura, Thomas D. Cook, and Frank F. Furstenberg, Jr. Both sites include inner-city areas of concentrated poverty as well as more middle-class areas in order to achieve a range of variation in neighborhood characteristics. In Chicago, the areas are predominantly Black in residential population, whereas in Denver there are samples of Hispanic and White residents as well. Measures have been developed for neighborhood characteristics that have theoretical relevance for adolescent development—resources, social networks and social integration,

informal social controls, normative consensus, legitimate and illegitimate structures of opportunity—as well as measures of psychosocial orientations and of behavior of both the parents and the adolescents in the neighborhoods.

In both studies, data were collected from probability samples of households in the designated urban areas. The first data wave in Denver was collected in 1989, and additional data waves took place in 1990 and 1991, providing measures of neighborhoods over time that enable examination of neighborhood development or change. In the Chicago site, a single data wave was carried out in 1991.

The study's conceptual and methodological contributions to an understanding of the neighborhood context and of the most appropriate ecological unit to represent it should help move this topic beyond the impasse it has been facing in behavioral science. In addition, the research on neighborhood context should add to understanding of how high-risk settings affect adolescent development and what neighborhood factors can enhance or compromise success.

Other Studies

Limitations of space preclude more than mention of other studies that have been carried out or are in the planning stage. A qualitative, ethnographic study of low-income housing projects in New York City's Harlem section was undertaken for the network by two colleagues at the City University of New York, Terry Williams and William Komblum, and work on the role of racial and ethnic status and identity in adolescent development is currently being formulated by Marta Tienda and Jacquelynne S. Eccles in association with others. Finally, mapping the transition to young adulthood is the major item on the network's agenda for its next phase of research activity.

Conclusion

The emerging paradigm of developmental behavioral science reflects profound and pervasive changes in the way psychologists are addressing research on adolescence. Increasingly, research questions are being drawn from the concrete reality of social life rather than from the abstract preoccupations of disciplinary tradition. Interdisciplinary collaboration is more readily being sought to provide a firmer grasp on the complexity of adolescent development. Such collaboration is helping psychologists to incorporate contextual variation in their formulations, sociologists to gain a deeper appreciation of individuality, and both to grasp the dynamic linkages between society and persons.

The question that has animated the Research Network on Successful Adolescent Development Among Youth in High-Risk Settings is indeed concrete: How can we understand the process by which young people make it despite the adversity they

face in terms of poverty, limited opportunity, and racial and ethnic discrimination? In trying to answer that question, the network has begun to implement the research imperatives of developmental behavioral science. The diverse studies described in this chapter all seek to converge on illuminating the process of making it. They represent what has been accomplished thus far, but they remain preliminary to the more systematic and comprehensive endeavor that lies ahead. The hope is that the knowledge ultimately gained will advance understanding about adolescent development and suggest to policymakers the social interventions that would enable more disadvantaged youth to traverse adolescence successfully.

Note The title of this chapter is also the name of the research network chaired by the author; the network is a component of the John D. and Catherine T. MacArthur Foundation's Research Program on Mental Health and Human Development. The support of the MacArthur Foundation is gratefully acknowledged.

This chapter has benefited from the comments of all of the members of the network and from suggestions by Anne Colby, Idy Gitelson, and Ruby Takanishi.

References

Anson, A. R., Cook, T. D., Habib, F., Grady, M. K., Haynes, N., & Comer, J. P. (1991). The Comer school development program: A theoretical analysis. *Urban Education, 26*(1), 56–82.

Bevan, W. (1989). *Beyond the territorial solution (A MacArthur Foundation occasional paper)*. Chicago: The John D. & Catherine T. MacArthur Foundation.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*(6), 723–742.

Comer, J. P. (1988). Educating poor minority children. *Scientific American, 259*(5), 42–48.

Cronbach, L. J. (1982). Prudent aspirations for social inquiry. In W. H. Kruskal (Ed.), *The social sciences, their nature and uses* (pp. 61–81). Chicago: University of Chicago Press.

Dannefer, D. (1984). Adult development and social theory: A paradigmatic reappraisal. *American Sociological Review, 49*(1), 100–116.

Eccles, J. S., McCarthy, K., & Lord, S. (1992, March). *How parents respond to risk and opportunity.* Paper presented at the meeting of the Society for Research on Adolescence, Washington, DC.

Elder, G. H., Jr. (1974). *Children of the great depression: Social change in life experience*. Chicago: University of Chicago Press.

Elder, G. H., Jr. (1992, March). *Children of the farm crisis.* Paper presented at the meeting of the Society for Research on Adolescence, Washington, DC.

Elder, G. H., Jr., & Ardelt, M. (1992, March). *Ways of adapting to economic pressures: Some consequences for parents and adolescents.* Paper presented at the meeting of the Society for Research on Adolescence, Washington, DC.

Estes, W. K., Koch, S., MacCorquodale, K., Meehl, P. E., Mueller, C. G., Jr., Schoenfeld, W. N., et al. (1954). *Modern learning theory: A critical analysis of five examples*. New York: Appleton-Century-Crofts.

Featherman, D. L. (1991). Mission-oriented basic research. *Items: Social Science Research Council, 45*(4), 75–77.

Feldman, S. S., & Elliott, G. R. (Eds.). (1990). *At the threshold: The developing adolescent*. Cambridge, MA: Harvard University Press.

Furstenberg, F. F., Jr. (1992, March). *Adapting to difficult environments: Neighborhood characteristics and family strategies*: Paper presented at the meeting of the Society for Research on Adolescence, Washington, DC.

Furstenberg, F. F., Jr. (1993). How families manage risk and opportunity in dangerous neighborhoods. In W. J. Wilson (Ed.), *Sociology and the public agenda*. Newbury Park, CA: Sage Publications.

Garmezy, N. (1985). Stress-resistant children: The search for protective factors. In J. E. Stevenson (Ed.), *Recent research in developmental psychopathology* (pp. 213–233). Oxford, UK: Pergamon Press.

Jencks, C., & Mayer, S. E. (1990). The social consequences of growing up in a poor neighborhood. In L. E. Lynn & M. G. H. McGeary (Eds.), *Inner-city poverty in the United States* (pp. 111–186). Washington, DC: National Academy Press.

Jessor, R. (1981). The perceived environment in psychological theory and research. In D. Magnusson (Ed.), *Toward a psychology of situations: An interactional perspective* (pp. 297–317). Hillsdale, NJ: L. Erlbaum Associates.

Jessor, R. (1991). Behavioral science: An emerging paradigm for social inquiry? In R. Jessor (Ed.), *Perspectives on behavioral science: The Colorado lectures* (pp. 309–316). Boulder, CO: Westview Press.

Jessor, R. (1992). Risk behavior in adolescence: A psychosocial framework for understanding and action. In D. E. Rogers & G. Eli (Eds.), *Adolescents at risk: Medical and social perspectives* (pp. 19–34). Boulder, CO: Westview Press.

Jessor, R., Donovan, J. E., & Costa, F. M. (1991). *Beyond adolescence: Problem behavior and young adult development*. New York: Cambridge University Press.

Kahn, R. L. (1992). *The MacArthur Research Program on Mental Health and Human Development: An experiment in scientific organization.* Unpublished report.

Koch, S. (1959). Epilogue. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 3, pp. 729–788). New York: McGraw-Hill.

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers*. New York: Harper & Row.

MacMahon, B., Pugh, T. F., & Ipsen, J. (1960). *Epidemiologic methods*. Boston: Little, Brown.

Magnusson, D. (Ed.). (1981). *Toward a psychology of situations: An interactional perspective*. Hillsdale, NJ: L. Erlbaum Associates.

Ring, K. (1967). Experimental social psychology: Some sober questions about some frivolous values. *Journal of Experimental Social Psychology, 3*(2), 113–123.

Rutter, M. (1990). Psychosocial resilience and protective mechanisms. In J. Rolf, A. S. Masten, D. Cicchetti, K. H. Nuechterlein, & S. Weintraub (Eds.), *Risk and protective factors in the development of psychopathology* (pp. 181–214). Cambridge, UK: Cambridge University Press.

Shweder, R. A., & Fiske, D. W. (1986). Introduction: Uneasy social science. In D. W. Fiske & R. A. Shweder (Eds.), *Metatheory in social science: Pluralisms and subjectivities* (pp. 1–18). Chicago: University of Chicago Press.

Sum, A. M., & Fogg, W. N. (1991). The adolescent poor and the transition to early adulthood. In P. B. Edelman & J. A. Ladner (Eds.), *Adolescence and poverty: Challenge for the 1990s* (pp. 37–109). Washington, DC: Center for National Policy Press.

Taylor, R. L. (1991). Poverty and adolescent black males: The subculture of disengagement. In P. B. Edelman & J. A. Ladner (Eds.), *Adolescence and poverty: Challenge for the 1990s* (pp. 139–162). Washington, DC: Center for National Policy Press.

U.S. Congress, Office of Technology Assessment. (1991). *Adolescent health: Vol. 1. Summary and policy options*. Washington, DC: U.S. Government Printing Office.

Chapter 3
Problem Behavior Theory and Success Despite Disadvantage

Richard Jessor, Mark S. Turbin, and Frances M. Costa

A growing literature in recent years reflects the increased attention of behavioral science to the impact of poverty and disadvantage on the lives of young people in American society, for example, the recent special issue on "Children and Poverty" in *Child Development* (Huston, Garcia Coll, & McLoyd, 1994). With about one in five adolescents coming from families with incomes below the poverty line (Sum & Fogg, 1991) and with the proportion reaching about two in five for minority youth, the issue of disadvantaged life circumstances is increasingly difficult to ignore in efforts to understand social and personal development. Although earlier perspectives tended to view poverty and disadvantage as a monolithic influence with direct effects and homogeneous outcomes, more recent formulations have become much more complex; they recognize the many factors that may intervene between disadvantage and developmental outcomes, as well as the heterogeneity and variability of those outcomes (Cook, Shagle, Phillips, Settersten, & Degirmencioglu, 1998; Felner et al., 1995; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999; Jessor, 1993).

Despite the adverse circumstances of much of inner city life—not only poverty and disadvantage, but also dilapidated neighborhoods, inadequate institutional resources, and often exposure to danger—it is clear that many, if not most, young people manage to do well and to "make it," that is, to stay in school and graduate; to avoid life-compromising experiences such as trouble with the law, too-early child-

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Jessor, R., Turbin, M. S., & Costa, F. M. (1998). Risk and protection in successful outcomes among disadvantaged adolescents. *Applied Developmental Science, 2*(4), 194–208.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_3

bearing, or intense involvement with drugs; and to develop the human capital that will enable them to enter and carry out the roles of young adulthood (e.g., Smith, Lizotte, Thornberry, & Krohn, 1995). Commenting specifically about African American adolescents growing up in poverty, Taylor (1991) observed:

> Given these cumulative disadvantages, it is remarkable that the proportion of black male adolescents who survive to become well-adjusted individuals and responsible husbands and fathers is so high, or that the percentage who drop out of school, become addicted to drugs, involved in crime, and end up in jail is not considerably greater. (p. 156)

Other accounts of young people growing up poor, these of an ethnographic nature, support this conclusion (Williams & Kornblum, 1985, 1994).

The challenge of contemporary research on disadvantage is, therefore, not only to examine its compromising impact—the risk it poses in itself—but to illuminate the processes underlying the heterogeneity of outcomes under disadvantage and to account for the demonstrable success of the young people who manage to make it despite adversity, limited opportunity, and the dangers in their life settings. This article is a partial response to that challenge. It is an attempt to account for individual differences in outcomes among disadvantaged adolescents by analyzing variation in both risk and protection and by documenting the moderator role that protection plays in the relation of risk to those outcomes.

The behavioral science concern with risk and protection had its origin in work in developmental psychopathology (Garmezy, 1985; Rutter, 1979; Werner 1989a, 1989b); more recently, it has been extended to substance abuse (Costa, Jessor, & Turbin, 1999; Hawkins, Catalano, & Miller, 1992; Smith et al., 1995) and to problem behavior more generally (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). Conceptually, *risk factors* are conditions or variables associated with a lower likelihood of socially desirable or positive outcomes and a higher likelihood of negative or socially undesirable outcomes in a variety of life areas from health and well-being to social role performance. *Protective factors* have the reverse effect; they enhance the likelihood of positive outcomes and lessen the likelihood of negative consequences from exposure to risk.

The notion of positive or successful outcomes is, of course, a relative and contingent one. From the perspective of the adolescent life stage, successful outcomes can be defined in relation to the developmental tasks of that portion of the life-course trajectory (Havighurst, 1972). A key outcome in adolescence is sustained involvement in and commitment to the educational system. Making progress in school and completing a secondary education is not only a widely endorsed developmental task for adolescents, but success in this regard is important for later life, especially for labor-force entry and participation. The importance of disengagement from school as compromising successful adolescent development has been emphasized by others (Finn & Rock, 1997; Steinberg & Avenevoli, 1998). A second key outcome is increasingly recognized as a developmental task for contemporary adolescents, namely, the avoidance of heavy involvement in or commitment to problem behavior, whether alcohol or drug abuse, precocious sexual activity, or delinquency. Beyond the negative social sanctions such activities tend to elicit, they also raise the possi-

bility of life-compromising experiences involving the juvenile justice system, too-early childbearing, or morbidity and even mortality.

These two areas of adolescent outcomes are addressed in this article. Each is central enough to this life stage to warrant the term success if, as developmental tasks, they are indeed accomplished. Obviously, the inclusion of other areas, such as achieving social skills in interpersonal relationships, would yield a more comprehensive definition of successful outcomes in adolescence. Obviously, too, more stringent criteria could be set for each of the two areas of present interest, for example, avoiding any rather than some involvement with problem behavior or achieving a high grade point average rather than just progressing in school. Because of our concern to have a definition of success that has wider applicability, we have opted for a more modest definition of successful outcomes and for a focus on just these two key outcome areas. They will be referred to as *school engagement* and *low problem behavior involvement.* Although it will be important to consider each of these key areas on its own, a more comprehensive criterion of successful outcomes is also examined in this article, namely, the intra-individual coexistence or joint occurrence of both of these outcome criteria—commitment to and moving ahead in school and no more than a limited involvement with problem behavior. It is this joint outcome that seems an especially critical criterion of success for disadvantaged youth. In recognition of its increasing use in the everyday—and even the professional—lexicon, we have employed the term *making it* for that joint criterion.

Conceptually, risk factors operate by instigating or supporting problem behavior, by promoting actions incompatible with staying in school, or by generating circumstances that would attenuate or compromise attachment to school. In contrast, protective factors operate by providing personal or social controls against problem behavior, by promoting activities that are alternatives to or incompatible with problem behavior, and by strengthening orientations toward and commitments to conventional institutions, such as church, school, or family, or to the larger adult society.

Five psychosocial risk factors and seven psychosocial protective factors were examined in this study. The risk factors include Low Expectations for Success, Low Self-Esteem, a general sense of Hopelessness, greater Orientation to Friends than to parents, and greater awareness of Friends as Models for Problem Behavior. The protective factors include Attitudinal Intolerance of Deviance, Positive Orientation to Health, Religiosity, Positive Relations with Adults, the perception of strong social sanctions for transgression (Perceived Social Controls), greater awareness of Friends as Models for Conventional Behavior, and greater involvement in Prosocial Activities, such as volunteer work and family activities. These risk and protection variables were drawn from the set of instigations and controls in the personality, perceived environment, and behavior systems of Problem Behavior Theory (Jessor, Donovan, & Costa, 1991; Jessor & Jessor, 1977), and the rationale for each is elaborated in the Method section. Similar risk and protective factors have been operationalized in other studies (e.g., Felix-Ortiz & Newcomb, 1992; Hawkins et al., 1992; Smith et al., 1995; Stacy, Newcomb, & Bentler, 1992; Wills, Vaccaro, & McNamara, 1992).

The primary aim of this study was to examine the relations of both risk and protective factors to Making It among socioeconomically disadvantaged adolescents. Part of that examination entailed consideration of the separate components of the Making It criterion, namely, school engagement and low problem behavior involvement. A second aim of the study was to examine whether protective factors moderate the relation between risk and successful adolescent outcomes, that is, whether they indeed buffer or attenuate the negative relation between risk and success among youth in disadvantaged life circumstances. A third aim was to examine the development of successful outcomes over time and the role of risk factors and protective factors in accounting for change in successful outcomes.

Method

Study Design, Procedures, and Participants

The data used in this article are from a longitudinal questionnaire study of problem behavior and health-related behavior among adolescents in a large urban area in the Rocky Mountain region. Details of the sample and procedures have been described earlier (Jessor et al., 1995). The sample was drawn from six middle schools and four high schools selected to maximize minority racial and ethnic representation. Due largely to the necessity of obtaining active personal and parental consent and to the difficulty of eliciting a response from many of the parents, the initial participation rate was less than desirable. At Wave 1 (1989), 2,263 Hispanic, White, and Black students in Grades 7 through 9 filled out questionnaires (67% of the seventh and eighth graders and 49% of the ninth graders). Comparisons of the Wave 1 participants with the nonparticipants, using school record data, showed that the participant sample represented the full range of scores on grade point average, standardized achievement test scores, disciplinary actions, and school absences, even though participants had, on average, higher academic achievement and fewer absences and suspensions than the nonparticipants.

The most comprehensive set of measures relevant to the purposes of this article is available only in the Wave 3 (1991) and Wave 4 (1992) questionnaires. The Wave 4 questionnaire was completed by 1,688 (75%) of the Wave 1 participants. For these analyses, we used data from each Hispanic, White, and Black participant who completed a Wave 4 questionnaire, except for 50 students who were excluded due to missing data. This final sample included 1,638 participants, of which 655 (40%) were Hispanic, 607 (37%) were White, and 376 (23%) were Black. Fifty-seven percent were girls, and about equal percentages were in Grades 10, 11, and 12 at Wave 4.

To gauge the possible biasing effect of sample loss from the original Wave 1 participant sample, we compared the 1,638 participants who had complete Wave 4 data with the 625 participants lost to attrition after Wave 1 ($n = 575$) or to missing data ($n = 50$) on the Wave 1 measures of the variables used in these analyses: a measure of disadvantage, a risk factors scale, a protective factors scale, and the composite success criterion. The participants lost to attrition or missing data were

characterized, as expected, by greater disadvantage and risk and by lower protection and success (all comparisons significant at $p \leq .001$). The magnitude of the differences ranged from 0.3 to 0.5 *SD*. Despite these mean differences, however, the intercorrelations among the measures were very similar for the participants and those lost to attrition or missing data. A test of the similarity of the covariance matrices of the two groups against a model that equated the covariances for each measure (following a procedure suggested by Hayduk, 1987, p. 168; see also Jöreskog & Sörbom, 1989, pp. 227–229) yielded a goodness-of-fit index of .99 and a nonsignificant chi-square ($df = 6$) of 7.3, indicating a very good fit. Therefore, relations among the measures would have been about the same if no cases had been lost to attrition or missing data. Consequently, the results reported in the following are not likely to have been biased by sample loss after Wave 1.

Measurement of Disadvantage

In accord with conventional practice, we constructed the measure of socioeconomic disadvantage to reflect parental education, parental occupation, and family structure. (Measures of income or of economic hardship were not available to us.) Six components were assessed: low levels of father's and mother's education (less than high school diploma), low status of father's and mother's job (Hollingshead code of 3 or less—menial or semiskilled labor), nonintact family (absence of one or both of the adolescent's biological parents in the home), and single-parent family (no second parent or stepparent in the home). For each participant, each of the six indicators was scored 1 if it applied and 0 if it did not. Missing data on parents' education or occupation were replaced with the sample mean; there were no missing data on the two family composition measures. Those scores were summed to form a disadvantage index with a possible range of 0 through 6; the mean, median, and mode were 2. Thirty percent ($n = 492$) of this Wave 4 sample had disadvantage scores at the mean value, 36% ($n = 596$) of the sample had disadvantage scores below the mean, and 34% ($n = 550$) had scores above the mean. The latter percentage varied by sex (29% of boys, $n = 202$; 37% of girls, $n = 348$) and by ethnic group (15% of Whites, $n = 88$; 34% of Blacks, $n = 127$; 51% of Hispanics, $n = 335$) but did not differ by grade cohort. Twenty-four participants (1.5% of the sample) had the maximum of six indicators of disadvantage. Another 65 participants (4% of the sample) had a disadvantage score of 5. About 10% of the sample had a disadvantage score of 4, and 18% scored just above the mean with 3 of the possible 6 points.

Although participants in this study represent the full range of disadvantage scores, our theoretical and analytic focus is on the most disadvantaged members of the sample. Therefore, it was necessary for us to transform the disadvantage scores to permit us to focus on that part of the distribution. Regression analyses generally yield equations that apply to the average member of a sample. However, when there is a possibility of an interaction between two predictors, it becomes critically important to specify where the zero point is on those two measures because the regression

weight for either one of those measures represents its relation to the criterion only for cases in which the other measure has a score of 0 (Judd & McClelland, 1989; West, Aiken, & Krull, 1996). Any measure that may interact with another should be scaled to make the zero point meaningful. Because our primary interest is in the relation of risk and protection to successful outcomes among disadvantaged youth, we set the highest disadvantage score to 0 by subtracting 6 (the highest possible value) from each score. (For examples of similar transformations, see Judd & McClelland, 1989, pp. 247–261; and West et al., 1996.) In the analyses that we report, the regression weights, therefore, describe relations of risk and protection to outcomes among the most disadvantaged participants. Those relations would be significantly different at other levels of disadvantage if and only if there is a significant interaction between disadvantage and risk or protection. If there is no significant interaction between disadvantage and risk or protection, the same regression weights would apply to participants at all levels of disadvantage.

An alternative strategy would have been to carry out the regressions within a disadvantaged subsample. That strategy, however, entails a severe reduction in sample size, a consequent loss of statistical power, less stable regression weights with larger standard errors, and a greater probability of Type II errors. The strategy we have selected overcomes these limitations, and it allows us not only to maintain the analytic focus on the disadvantaged adolescents in the sample but also to assess the applicability of the regression model across the full range of disadvantage represented in the sample.

Measurement of Successful Outcomes

Outcomes in two major areas of adolescent life were assessed as criteria of success: attachment to and progress in the conventional institution of school, and behavioral compliance with conventional social norms about transgression. For the first criterion, School Engagement, standardized scores were summed for (a) attitude toward school (an 8-item scale, e.g., "Staying in school is important for my future," $\alpha = .83$); (b) propensity for dropping out of school (a 5-item scale assessing having thought or talked seriously about dropping out and having actually stopped attending school at some time in the past, $\alpha = .84$)[1]; and (c) self-reported usual grades (a 1-item scale).[2]

[1] By Wave 4, 74 participants in this sample (5%) had already dropped out of school and were contacted by mail to complete the study. The questionnaire item for usual grades asked those no longer in school what kind of grades they got while they were in school. More of the Hispanic participants (7%) dropped out than the White or Black participants (3%, $p < .01$). This was true within each sex. Forty-seven of the dropouts were girls and 27 were boys; this is not significantly different from the sex distribution in the rest of the sample. Among the 47 female dropouts, 30 had been pregnant; this is more than twice the pregnancy rate of the rest of the female participants ($p < .001$). For neither sex did the dropouts differ from the other participants in percentage who held a job. The dropouts averaged lower than the others on usual grades and attitude toward school, and, of course, much higher on the dropout propensity score (all significant at $p < .001$).

[2] Although grade point average from school records was available for nearly all participants at Wave 1, it was missing for several hundred participants at Wave 4. The correlation between self-reported grades and school record grades in Wave 1 is .73.

Success with respect to school engagement is reflected by a more positive attitude toward school, lower propensity for dropping out, and higher grades. For the second criterion, Low Problem Behavior Involvement, standardized scores were summed for three types of self-reported problem behavior in the previous 6 months: (a) problem drinking (number of times drunk and number of occurrences of negative consequences from drinking, $\alpha = .60$), (b) number of instances of use of marijuana and other illicit drugs (an 8-item scale, $\alpha = .67$), and (c) delinquent-type behavior (e.g., theft and physical aggression, a 10-item scale, $a = .82$).

Each participant's summative scores for School Engagement and for Low Problem Behavior Involvement were then summed (reversing the sign on Low Problem Behavior Involvement) to form the joint criterion measure of success, Making It. Scores on the composite ranged from −22.0 to 5.9, with a mean of 0 and a standard deviation of 3.8. All analyses were carried out with the composite criterion as well as with each of its two components.

Girls evidenced greater success than boys on the composite measure of Making It and on each of its two components—they showed greater School Engagement and lower Problem Behavior Involvement. On the average, girls reported usual grades of Bs, whereas boys reported usual grades of Bs and Cs, $t(1633) = 4.2$, $p < .001$. There was no gender difference in attitude toward school or in dropout propensity. On the Low Problem Behavior Involvement measure, boys reported greater involvement in delinquent-type behavior, $t(1271) = 7.2$, $p < .001$; and in problem drinking, $t(1265) = 3.8$, $p < .001$. There was no sex difference in the frequency of use of illicit drugs.

With regard to mean scores on Making It for the White, Black, and Hispanic groups, the Hispanic mean was the lowest, $F(2, 1653) = 9.5$, $p < .001$. Significant ethnic group differences were also found for School Engagement, with White youth more "successful" than Black and Hispanic youth, $F(2, 1653) = 14.6$, $p < .001$; and for Low Problem Behavior Involvement, with Hispanic youth less successful than Black youth, $F(2, 1653) = 4.8$, $p < .01$. White youth had higher grades than Black and Hispanic youth, $F(2, 1632) = 44.3$, $p < .001$. Hispanic youth had more positive attitudes toward school than White youth, $F(2, 1644) = 3.5$, $p < .05$, but also had greater propensity for dropping out than White and Black youth, $F(2, 1647) = 21.5$, $p < .001$. Among the Low Problem Behavior Involvement measures, Black youth reported the lowest level of problem drinking, $F(2, 1502) = 10.5$, $p < .001$, and Hispanic youth reported the greatest frequency of use of illicit drugs, $F(2, 1630) = 7.5$, $p < .001$.

Disadvantage, as expected, is modestly related to successful outcomes: rs = −.20 with Making It, −.24 with School Engagement, and .09 with Problem Behavior Involvement (all significant at $p < 001$).

Measurement of Risk and Protection

Measures of risk Five risk factors were measured. Expectations for Success is an eight-item scale that assesses anticipated outcomes in various nonacademic life areas such as family life, career, and friendships ($\alpha = .92$). Low expectation of

achieving valued life goals constitutes risk because it can instigate detachment from school and serve to pressure a young person toward illegitimate means, such as crime or substance use, to achieve these goals. Self-Esteem is a six-item scale that measures beliefs about one's abilities and attributes in different domains, including social competence, academic skills, and attractiveness (α = .66). Low self-esteem constitutes risk because it may hamper academic effort and lead to disengagement from other school activities and because taking part in drug use and other problem behaviors may be a way to cope with negative feelings that accompany low self-confidence and a poor self-image. Hopelessness is a summative index of the standardized scores on a four-item depression scale (α = .85) and a four-item alienation scale (α = .67). The measure assesses feelings of depression, social alienation, anxiety, and hopelessness. Feelings of isolation and disengagement from societal norms constitute risk because social controls against norm-violative behaviors are attenuated and commitment to conventional institutions and goals is weakened. Orientation to Friends is a two-component index consisting of standardized scores on a three-item scale that measures perceived compatibility or agreement between parents and friends (α = .71) and a four-item scale that assesses the relative influence of parents and friends on the adolescent's outlook and behavior (α = .69). Greater orientation to friends constitutes risk because it represents moving away from the influence of parents' controls against nonnormative behaviors and parents' models for conventional values and activities. Greater orientation to friends implies greater exposure to peer norms that differ from parents' norms. Friends as Models for Problem Behavior is a four-item scale that measures perceived models among friends for cigarette smoking, alcohol use, marijuana use, and sexual intercourse (α = .75). Exposure to friends who model problem behaviors constitutes risk because models provide opportunities to learn how to engage in the behaviors, provide support for engaging in the behaviors, and indicate that the behaviors are characteristic of the social group in which the adolescent is included. Overall, then, risk is indicated by measures from the personality and perceived environment systems: low expectations for success, low self-esteem, high hopelessness, high orientation to friends relative to parents, and more friends who model problem behavior.

Measures of protection Seven protective factors were measured. Attitudinal Intolerance of Deviance is a 10-item scale that assesses the perceived "wrongness" of various delinquent-type behaviors, including theft, property damage, and physical aggression (α = .90). Intolerance of deviance constitutes protection because it reflects support of conventional values and disapproval of behaviors that violate social norms, and it serves as a personal control against taking part in such activities. Positive Orientation to Health was measured by a two-component index based on the standardized score on a 7-item measure of personal value on health (α = .67) added to the standardized score on a 10-item scale of the perceived health consequences of various behaviors, including tobacco use and eating junk food (α = .76). A positive orientation toward health constitutes protection because it serves as a control against engaging in behaviors that are damaging to or incompatible with health, such as drug use, and it reflects a commitment to values and outlooks that are

supported by conventional adult society. Religiosity is a 4-item scale that assesses the importance to the respondent of religious teachings and beliefs (α = .89). Religiosity constitutes protection because it reflects a commitment to conventional values and serves as a control against participation in norm-violative activities. Positive Relations With Adults was measured by a 4-item scale assessing the respondent's relationships with parents and other adults, including the extent to which parents show interest in the respondent and whether the respondent can discuss personal problems with an adult (α = .72). More positive relations with adults constitutes protection because adults generally model and provide support for conventional behavior and provide sanctions against behavior that violates social norms. Perceived Social Controls is a two-component index based on the standardized score on a 7-item scale of family rules added to the score on a single item about expected sanctions from friends for involvement in deviant behavior (α = .57). Perception of greater social controls constitutes protection because it indicates that certain types of behavior are unacceptable to others, and it decreases the likelihood that the adolescent will take part in such behaviors. Friends as Models for Conventional Behavior is a 4-item scale that assesses the proportion of friends who take part in conventional activities, such as school clubs and church groups (α = .75). This measure constitutes protection because it reflects greater involvement with conventional peers and more time spent in conventional activities. Finally, Prosocial Activities is a 2-item index of family activities and volunteer activities (α = .20). Higher involvement in prosocial activities constitutes protection because these activities preempt time to become involved in problem behaviors, and they promote outlooks and social networks that support conventional goals and values.[3] Overall, then, protection is indicated by measures from the personality, perceived environment, and behavior systems: high intolerance of deviance, positive orientation to health, high religiosity, positive relations with adults, high perceived social controls, more friends who model conventional behavior, and greater involvement in prosocial behavior.

A Risk Factors Scale and a Protective Factors Scale were formed by summing scores that were standardized on the entire sample for the five risk factors and the seven protective factors, respectively.[4] Risk Factors Scale scores ranged from −8.4

[3] Two of the risk factors (Low School Grades and Dropout Propensity) and one protective factor (Positive Orientation to School) used in earlier work (Jessor et al. 1995) were not included in this study because they overlapped with the School Engagement criterion employed here. The use of a measure as a risk factor in one study and as an outcome measure in another depends on the purpose of the study. For example, involvement in a particular problem behavior (e g., illicit drug use) may be an outcome measure of key interest in one study, but it may also constitute a risk factor for involvement in other problem behaviors (e.g., delinquency, problem drinking, or school dropout) in another study.

[4] Parallel analyses were run using risk and protection indexes formed by counting the number of risk and protective factors that obtain for each participant. (For such an approach, see Brook, Whiteman, Cohen, & Tanaka, 1992; Bry 1983; Jessor et al., 1995; Sameroff, Seifer, Baldwin, & Baldwin, 1993; Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987). These indexes, as would be expected, have slightly smaller bivariate correlations with the criterion measures than do the scales, and they account for less variance in the multivariate analyses. The overall pattern of rela-

to 13.6, with a mean of 0 and standard deviation of 3.2. Protective Factors Scale scores ranged from −17.7 to 12.2, with a mean of 0 and standard deviation of 4.0. The correlation between the Risk Factors Scale and the Protective Factors Scale is −.56; they share less than a third of their variance. The correlation of each of these scales with disadvantage is .20 and −.08 for risk and protection, respectively. The correlations of the separate risk and protective factors with disadvantage range from .04 to .20 in absolute magnitude. Girls reported greater risk, $t(1654) = 2.8$, $p < .01$, and greater protection, $t(1654) = 8.4$, $p < .001$, than boys. Among the three ethnic groups, Hispanic participants reported the highest risk, $F(2, 1653) = 10.1$, $p < .001$, and Black participants reported the highest protection, $F(2, 1653) = 9.8$, $p < .001$.

As elaborated elsewhere (Jessor et al., 1995), risk and protection are considered conceptually orthogonal. Although risk and protective factors are typically negatively related, this relation is not conceptualized as a logical necessity. Rather, the inverse correlation between risk and protection probably reflects the vicissitudes of personal experience and the organization of the social ecology. That is, in contexts in which protection is high, risk is typically low, and vice versa. Despite the negative correlation between risk and protective factors, their common variance is limited, and they also relate differently to other variables. For example, in earlier work (Jessor et al.), we were able to show that Friends as Models for Problem Behavior (a risk factor) and Friends as Models for Conventional Behavior (a protective factor) were only modestly correlated (−.20), that both measures were significant predictors of (i.e., contributed unique variance to) problem behavior in the final regression models, and that the two measures have notably different correlations with other measures (e.g., −.11 and .32 with Prosocial Activities for the two respective measures). There is, then, both a conceptual and an empirical basis for considering risk and protection as different domains of influence rather than as opposite ends of the same dimension.

The analytic procedure used to assess the role of risk and protection in successful adolescent outcomes is hierarchical multiple regression, with all risk and protection measures centered. That procedure lends itself to testing for a moderator effect of protection on the relation of risk with successful adolescent outcomes. Including a Risk by Protection interaction term at a later step in the regression, and examining whether that product adds predictability to the additive model, is the accepted way to demonstrate a moderator effect (Baron & Kenny, 1986; Cohen & Cohen, 1983; Saunders, 1956). Hierarchical multiple regression also permits instituting the necessary controls in earlier steps, prior to the main theoretical measures being entered.

Results

Presentation of results is organized into three parts. First, we examine the cross-sectional relations of the Risk Factors Scale and the Protective Factors Scale to the three criterion measures of success in adolescence, controlling for demographic

tions, however, is essentially the same as with the scale scores.

characteristics and disadvantage; we also examine whether protection moderates the relation between risk and the three success criteria. Second, we "unpack" the Risk Factors Scale and Protective Factors Scale to assess which particular risk and protective factors are most associated with the success criteria. Third, we carry out prospective analyses of success relying on antecedent measures of risk and protective factors and examine the predictability of the success criteria over time and development.

Cross-Sectional Analyses of the Relations of Risk and Protection to the Criterion Measures of Success

The composite criterion measure, Making It, was regressed against the Risk Factors Scale and the Protective Factors Scale in a set of hierarchical regressions. Results are shown in the top section of Table 3.1. Both risk and protection accounted for significant variation in Making It, with demographic attributes and disadvantage controlled. In addition, protection did indeed moderate the relation between risk and Making It. The significant Risk by Protection interaction indicates that risk was less strongly related to success under conditions of high protection than it was when protection is low.

The bivariate correlations in Table 3.1 show that sex and ethnicity were significantly correlated with Making It (greater success for girls, for White vs. non-White adolescents, and for Black vs. Hispanic adolescents). That set of demographic covariates, entered at Step 1, accounted for a small but significant proportion of variance (2.8%, as shown in the column for ΔR^2). The disadvantage measure was also significantly related to Making It ($r = -.20$); it was controlled at Step 2, where its entry accounted for an additional significant proportion of variance (3.5%). The Risk Factors Scale ($r = -.59$) was entered at Step 3, where it accounted for substantial additional variance in Making It (31.6%). A nontrivial account of variation in Making It in adolescence can, as expected, be provided by variation in risk.

The Protective Factors Scale, entered at Step 4, was positively correlated with Making It ($r = .55$), and it accounted for a significant increment of variance (5.4%) over and above all the measures entered at the previous steps. The Risk by Protection interaction term, entered at Step 5, added yet another significant increment in variance accounted for (1.6%). Protection thus moderated the risk-Making It relation, and the positive regression weight for the interaction term means that the relation between risk and Making It was significantly stronger at low levels of protection than at higher levels.[5] The total amount of variance in Making It accounted for by all of the predictors and their interactions was substantial ($R^2 = .45$).

[5] The slope for the regression of the success criterion measure on risk at any given level of protection is $B_R + (B_{r\,by\,p}$ by Protection), where B_r is the regression weight for risk and $B_{r\,by\,p}$ is the weight for the interaction term. Because B_r is negative and $B_{r\,by\,p}$ is positive, the regression slope for risk increases toward 0 as protection increases.

Table 3.1 Hierarchical regression of success criteria on the summative scales of risk factors and protective factors

Criterion	Step	Measures entered	*r*	*B*[a]	Δ R^2
Making it	1	Sociodemographic controls			.028***
		Sex	.12***	.369***	
		White or non-White	.08***	.375*	
		Hispanic or Black	−.08***	−.074	
		Grade in school	.04	.134	
	2	Disadvantage	−.20***	−.218***	.035***
	3	Risk factors scale	−.59***	−.554***	.316***
	4	Protective factors scale	.55***	.282***	.054***
	5	Risk × protection interaction	.17***	.029***	.016***
	6	Sociodemographic interactions			.006***
		Protection × sex	−.01	−.052**	
		Risk × grade in school	−.41***	.078**	
		Total R^2			.45***
School engagement	1	Sociodemographic controls			.025***
		Sex	.06*	.151***	
		White or non-White	.12***	.302**	
		Hispanic or Black	−.07**	.041	
		Grade in school	.06*	.111*	
	2	Disadvantage	−.24***	−.189***	.047***
	3	Risk factors scale	−.58***	−.309*'*	.292***
	4	Protective factors scale	.45***	.105***	.021***
	5	Risk × protection interaction	.11***	.009***	.004***
		Total R^2			.39***
Problem behavior involvement	1	Sociodemographic controls			.024***
		Sex	−.14***	−.213***	
		White or non-White	−.01	−.070	
		Hispanic or Black	.08**	.107	
		Grade in school	−.01	−.004	
	2	Disadvantage	.09***	−.027	.010***
	3	Risk factors scale	.41***	.234***	.160***
	4	Protective factors scale	−.46***	−.122**	.058***
	5	Risk × protection interaction	−.18***	−.048***	.022***
	6	Disadvantage interactions			.005*
		Disadvantage × risk × protection	.10***	−.006**	
		Disadvantage × risk[b]	−.36***	.018	
		Disadvantage × protection[b]	.42***	.013	
		Total R^2			.28***

Note N = 1,656. Data are from Wave 4 (1992). Disadvantage interactions were tested for significance at $p < .0167$. Sociodemographic interactions were tested for significance at $p < .00417$
*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

[a]Final step. Unstandardized regression coefficients. Standardized coefficients are inappropriate with interaction terms (see Aiken & West 1991, pp. 40–47)

[b]Although this measure is not significant at $p < .0167$, it is included in the analysis to yield the correct coefficient for the third-order interaction term (see Judd & McClelland 1989. p. 278)

The possibility that relations among the measures may differ at different levels of disadvantage was examined at Step 6 by testing for any interaction between disadvantage and risk, protection, or their interaction. A Bonferroni adjustment (p = .05/3 = .0167) was used to keep the overall alpha level less than .05 for testing these three interactions. As explained in the Method section, we set the highest level of disadvantage to a score of 0 so that if there is a disadvantage interaction, the regression weights would describe the best-fit regression model for the most disadvantaged participants. Because there was no significant interaction with disadvantage, it follows that this model describes relations between risk and protection and Making It at all levels of disadvantage represented in the sample, not just for the most disadvantaged.

As a final step in the regression analysis, the generalizability of the model across the sexes, ethnic groups, and grade cohorts was examined by testing for interactions between the demographic grouping variables on the one hand and risk, protection, and their interaction on the other. To control the overall probability of a Type I error, these 12 interactions were tested with a Bonferroni adjustment to the alpha level (p = .05/12 = .00417). Two significant interactions show that the model differs somewhat between sexes and among grade cohorts. Protection was strongly related to Making It for girls but even more so for boys. Risk was most strongly related to Making It for the youngest cohort, but still very strong for the oldest cohort.[6]

The interaction between risk and protection, holding disadvantage constant at its highest value, and holding each of the other demographic controls constant at its mean, is illustrated in Fig. 3.1. The two regression lines plotted in the graph show the predicted relation between risk and Making It at two levels of protection: high and low (the means of the Protective Factors Scale scores within the upper third and the lower third of the distribution, 4.4 and −4.4, respectively, which are at the 86th and 13th percentiles). The negative slopes of the two lines illustrate the inverse relation between risk and Making It. The line for the low protection level is steeper because risk was more strongly related to Making It when protection was lower. At the high protection level, the slope of the regression line is shallower, indicating that risk was less strongly related to Making It, although the inverse relation was still significant ($p < .001$). The vertical distance between the two lines at any level of risk shows the positive relation between protection and Making It. That relation was strongest where the distance was greatest, at the highest level of risk. Clearly, the combination of low protection and high risk is most detrimental to Making It. Because disadvantage does not interact significantly with risk, protection, or their

[6] With alpha reduced by the Bonferroni adjustment, statistical power to detect a just-significant interaction was low (about .5), and the probability of a Type II error was about 50% (1 to .5). Therefore, we also tested all potential interaction terms with alpha set at .05 to allow more power. In those analyses, the Protection by Sex and Risk by Grade interactions found earlier for Making It were also significant for School Engagement, and the Risk by Grade interaction was also significant for Low Problem Behavior Involvement. In addition, a Risk by Hispanic or Black interaction showed that risk was most strongly related to School Engagement among the Hispanic participants, though quite strong for all three ethnic groups. These interactions show that the strength of the relations may differ across groups, but these measures of risk and protection are indeed relevant to successful outcomes for all sociodemographic groups represented in the sample.

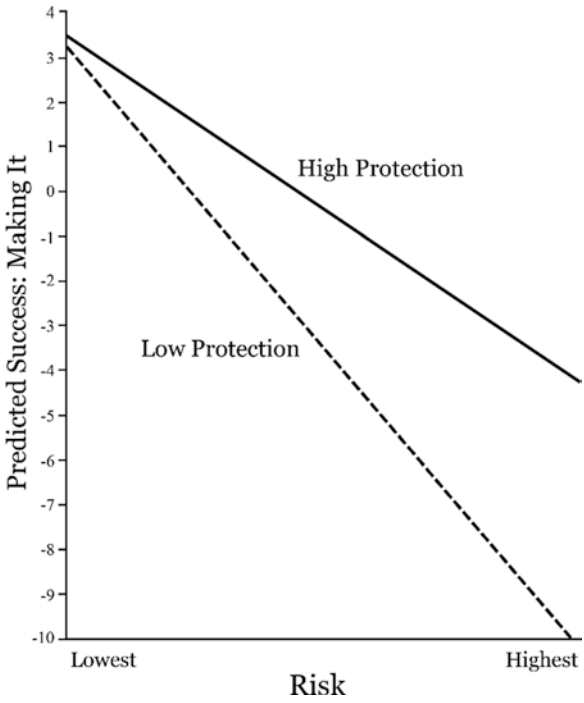

Fig. 3.1 The interaction of risk and protection in the prediction of making it

interaction, a graph of these relations at any lower level of disadvantage, not just the highest, would look the same (except displaced upward along the ordinate because disadvantage is inversely related to success).

The two components of the Making It criterion were examined separately in the same way. The bivariate correlations between each predictor measure and School Engagement and Problem Behavior Involvement, respectively, are shown in the middle and lower parts of Table 3.1. They were similar in magnitude to the correlations between those predictors and Making It, the composite criterion, with only a few differences. The sex difference in success (girls more successful) was a little stronger ($p < .01$) for Problem Behavior Involvement ($r = -.14$) than for School Engagement ($r = .06$). Also, the Risk Factors Scale was less strongly correlated ($p < .001$) with Problem Behavior Involvement (.41) than it was with School Engagement (−.58).

With controls for the demographic measures and for disadvantage, the Risk Factors Scale accounted for an additional 29.2% of the variance in School Engagement, and, at the next step, the Protective Factors Scale accounted for an additional 2.1% of variance in School Engagement. The significant Risk by Protection interaction again showed that risk was less strongly related to success at high levels of protection. Although significant, this interaction was not as strong as in the analysis of Making It. Figure 3.2 illustrates the interaction of risk and protection in the prediction of School Engagement, holding demographic characteristics

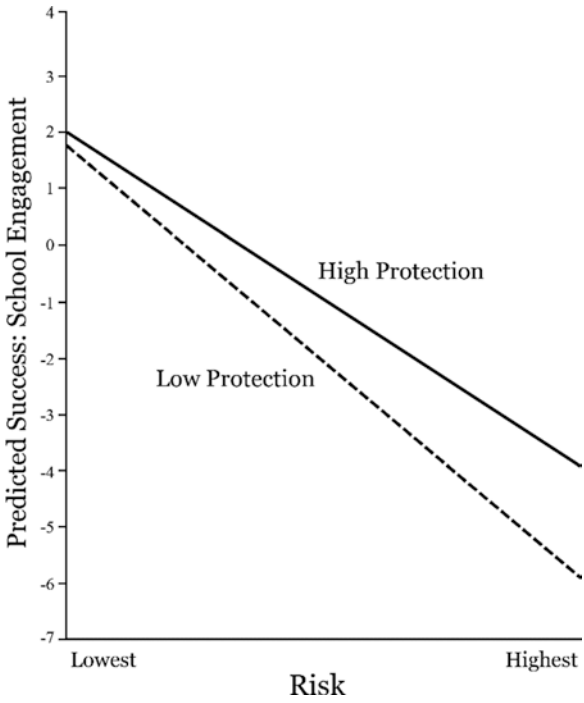

Fig. 3.2 The interaction of risk and protection in the prediction of school engagement

and disadvantage constant. As can be seen, the slopes of the regression lines do not differ from each other as much as they do in Fig. 3.1.

In the analysis of School Engagement, there was no significant disadvantage interaction, and there were no differences in the regression model across demographic groups. The final model for School Engagement yielded a total R^2 of .39.

In the analysis of the Low Problem Behavior Involvement criterion, the other component of Making It, the Risk Factors Scale accounted for 16% of the criterion variance after controlling for the demographic and disadvantage measures; this compares to the 29% it accounted for in School Engagement. The Protective Factors Scale, entered at Step 4, accounted for an additional 5.8% of variance in Low Problem Behavior Involvement, compared to the 2.1% it accounted for in School Engagement. At Step 5, the Risk by Protection interaction was again significant, accounting for an additional 2.2% of variance. The moderator effect of protection, as illustrated in Fig. 3.3, was strong enough to make the relation between risk and Low Problem Behavior Involvement disappear when protection was high. The slope of Low Problem Behavior Involvement on risk was not significantly different from 0 ($p > .05$) for approximately the upper quartile of Protective Factors Scale scores. That is, for participants with the most protection, greater risk was not associated with greater problem behavior.

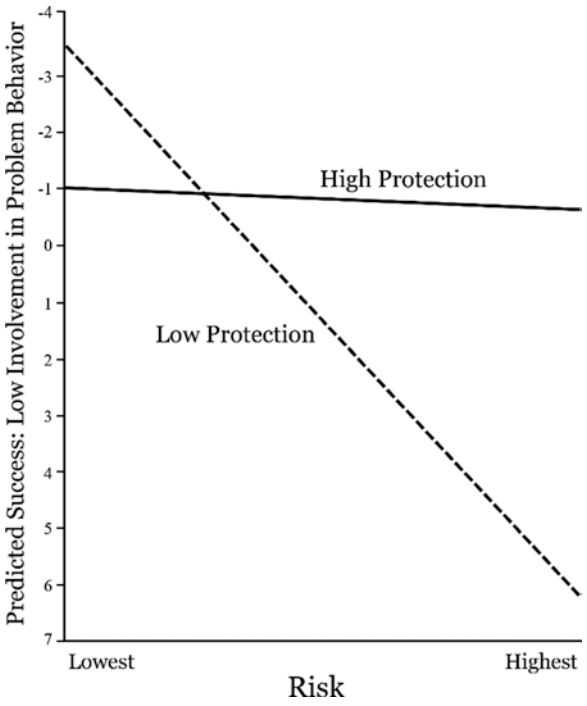

Fig. 3.3 The interaction of risk and protection in the prediction of involvement in problem behavior (Scale direction on the ordinate was reversed to put greater success toward the top of the axis, consistent with Figs. 3.1 and 3.2)

There was a significant Disadvantage by Risk by Protection interaction, entered at Step 6, that indicated that the strength of the Risk by Protection interaction depends on the level of disadvantage. Because the disadvantage measure was rescaled to set the highest score to 0, the coefficient in Table 3.1 for the Risk by Protection interaction (−.048) represents the strength of that interaction at the highest level of disadvantage. The coefficient for the three-way interaction term indicates how much the coefficient for the Risk by Protection interaction changes across different levels of disadvantage. The negative coefficient for the three-way interaction reveals that the Risk by Protection interaction was strongest at the highest level of disadvantage, weaker at lower levels, and nonsignificant at the lowest level of disadvantage. That is, for participants with none of the disadvantage indicators, protection did not moderate the relation between risk and Problem Behavior Involvement. Testing for differences in the regression model across demographic groups, we again found no significant interactions. The final model for Low Problem Behavior Involvement yielded a total R^2 of .28, considerably less than the R^2 for Making It (.45) or for School Engagement (.39).

In each of the three preceding analyses, the variance in the success criterion accounted for by protection in Step 4 (2–6%), after controlling for risk in Step 3, was much smaller than the variance accounted for by risk (16–32%), after controlling only for demographic attributes and disadvantage. However, because risk and protection were correlated ($r = -.56$), variance that could potentially be accounted

for by protection overlapped with the variance already accounted for in Step 3 by risk. Supplemental regressions were run in which protection was entered at Step 3, and risk was then entered at Step 4. These analyses reveal that protection accounted for 26.7%, 18.8%, and 18.3% of the variance in Making It, School Engagement, and Low Problem Behavior Involvement, respectively. Risk accounted uniquely for 10.3% of the variance in Making It (vs. 5.4% uniquely accounted for by protection), 12.5% of the variance in School Engagement (vs. 2.1% uniquely accounted for by protection), and 3.4% of the variance in Low Problem Behavior Involvement (vs. 5.8% uniquely accounted for by protection). Thus, risk and protection accounted for relatively comparable proportions of variance, and both provided significant unique contributions in accounting for Making It, for School Engagement, and for Low Problem Behavior Involvement.

Unpacking the Risk and Protective Factors Summative Scale Scores

The summative Risk Factors and Protective Factors Scales were unpacked to examine the individual contributions of their components, the five risk and the seven protective factors, to success among disadvantaged youth. Because the differential contributions of the separate measures were clouded by intercorrelations among the predictors and by differences in the amount of measurement error in each measure, the results of these supplemental analyses should be interpreted tentatively. (These results, not tabled, are summarized here; tables are available from the authors.)

Each risk and protective factor was significantly correlated ($p < .001$), in the expected direction, with all three criterion measures of success: Making It, School Engagement, and Low Problem Behavior Involvement. In the analysis of Making It, four of the five risk factors could account for some unique variance: Low Expectations for Success, Low Self-Esteem, Hopelessness, and Friends as Models for Problem Behavior are significant predictors in the final model. Three protective Factors—Attitudinal Intolerance of Deviance, Positive Orientation to Health, and Friends as Models for Conventional Behavior—retained significant regression weights in the final equation. Significant Risk by Protection interactions ($\Delta R^2 = .025$, $p < .001$) showed that Orientation to Friends versus parents was a significant risk factor only at low levels of Attitudinal Intolerance of Deviance, and that the effect of Friends as Models for Problem Behavior was weaker at higher levels of Attitudinal Intolerance of Deviance and at higher levels of Friends as Models for Conventional Behavior.[7] A total of 55% of the variance in Making It was then

[7] To keep the experiment-wise alpha near .05, the 35 possible Risk by Protection interaction terms, the 14 possible disadvantage interactions, and the 70 possible demographic interactions were tested with alpha set at .001. Because there was no theoretical basis for a priori expectations about specific interactions, all of these possible interactions were examined at this step.

accounted for (as against 45% for the summative Risk Factors and Protective Factors Scales).

With respect to School Engagement, each of the five risk factors had a significant regression weight in the final model. Three of the seven protective factors were also significant: Attitudinal Intolerance of Deviance, Positive Orientation to Health, and Friends as Models for Conventional Behavior. Again, Friends as Models for Conventional Behavior was a significant moderator of Friends as Models for Problem Behavior ($\Delta R^2 = .008$, $p < .001$). The total variance accounted for in School Engagement was 44% (compared to 39% in Table 3.1).

In the final model for Low Problem Behavior Involvement, Friends as Models for Problem Behavior was the only significant risk factor, whereas Attitudinal Intolerance of Deviance, Positive Orientation to Health, and Friends as Models for Conventional Behavior were significant protective factors. As in the analysis of Making It, Attitudinal Intolerance of Deviance and Friends as Models for Conventional Behavior were significant moderators of Friends as Models for Problem Behavior ($\Delta R^2 = .033$, $p < .001$). Total variance accounted for was 47% (compared to 28% in Table 3.1).

Longitudinal Analyses of the Relations of Risk and Protection to Change in the Criterion Measures of Success

The same measures used in the preceding analyses were also assessed 1 year prior, in Wave 3 of the study. We were able, therefore, to carry out prospective analyses to assess the effects of antecedent risk and protection on subsequent development of successful outcomes. These analyses helped to illuminate the possible causal structure among the measures, and they may improve understanding of the processes underlying successful outcomes for adolescents who are at risk. In these analyses, we used the Wave 3 measures of risk and protection to predict the Wave 4 success criteria; reciprocal influences were partialled out by controlling for the Wave 3 success measures at Step 1 of a hierarchical multiple regression. Thus, we examined the predictability of change in successful outcomes over a 1-year interval, that is, the residual variance after Step 1. Results are presented in Table 3.2.

As expected, there was substantial stability in each criterion measure; the three correlations between Wave 3 and Wave 4 were between .64 and .71.[8] When this shared criterion variance was controlled by partialling out the Wave 3 criterion measure in Step 1 of the regression, the Wave 3 Risk Factors and Protective Factors Scales still provided a significant account (almost 2%, $p = .001$) of the approximately 50% of variance remaining to be explained in the Wave 4 criteria.

[8] There was also substantial stability of the Risk Factors and Protective Factors Scales; between Waves 3 and 4, their correlations were .72 and .71, respectively. Such stability of criterion and predictor measures makes the prediction of change more difficult.

Table 3.2 Hierarchical Regression of Change (Wave 3–Wave 4) in Success Criteria on the Wave 3 Summative Scales of Risk Factors and Protective Factors

Criterion	Step	Measures entered	*r*	B^a	Δ R^2
Making it	1	Wave 3 making it	.71***	.630***	.500***
	2	Sociodemographic controls			.007***
		Sex	.11***	.206**	
		White or non-White	.08**	.069	
		Hispanic or Black	−.09***	.001	
		Grade in school	.04	.277**	
	3	Disadvantage	−.20***	−.169***	.005***
	4	Risk factors scale	−.47***	−.042	.003***
	5	Protective factors scale	.45***	.075***	.004***
	6	Risk × protection interaction	.11***	−.007	.001
		Total R^2			.52***
School engagement	1	Wave 3 school engagement	.69***	.598***	.477***
	2	Sociodemographic controls			.005**
		Sex	.05*	.024	
		White or non-White	.12***	.100	
		Hispanic or Black	−.07**	−.028	
		Grade in school	.06*	.151**	
	3	Disadvantage	−.24***	−.124***	.007***
	4	Risk factors scale	−.46***	.033*	.004***
	5	Protective factors scale	.38***	.036**	.003**
	6	Risk × protection interaction	.11***	.001	.000
		Total R^2			.50***
Problem behavior involvement	1	Wave 3 problem behavior	.64***	.603***	.409***
		Involvement			
	2	Sociodemographic controls			.009***
		Sex	−.13***	−.190***	
		White or non-White	−.01	.017	
		Hispanic or Black	.08**	−.026	
		Grade in school	−.01	−.122*	
	3	Disadvantage	.09***	.048	.002*
	4	Risk factors scale	.33***	.025	.004***
	5	Protective factors scale	−.38***	−.045***	.004***
	6	Risk × protection interaction	−.08**	006**	.002**
		Total R^2			.43***

Note N = 1,524. Disadvantage interactions were tested for significance at $p < .0167$. Sociodemographic interactions were tested for significance at $p < .00417$

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$

[a]Final step. Unstandardized regression coefficients. Standardized coefficients are inappropriate with interaction terms (see Aiken & West 1991, pp. 40–47)

Again, sociodemographic effects were partialled out at Step 2 before entering the Wave 3 theoretical predictors. Disadvantage, entered at Step 3, accounted for a significant 0.5% of variance in Making It ($p \leq .001$), which is equivalent to 1% of the residual variance. Disadvantage accounted for 0.7% ($p \leq .001$) of variance in School Engagement and 0.2% ($p \leq .05$) in Low Problem Behavior Involvement. The Risk Factors Scale, entered at Step 4, accounted for a significant ($p \leq .001$) increment of 0.3% to 0.5% of variance in each criterion measure or about 1% of the variance in change in success. The Protective Factors Scale, entered at Step 5, added a similar increment for each criterion, 0.3% ($p \leq .01$) to 0.4% ($p \leq .001$). The Risk by Protection interaction was significant ($p < .05$) only for the Low Problem Behavior Involvement criterion. No disadvantage or demographic interaction was significant at the .0042 alpha level. For each criterion, the risk and protection measures accounted for 1.3% to 1.7% of the variance in change in success.

A similar longitudinal analysis was carried out for the longest interval possible with these data, again examining change in success, but over the 3-year span from Wave 1 to Wave 4 (not tabled; table is available from the authors). Although the predictor set could not be identical to that used in Wave 3 and Wave 4, it was very comparable.[9] The Wave 1 measure of each success criterion, entered at Step 1, accounted for only 10% to 17% of variance in the Wave 4 criterion measure. After controlling for demographic effects, disadvantage accounted for 2% of variance ($p < .001$) in Making It, for 4% of variance ($p < .001$) in School Engagement, and for 0.3% of variance ($p < .01$) in Low Problem Behavior Involvement. Then, in each case, a significant ($p < .001$) increment in variance was accounted for by the Risk Factors Scale (1–5%) and by the Protective Factors Scale (0.6–0.9%). For none of the three criteria was there a significant interaction between risk and protection. For Making It and for School Engagement the relation between protection and change in success was stronger for boys. Total variance accounted for was 25% for Making It, 22% for School Engagement, and 17% for Low Problem Behavior Involvement. Risk and protection accounted for 2.0% to 6.7% of the variance in change in success for the three criteria.

These longitudinal analyses provide support for the role of risk and protection in the development of successful outcomes over a 1-year and a 3-year interval. Despite the restriction on the amount of variance to be accounted for, the predictor scales of both risk and protection yielded significant accounts of change in the success criteria.

Discussion

The psychosocial risk and protection measures used in this study provide a significant account of variation in successful outcomes among adolescents growing up in disadvantaged life circumstances. For all three success criteria—remaining

[9] Because no measure of dropout propensity was obtained at Wave 1, a measure of value on academic achievement was substituted as a component of the School Engagement criterion measure. Further, because no measure of religiosity was assessed at Wave l, the Wave 1 Protective Factors Scale was computed without it.

connected to school, avoiding serious involvement in problem behavior, and their composite—it is again established that risk matters; also, and hitherto less well-established, protection matters. In addition, it is clear that, for all three criteria, protection moderates the relation between risk and success: that relation is more attenuated under high protection than under low protection. Those cross-sectional results were reinforced in developmental analyses as well, with both risk and protection providing significant accounts of change in success over time.

The findings indicate, too, that disadvantage matters. The measure of disadvantage was negatively correlated with School Engagement and with Making It and positively correlated with Problem Behavior Involvement, all highly significant. With sociodemographic characteristics controlled, the disadvantage measure accounted for a significant increment in variance in all three success criteria, contributing up to 5% of variance in successful outcomes. In addition, disadvantage remained a significant predictor in the final regression models for Making It and School Engagement. Thus, disadvantage, as measured in this study, clearly compromises the possibilities for adolescent success—more so for School Engagement than for Low Problem Behavior Involvement.

That said, however, it is important to point out that the role played by the theoretical measures of risk and protection was very much the same across all levels of disadvantage. It will be recalled that the highest level of the disadvantage score was set at 0 in the regression model to obtain coefficients that applied to the most disadvantaged adolescents in the sample. The absence of any significant interaction between disadvantage and either the Risk Factors Scale or the Protective Factors Scale means that the final model for each success criterion does hold across all levels of disadvantage. The moderator effect of protection on the risk-problem behavior relation was stronger at higher levels of disadvantage. These disadvantage findings are important for social policy and will be returned to later.

It was the theoretical variables measured by the Risk Factors Scale and the Protective Factors Scale that have the strongest relations with the criterion measures. The Risk Factors Scale accounted for 6 to 16 times as much variance as the demographic characteristics or the disadvantage score. Because the risk and protection scales were related, their relative contribution was, of course, affected by their order of entry in the regression. Supplementary regressions, reversing that order, revealed that the contribution of the Protective Factors Scale in accounting for variance in all three success criteria was fairly comparable to that of the Risk Factors Scale. The latter finding is especially noteworthy because so much of the attention to problem behavior and school disengagement has been focused on risk rather than on protection.

Although the Risk Factors Scale and the Protective Factors Scale enable a clear test of their independent contributions to variation in successful outcomes in adolescence and also permit the moderator effect of overall protection on the risk-success relation to be illustrated readily, they obscure the differential contribution of the separate risk and protection measures that are the components of the two scales. When the scales were unpacked, the key risk factors for making it were shown to be Low Expectations for Success, Low Self-Esteem, Hopelessness, and Friends as

Models for Problem Behavior. The key protective factors were shown to be Attitudinal Intolerance of Deviance, Positive Orientation to Health, and Friends as Models for Conventional Behavior. Intolerance of Deviance and Friends as Models for Conventional Behavior also served as moderators of a risk factor. Clearly, both person attributes and perceived contextual attributes are implicated as risk and protective influences on successful adolescent outcomes.

The demonstration that protection moderates the negative relation between risk and School Engagement and the positive relation between risk and Problem Behavior Involvement is an important contribution of the study. Although demonstrated previously for problem behavior (Jessor et al., 1995), and consistent with the recent work of others (Smith et al., 1995; Stattin, Romelsjö, & Stenbacka, 1997), it has not been shown before, to our knowledge, for school commitment and connectedness, nor for such a comprehensive success criterion as Making It. Although the magnitude of the unique variance added by the Risk by Protection interactions was small (from 0.4 to 3.3%), it was of the order generally found for interactions in field studies (see Chaplin, 1991; McClelland & Judd, 1993), and it was significant for all three success criteria and when using either the two summative scales or their separate component measures. Replication of significant Risk by Protection interactions has been emphasized as a desirable strategy in demonstrating reliable moderator effects of protection (Luthar, 1993). Although the interactions were consistent across multiple criteria and multiple predictor measures in this study, conviction about them will ultimately be strengthened by replication in other studies.

The Risk by Protection interaction is especially important from a theoretical perspective. It indicates that the impact of risk can be reduced in more than one way—directly, by lowering risk itself, but also indirectly, by providing high protection under exposure to risk. Together, these findings suggest that a fuller understanding of variation in adolescent outcomes—whether school-related or problem behavior-related—requires closer attention to the nature and function of protective factors than has hitherto been the case. They suggest, further, that efforts at intervention—to promote school connectedness and academic achievement and to reduce involvement in problem behavior—would benefit from a less univocal focus on risk reduction and a greater willingness to devote resources to enhancing protection.

With respect to Low Problem Behavior Involvement, the Risk by Protection interaction was strongest under high disadvantage, suggesting that high protection can be most beneficial for those who are more disadvantaged. According to these findings, intervention efforts to strengthen protection may well have their strongest impact on those who could benefit most—disadvantaged youth. Of additional relevance to social policy concerns, the findings also provide support for a public health strategy rather than a targeted approach to strengthening protective factors in the lives of youth. Because the effects of risk and protection hold across levels of disadvantage, community-wide intervention efforts would not only benefit most those who are most disadvantaged, as noted previously, but would also be of benefit to those more advantaged youth who are exposed to similar risks.

The prospective analyses of change in successful outcomes with time and development were illuminating, especially over the Wave 3 to Wave 4 interval, where the

Wave 3 longitudinal predictors were the same as the predictors used in the Wave 4 cross-sectional regressions. By controlling for the Wave 3 success criteria, the longitudinal regressions helped establish directionality of predictiveness, and, therefore, they strengthen conviction about antecedent influences on developmental outcomes. Despite the over-time stability of both predictors and criteria and, consequently, the limited amount of change, both risk and protection were shown to be significant influences on later success, and their interaction was also significant for subsequent change in problem behavior. The longitudinal and cross-sectional analyses converge on the same set of inferences and, together, make the findings more compelling.

Arguing for a directional relation between predictors and criteria in these analyses should not be interpreted as precluding their reciprocal influence over the course of development. Indeed, it makes both theoretical and common sense that achieving success on any of the criteria could become an influence on both the risk factors and the protective factors. Developmental studies assessing change in predictor and criterion measures could investigate this issue more directly.

The study is limited in the inferences that can be drawn. First, of course, the definition relied upon for denoting successful outcomes in adolescence is somewhat arbitrary. Nevertheless, it does capture two of the major developmental tasks of adolescent life: sustaining engagement with school and avoiding commitment to problem behaviors, such as problem drinking, illicit drug use, and delinquency. Success in this sense, although modest in terms of accomplishment, indicates that an adolescent is still on trajectory, and that is a definition of success that has relevance for the wide range of adolescents.

The operational definition of disadvantage used in the study can also be questioned. Clearly, it would have been preferable to have direct measures of family income or indirect measures such as participation in the school lunch program (see Pungello, Kupersmidt, Burchinal, & Patterson, 1996) as indicators of economic distress to include along with the others. Because such data were unavailable to us, we relied, instead, on the conventional indicators of parental education and occupation and family structure. Although useful, these measures reflect economic well-being only indirectly, and, in this study, they have the further limitation of being based on reports by the adolescent rather than by the parents. In the latter regard, it is reassuring that Felner et al. (1995) found over 90% concordance between parent and adolescent reports of parental occupational and educational level. That disadvantage as measured in this study nevertheless did relate as expected to successful outcomes in adolescence is also reassuring.

A limitation of the risk and protective factor measures is, of course, that they all relied on self-report, and common method variance could have been an influence on their relations. If additional risk and protective factors could have been engaged (e.g., IQ) or if risk and protection could have been directly measured in the various settings of adolescent life—measuring the dangers in a neighborhood, the availability of supportive teachers in school, the quality of parenting, access to a community resource center, the presence of a caring grandparent—it would certainly have strengthened our grasp on those constructs (see Elliott et al., 1998; Garmezy, 1985).

Despite these limitations, the measures used in the study accounted for substantial variance in adolescent success and were able to illustrate the theoretically important Risk by Protection interaction. Finally, the less-than-desirable initial participation of the sample drawn and the attrition of the starting sample over the subsequent 3 years can be seen as additional limitations, although the attrition analyses indicated that the final sample differed little from the original Wave 1 sample in relations among the variables.

Overall, the findings from this study begin to tell a story about how adolescents manage to make it despite the risk, the adversity, and the disadvantage that may have characterized their lives. A large part of that story, a part that is emerging more insistently in recent years, has to do with protection. The direct and the moderator effects of protection would seem to warrant further attention from researchers and interventionists alike.

Acknowledgments Work on this article was begun during Richard Jessor's tenure as a Fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University. 1995–1996. We thank the following for financial support awarded to Jessor during that period: the William T. Grant Foundation (950 30 128) and the John D. and Catherine T. MacArthur Foundation (8900078). Data for this study were collected under a grant award from the William T. Grant Foundation (88119488) to Richard Jessor. We are also indebted to the MacArthur Foundation Research Network on Successful Adolescent Development Among Youth in High-Risk Settings for their support to Richard Jessor.

We thank Gary H. McClelland and Jane Menken for their suggestions on earlier versions of this article.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182.

Brook, J. S., Whiteman, M., Cohen, P., & Tanaka, J. S. (1992). Childhood precursors of adolescent drug use: A longitudinal analysis. *Genetic Social and General Psychology Monographs, 118*(2), 197–213.

Bry, B. H. (1983). Predicting drug abuse: Review and reformulation. *International Journal of the Addictions, 18*(2), 223–233.

Chaplin, W. F. (1991). The next generation of moderator research in personality psychology. *Journal of Personality, 59*(2), 143–178.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: L. Erlbaum Associates.

Cook, T. D., Shagle, S. C., Phillips, M., Settersten, R. A., Degirmencioglu, S. M. (1998). *The many social contexts of early adolescence*. Manuscript in preparation.

Costa, F. M., Jessor, R., & Turbin, M. S. (1999). Transition into adolescent problem drinking: The role of psychosocial risk and protective factors. *Journal of Studies on Alcohol, 60*(4), 480–490.

Elliott, D. S., Menard, S., Rankin, B., Elliott, A. C., Wilson, W. J., & Huizinga, D. (1998). *Beating the odds: Successful youth development in high-risk neighborhoods*: Manuscript in preparation. [Later published as: Elliott, D. S., Menard, S., Rankin, B., Elliott, A., Wilson, W. J., &

Huizinga, D. (2006). *Good kids from bad neighborhoods: Successful development in social context*. New York: Cambridge University Press.]

Felix-Ortiz, M., & Newcomb, M. D. (1992). Risk and protective factors for drug use among Latino and white adolescents. *Hispanic Journal of Behavioral Sciences, 14*(3), 291–309.

Felner, R. D., Brand, S., DuBois, D. L., Adan, A. M., Mulhall, P. F., & Evans, E. G. (1995). Socioeconomic disadvantage, proximal environmental experiences, and socioemotional and academic adjustment in early adolescence: Investigation of a mediated effects model. *Child Development, 66*(3), 774–792.

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82*(2), 221–234.

Furstenberg, F. F., Jr., Cook, T. D., Eccles, J., Elder, G. H., Jr., & Sameroff, A. (1999). *Managing to make it: Urban families and adolescent success*. Chicago: University of Chicago Press.

Garmezy, N. (1985). Stress-resistant children: The search for protective factors. In J. E. Stevenson (Ed.), *Recent research in developmental psychopathology* (pp. 213–233). Oxford: Pergamon Press.

Havighurst, R. J. (1972). *Developmental tasks and education* (3rd ed.). New York: D. McKay Co..

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin, 112*(1), 64–105.

Hayduk, L. A. (1987). *Structural equation modeling with LISREL: Essentials and advances*. Baltimore: Johns Hopkins University Press.

Huston, A. C., Garcia Coll, C., & McLoyd, V. C. (Eds.). (1994). Children and poverty [special issue]. *Child Development, 65*(2), 275–718.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48*(2), 117–126.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic.

Jessor, R., Donovan, J. E., & Costa, F. M. (1991). *Beyond adolescence: Problem behavior and young adult development*. New York: Cambridge University Press.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental Psychology, 31*(6), 923–933.

Jöreskog, K. G., & Sörbom, D. (1989). *LISREL 7: A guide to the program and applications* (2nd ed.). Chicago: SPSS.

Judd, C. M., & McClelland, G. H. (1989). *Data analysis: A model-comparison approach*. San Diego, CA: Harcourt Brace Jovanovich.

Luthar, S. S. (1993). Annotation: Methodological and conceptual issues in research on childhood resilience. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 34*(4), 441–453.

McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin, 114*(2), 376–390.

Pungello, E. P., Kupersmidt, J. B., Burchinal, M. R., & Patterson, C. J. (1996). Environmental risk factors and children's achievement from middle childhood to early adolescence. *Developmental Psychology, 32*(4), 755–767.

Rutter, M. (1979). Protective factors in children's response to stress and disadvantage. In M. W. Kent & J. E. Rolf (Eds.), *Primary prevention of psychopathology* (Vol. 3). Hanover, NH: University Press of New England.

Sameroff, A. J., Seifer, R., Baldwin, A., & Baldwin, C. (1993). Stability of intelligence from preschool to adolescence: The influence of social and family risk factors. *Child Development, 64*(1), 80–97.

Sameroff, A. J., Seifer, R., Barocas, R., Zax, M., & Greenspan, S. (1987). Intelligence quotient scores of 4-year-old children: Social-environmental risk factors. *Pediatrics, 79*(3), 343–350.

Saunders, D. R. (1956). Moderator variables in prediction. *Educational and Psychological Measurement, 16*(2), 209–222.

Smith, C., Lizotte, A. J., Thornberry, T. P., & Krohn, M. D. (1995). Resilient youth: Identifying factors that prevent high-risk youth from engaging in delinquency and drug use. In J. Hagan (Ed.), *Delinquency and disrepute in the life course* (pp. 217–247). Greenwich, CT: JAI Press.

Stacy, A. W., Newcomb, M. D., & Bentler, P. M. (1992). Interactive and higher-order effects of social influences on drug use. *Journal of Health and Social Behavior, 33*(3), 226–241.

Stattin, H., Romelsjö, A., & Stenbacka, M. (1997). Personal resources as modifiers of the risk for future criminality: An analysis of protective factors in relation to 18-year-old boys. *British Journal of Criminology, 37*(2), 198–223.

Steinberg, L., & Avenevoli, S. (1998). Disengagement from school and problem behavior in adolescence: A developmental-contextual analysis of the influences of family and part-time work. In R. Jessor (Ed.), *New perspectives on adolescent risk behavior* (pp. 392–424). New York: Cambridge University Press.

Sum, A. M., & Fogg, W. N. (1991). The adolescent poor and the transition to early adulthood. In P. B. Edelman & J. A. Ladner (Eds.), *Adolescence and poverty: Challenge for the 1990s* (pp. 37–109). Washington, DC: Center for National Policy Press.

Taylor, R. L. (1991). Poverty and adolescent black males: The subculture of disengagement. In P. B. Edelman & J. A. Ladner (Eds.), *Adolescence and poverty: Challenge for the 1990s* (pp. 139–162). Washington, DC: Center for National Policy Press.

Werner, E. E. (1989a). Children of the garden island. *Scientific American, 260*(4), 106–111.

Werner, E. E. (1989b). High-risk children in young adulthood: A longitudinal study from birth to 32 years. *American Journal of Orthopsychiatry, 59*(1), 72–81.

West, S. G., Aiken, L. S., & Krull, J. L. (1996). Experimental personality designs: Analyzing categorical by continuous variable interactions. *Journal of Personality, 64*(1), 1–48.

Williams, T. M., & Kornblum, W. (1985). *Growing up poor*. Lexington, MA: Lexington Books.

Williams, T. M., & Kornblum, W. (1994). *The uptown kids: Struggle and hope in the projects*. New York: Putnam.

Wills, T. A., Vaccaro, D., & McNamara, G. (1992). The role of life events, family support, and competence in adolescent substance use: A test of vulnerability and protective factors. *American Journal of Community Psychology, 20*(3), 349–374.

Chapter 4
Social Context Protection and Risk in Adolescent Behavior and Development

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Concern with the context of human action—its content, structure, organization, and implications for behavior—has burgeoned in recent decades; and research designs in social and developmental psychology have increasingly sought to incorporate measures of the social environment along with individual difference measures. The current preoccupation with context was, of course, presaged long ago by Kurt Lewin (1951) and more recently by Urie Bronfenbrenner (1986), as well as by others. Cronbach (1982), for example, argued that "Understanding an adolescent's experience ... seems to require a community-wide ecological perspective" (p. 74) and that perspective has animated a wide array of contemporary studies (e.g., Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002; Beam, Gil-Rivas, Greenberger, & Chen, 2002; Cook, Herman, Phillips, & Settersten, 2002; Crosnoe, Erickson, & Dornbusch, 2002; Eccles, Early, Frasier, Belansky, & McCarthy, 1997; Elder & Conger, 2000; Elliott et al., 2006; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999; Herrenkohl et al., 2000; Novak & Clayton, 2001). Such studies have encompassed various domains of the social environment including the family, the peer group, the school, and the neighborhood; and they have investigated a wide range of adolescent experience including depression, academic achievement, delinquency, and substance use.

We report a cross-national study of adolescent samples in the United States and the People's Republic of China that employed a psychosocial theory of protective

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Costa, F. M., Jessor, R., Turbin, M. S., Dong, Q., Zhang, H., & Wang, C. (2005). The role of social contexts in adolescence: Context protection and context risk in the United States and China. *Applied Developmental Science, 9*(2), 67–85.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_4

factors and risk factors to articulate the content of four key social contexts of adolescent life—the family, the peer group, the school, and the neighborhood. The protection-risk conceptual framework used in this research emerges from a reformulation and extension of Problem Behavior Theory (Jessor, Donovan, & Costa, 1991; Jessor, Graves, Hanson, & Jessor, 1968; Jessor & Jessor, 1977), organizing the main constructs from that theory—personal controls, social controls, models for problem behavior, support, opportunity—into protective and risk factors. The reformulation retains the direct linkages of the constructs to behavior outcomes, but it adds a new focus on the moderating effect that protection can have on the impact of risk.

Three types of protection are specified by the reformulation of Problem Behavior Theory—models protection, controls protection, and support protection; and three types of risk are specified—models risk, opportunity risk, and vulnerability risk. Insofar as possible, multiple-item measures of each type of protection and risk were developed for each of four different social contexts and most of the measures also derive from Problem Behavior Theory. The primary aim of this study is to explore the account that protection and risk in four social contexts provides of variation in adolescent problem behavior.

Articulating protective and risk factors as the theoretical content of adolescent social contexts permits logical implications for variation in problem behavior to be drawn. The theoretical role of protective factors is to decrease the likelihood of engaging in problem behavior: Protective factors provide models for positive, prosocial behavior; informal and formal social controls against problem behavior; and a supportive environment to sustain prosocial commitment. The theoretical role of risk factors, by contrast, is to increase the likelihood of engaging in problem behavior: Risk factors provide models for problem behavior, greater opportunity to engage in it, and contextual vulnerability for its occurrence. Protective factors play an additional, indirect role as well; theoretically, they can moderate or buffer the impact of exposure to risk factors (see Costa, Jessor, & Turbin, 1999; Jessor, Turbin, & Costa, 1998a, 1998b; Jessor et al., 2003; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Rutter, 1987). Almost no attention has been given to demonstrating moderator effects of context protection on context risk, or of context protection on individual-level risk. Such demonstration would have significant implications for prevention policies and the design of intervention programs.

The generality of the contextual account is also explored in this chapter by testing it in an adolescent sample from another society, one very different from the United States in economic organization, institutional systems, and cultural traditions. Such distal or macrolevel societal differences likely shape differences at the more proximal level in protection and risk in the immediate social context. With regard to Chinese society, for example, it has long "been characterized by extensive informal social controls" (Liu & Messner, 2001, p. 18), and the regulatory role of family, school, and neighborhood on adolescent behavior is likely to be greater there than in the United States (Zhang & Messner, 1996). All the analyses reported in this chapter are replicated, therefore, in both the United States and China samples using the same measures in a cross-national study of adolescent behavior and development (see Jessor et al., 2003).

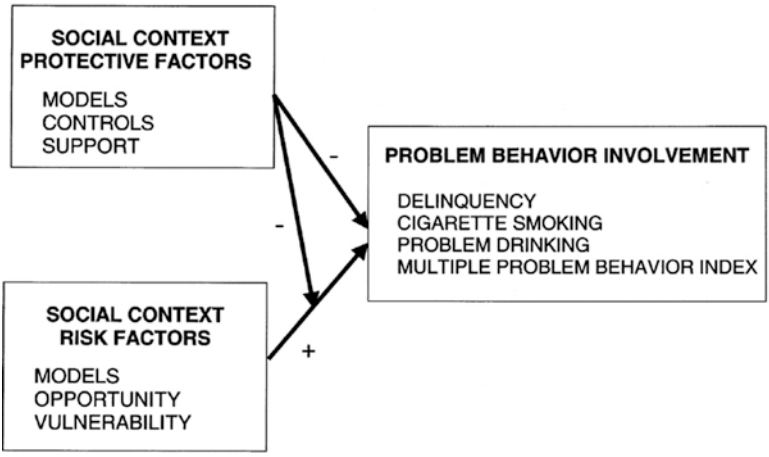

Fig. 4.1 The protection-risk model of social context and adolescent problem behavior involvement (Adapted from Jessor et al., 2003). The "+" and "−" signs indicate a positive or negative impact on involvement in problem behavior

With regard to the three types of context protection, models protection has to do with contextual models for positive, prosocial, or conventional behavior and it includes such measures as parental involvement in volunteer work and friends' participation in school clubs and community organizations. Controls protection has to do with regulation and sanctions for transgressions, and it includes measures of parent sanctions for misbehavior and disapproval from neighbors for problem behavior. Support protection has to do with expressed interest and support from others, and it includes measures of teacher interest in students and of family closeness. With regard to the three types of contextual risk, models risk has to do with social models for problem behaviors, and it includes such measures as friends' smoking and neighborhood models for drinking. Opportunity risk has to do with access to engaging in problem behavior and includes measures of the availability of cigarettes and alcohol in the home and of the prevalence and activity of gangs in the neighborhood. Vulnerability risk has to do with contextual aspects likely to instigate or promote problem behavior, and it includes measures of tension in the family and of stress at school. The theoretical model relating social context protection and risk to adolescent problem behavior involvement is shown in Fig. 4.1; it illustrates the direct effects of protection and risk on problem behavior, as well as the moderator effect that protective factors can have on exposure to risk.

A previous report from this cross-national study (Jessor et al., 2003) emphasized the overall account of problem behavior provided by composite indexes that summarized protective factors and risk factors across context and individual-level measures combined. This chapter has a different focus, and its objective is to explore the role of each of four social contexts in accounting for problem behavior when individual-level factors are controlled. It also seeks to demonstrate the moderating effect of protection in the social context on individual-level risk and the moderating effect of protection on risk both within and across social contexts. These latter objectives have rarely been addressed in the adolescent literature.

Social contextual measures related to those used in this research have been shown to be associated with adolescent problem behavior in various studies. For example, higher levels of informal social controls in the neighborhood context were associated with lower neighborhood rates of adolescent problem behavior including delinquency, drug use, and criminal activity in both Chicago and Denver (Elliott et al., 1996; Sampson, 1997). Research has also demonstrated that models for problem behaviors in the peer context are related to personal involvement in various problem behaviors (Guo, Hill, Hawkins, Catalano, & Abbott, 2002; Hops, Andrews, Duncan, Duncan, & Tildesley, 2000; Jessor & Jessor, 1977; Johnston, O'Malley, & Bachman, 2001; Kandel, 1985). Data from the large Add Health study of U.S. adolescents in Grades 7 through 12 demonstrated that "connectedness" (i.e., perceived support from and closeness to others in the family and school social contexts) is negatively associated with violent behavior, cigarette use, alcohol use, marijuana use, and the initiation of sexual intercourse at younger ages (Resnick et al., 1997). In the same study, greater access to substances (cigarettes, alcohol, illicit drugs) in the family context—opportunity risk in our terms—was associated with higher levels of use of cigarettes, alcohol, and marijuana. Greater social regulation or control in the three contexts of family, peer group, and school was associated with lower levels of delinquency and drug use among 7th-grade students (Eccles et al., 1997), and Barber and Olsen (1997) reported that lower levels of monitoring in the family context and higher levels of models for problem behavior in the peer context were associated with higher levels of delinquency among 8th graders (especially among girls). Work reported by Patterson and his colleagues (e.g., Patterson & Yoeger, 1997; Reid & Patterson, 1989) also indicated that poor parental monitoring is associated with the development of antisocial and delinquent behavior in childhood and adolescence.

Similar social contextual variables have also been shown to account for problem behavior involvement among adolescents in China. In a cross-national study of Chinese and U.S. junior high school students, measures of parental warmth and support, of parental monitoring, and of peer disapproval of misconduct were all significantly associated with lower involvement in adolescent problem behaviors such as theft, aggression, school misconduct, and substance use in both countries; and, on the other hand, stress in the family context was significantly related to higher problem behavior involvement in both countries (Chen, Greenberger, Lester, Dong, & Guo, 1998). Models for substance use, aggression, and theft in the family, peer, school, and neighborhood contexts were all positively associated with 11th-grade Chinese adolescents' overall level of involvement in those behaviors; in addition, parental sanctions and peer sanctions were negatively associated with adolescent problem behavior involvement in China (Greenberger, Chen, Beam, Whang, & Dong, 2000). Although models for aggression, gambling, and criminal activities in the peer and family contexts were predictive of greater involvement in delinquency in a sample of Chinese youth aged 15 through 18, models for deviant behavior in the neighborhood context were unrelated to delinquent behavior involvement (Zhang & Messner, 1996).

Only a few studies have investigated the interactive effects of social context variables (i.e., the potential moderating influence of social contextual protective factors on the impact of social contextual risk factors), and none of them included samples from outside the United States. Findings from these studies are mixed. In regard to protective processes for adolescent depression, Gore and Aseltine (1995) found that support in the family context and in the peer context buffered the impact of stress in that same context. There was, however, no evidence for moderating effects across those two contexts. Beam et al. (2002) reported a significant buffering effect of parental warmth, a protective factor, on family risk in accounting for adolescent depression. Theirs is the only study we could locate that found both significant within-context and cross-context moderating effects in accounting for adolescent problem behavior. For example, perceived peer disapproval of misconduct (a protective factor) not only had a moderating effect on risk in the peer context, but also on risk in the family context and in what they called the "VIP" context (a very important nonparental adult). Rankin and Quane (2002) also reported a cross-context moderator effect, between the neighborhood context and the family context; and Crosnoe et al. (2002) reported cross-context moderator effects between protective factors in the family context and in the school context and a single risk factor of models for deviance in the peer context. However, when Cook et al. (2002) examined interactions of measures across four social contexts—school, neighborhood, friendship group, and family—no cross-context interactions were found. Because their measures were of the overall "quality" of each of the four contexts rather than of both protective factors and risk factors within each context, interaction effects would be unlikely to emerge.

This study seeks to advance understanding about the role of adolescent social contexts by applying a systematic protection-risk model to four of these contexts, by examining the independent influence of each context, by exploring moderator effects within and across contexts, by assessing whether context protection moderates individual-level risk, and by testing the generality of the contextual model across adolescent samples drawn from two very distinctive societies.

Four key questions are addressed in this chapter:

1. Do measures of protection, risk, and their interaction in each of the four social contexts—family, peers, school, neighborhood—provide independent information about problem behavior involvement beyond that provided by measures of individual-level protective and risk factors?
2. Do measures of protection, risk, and their interaction in each of the four social contexts provide a unique, independent contribution to the explanation of adolescent problem behavior involvement beyond that provided by the measures of protection and risk in the other three contexts?
3. Do measures of protective factors in each of the four social contexts moderate measures of individual-level risk (i.e., are there interaction effects between context and person in accounting for adolescent problem behavior involvement)?
4. Do measures of protection in one social context moderate measures of risk in other contexts (i.e., are there interaction effects across social contexts in regard to adolescent problem behavior involvement)?

Method

Study Design, Participants, and Procedures

The data used in this chapter were collected in the year 2000 as part of a cross-national study of adolescent behavior and development. A 36-page Adolescent Health and Development Questionnaire (AHDQ) was administered to samples of adolescents in Beijing, China and in a large urban area in the Rocky Mountain region of the United States. The AHDQ is the most recent version of a questionnaire developed over the past several decades for use in both local and national sample studies (e.g., Jessor et al., 1995). Content of the AHDQ is logically derived from the constructs in Problem Behavior Theory. The AHDQ assesses a broad range of pro-social and problem behaviors, as well as psychosocial protective factors and risk factors in the individual (values, beliefs, attitudes, and expectations) and in four social contexts.

Procedures used in the development of the Chinese-language version of the AHDQ were consonant with recommendations for translating, adapting, or developing assessment instruments for use in different cultures (see Geisinger, 1994; Van de Vijver & Hambleton, 1996). The potential for ethnocentric bias in theorizing and operationalizing were addressed in several preliminary steps. First, the head of the Chinese research group in this cross-national collaboration, a senior developmental psychologist at Beijing Normal University, determined that the protection-risk psychosocial framework used in the current research was pertinent to the investigation and understanding of variation in adolescent problem behavior and health behavior in China. Second, an earlier version of the AHDQ was translated into Chinese at Beijing Normal University. In the translation process, special attention was given by the Chinese research team to ensure that item content was culturally appropriate and that any necessary item substitutions maintained comparable meaning across the two cultures. Third, two preliminary studies using this earlier version of the questionnaire were carried out in Beijing: a pilot study of 170 high school students (age 16–17) in 1997; and, in 1998, a study of 401 students in Grades 7 through 9 in three middle schools. Findings indicated that measures of protection and risk had good psychometric properties, related as expected to one another and also related to criterion measures of problem behaviors such as delinquency, cigarette smoking, and alcohol use. Overall, the translation of that earlier questionnaire was deemed successful by the Chinese team and yielded theoretically expected findings.

For this study, the AHDQ was translated into Chinese and then translated back into English by members of the Chinese research team. Once again, particular attention was given to ensure comparable meaning across the two cultures. Items that were inappropriate were omitted, and meaningful substitutions were made; for example, in the assessment of religiosity, Chinese students were asked about participation in spiritual or traditional ceremonies rather than about church attendance. The translation and the back translation were then reviewed in detail by a Chinese social scientist at the University of North Carolina. In addition, the Chinese-language

version of the AHDQ was reviewed by a native Chinese student at the University of Colorado at Boulder; and the back translation was reviewed by members of the U.S. research team. On the basis of these multiple reviews, a few instances where the meaning may have been compromised in translation were communicated to the Chinese team, and the Chinese-language version of the AHDQ was accordingly revised. Both of the Chinese-speaking reviewers in the United States found the Chinese translation of the AHDQ to be very well done, and the agreed-on equivalence of the two versions undergirds the appropriateness of comparisons between the Chinese and U.S. samples.

The issue of the meaning equivalence of measurement cannot, of course, entirely be ruled out. Knight and Hill (1998) recommended that evidence in support of equivalence include comparison across groups of the reliability and the validity coefficients. In that regard, similarity across the U.S. and China samples of alpha reliability coefficients and of bivariate validity coefficients for a large number of the measures in the AHDQ has been shown in a previous study using these same samples (Jessor et al., 2003). In addition, the congruent pattern of explanatory findings in both country samples, and for both genders, in that study provides further reassurance about meaning equivalence.

A total of 3,335 students in Grades 7, 8, and 9 took part in the study—1,739 in the Chinese sample and 1,596 in the U.S. sample. In both countries, participating schools were selected in collaboration with the school district administration to best represent variation in the socioeconomic backgrounds of the students and, in the United States, to reflect the racial and ethnic composition of students in the school district as well. In Beijing, schools were selected from two districts—one in the city and the other in the suburbs. In each district, schools varying in educational quality were chosen to represent institutions described as above average, average, and below average. In each of the seven schools selected in Beijing and the nine schools selected in the United States, students were randomly sampled within grade for participation in the study.

Active parental consent and personal consent were required. Letters describing the study to the parents and the adolescents were distributed to the sampled students, and signed consent forms were returned to teachers. In the United States, all contact and consent materials were written in both English and Spanish, and a bilingual version of the questionnaire was available for students who preferred to work in Spanish (n = 135). Study participants filled out the questionnaire at school in large-group administration sessions proctored by research staff. Each participant received a token payment—$5 in the United States; $2, plus a gift to each school, in Beijing.

Questionnaires were filled out by 98% of the Chinese sample and by 74% of the U.S. sample. The U.S. participation rate is generally accepted as satisfactory for urban, school-based samples requiring signed parental permission. In both countries, about one half the participants were boys (51% in China; 47% in the United States), and about one third were in Grades 7 (31% and 30%, respectively), 8 (34%), and 9 (35%). In the United States, 45% of the sample are self-described as Hispanic, 30% African American, 19% White, 4% Asian American, and 2% American Indian. Nearly all (96%) of the Chinese participants are of Han descent.

As reported earlier (Jessor et al., 2003), students in the Chinese sample came from smaller families, they were more likely to live with both biological parents, and their parents had received less formal education. The median number of children in Chinese participants' families is 1, compared to a median of 2 for U.S. participants. The great majority (83%) of the Chinese students, but only 45% of the U.S. students, were from intact families (i.e., families with both biological parents in the home). The average level of parental education in the Chinese sample was high school completion, whereas in the U.S. sample it was at least some education beyond high school.

Measurement of Adolescent Problem Behavior Involvement

The Multiple Problem Behavior Index (MPBI) assesses overall level of involvement in three different types of adolescent-reported problem behavior: (a) delinquent behavior including theft, vandalism, and physical aggression (United States: α = .84; China: α = .82); (b) cigarette smoking based on self-reports of frequency and amount of smoking in the past month and the past year (United States: α = .79; China: α = .84); and (c) problem drinking based on respondents' reports of frequency of drunkenness, frequency of high-volume drinking (4 or more drinks per occasion), and negative consequences of drinking such as getting into trouble with parents or having problems at school because of drinking (United States: α = .71; China: α = .58). Measures of the three components of the index were transformed into *t* scores (M = 50, SD = 10) and averaged. Alpha reliability of the MPBI is .69 in the U.S. sample and .64 in the China sample, with an average interitem correlation of .42 (United States) and .37 (China). In both countries, as would be expected, mean scores on this measure are significantly higher for older (higher grade in school) adolescents than for younger ones; in China only, boys have significantly higher MPBI scores than girls.

Measurement of Context Protection and Risk

The measures of the three kinds of social context protective factors (models protection, controls protection, support protection) and the three kinds of social context risk factors (models risk, opportunity risk, vulnerability risk) were based on the theoretical properties described earlier. Although an effort was made to measure every construct in every context, limitations on the length of the questionnaire made it necessary to omit measures of some constructs (models protection-school, models protection-neighborhood), including some that were expected to be highly correlated or redundant with others (e.g., opportunity risk-peers with models risk-peers, and opportunity risk-school with models risk-school).

Contextual measures of protection. Models protection was, as noted, assessed in only two contexts. A 3-item scale of models protection-family (α = .57 and .54 for the U.S. and China samples, respectively) asked about parent involvement in various conventional organizations and prosocial pastimes (e.g., "Does either of your parents take part" in community groups [specified to encompass organizations relevant to each country, like the Parent-Teacher Organization in the United States, or the equivalent organization in China] or volunteer work [like at a hospital in the United States or in a "welfare service" in China]?). Models protection-peers (United States: α = .69; China: α = .73) is measured by four items that assess perceived peer models for various conventional or prosocial behaviors such as taking part in school clubs and participating in family activities (e.g., "How many of your friends do volunteer work in the community?").

Controls protection was measured in each of the four social contexts. Controls protection-family is a 10-item scale (United States: α = .80; China: α = .73) that assesses strictness of parental rules (e.g., about being home by a certain time at night) and parental sanctions (e.g., "If your parents knew that you had shoplifted something from a store, would you get in trouble for it?"). Controls protection-peers is a 3-item scale (United States: α = .75; China: α = .66) that assesses perceived friends' controls against social transgressions (e.g., "If you were going to do something that most people think is wrong, would your friends try to stop you?"). Controls protection-school is a 7-item measure (United States: α = .71; China: α = .73) that includes items about perceived institutional controls against student misbehavior (e.g., "In your school, how strict are the rules about student behavior in class, in the halls, and on the school grounds?") and items about perceived student disapproval of student misbehavior such as cheating and vandalism (e.g., "What do most of the students at your school think about kids who damage school property?"). Controls protection-neighborhood is a 6-item scale (United States: α = .80; China: α = .72) comprised of items that ask about perceived neighborhood disapproval of teenage transgression (smoking, drinking, and vandalism; e.g., "How do you think most of the adults in your neighborhood feel about someone your age smoking cigarettes or drinking alcohol?") and about perceived neighborhood controls against adolescent misbehavior (e.g., "If adults in your neighborhood saw kids doing something wrong or getting in trouble, would they tell the parents about it?").

Support protection was measured in four contexts by multiple-item indicators of perceived social support. Support protection-family includes four items, for example, "Are your parents interested in what you think and how you feel?" (United States: α = .79; China: α = .80). Support protection-peers includes two items, for example, "When you have personal problems, do your friends try to understand and let you know they care?" (United States: α = .78; China: α = .62). Support protection-school includes four items, for example, "Do teachers at your school try to help students when they are having problems?" (United States: α = .83; China: α = .77). Support protection-neighborhood includes three items, for example, "In your neighborhood, do people help each other out and look after each other?" (United States: α = .86; China: α = .85).

Contextual measures of risk. Models risk was measured in all four contexts. Models risk-family relies on a single-item measure: "Does anyone in your close family smoke cigarettes?" Multiple-item scales in the other three social contexts assess social models in each context for a variety of risk behaviors (e.g., cigarette smoking, alcohol use). Example items are the following: "How many of the students at your school get into fights?," and "How much drinking is there among adults in your neighborhood, as far as you know?" The alpha reliabilities for the measures of models risk in the three respective social contexts of peers (2 items), school (4 items), and neighborhood (2 items) are as follows: United States = .52, China = .55; United States = .84, China = .89; and United States = .56, China = .64, respectively.

Opportunity risk was measured in two contexts. Opportunity risk-family is comprised of two items that assess perceived availability of cigarettes in the home and perceived availability of alcohol in the home (United States: α = .34; China: α = .65). Opportunity risk-neighborhood is composed of two items that assess perceived gang activity in the neighborhood and neighborhood youths' involvement in gangs (United States: α = .86; China: α = .80).

Vulnerability risk was assessed in three contexts. Vulnerability risk-family is a 6-item scale (United States: α = .75; China: α = .69) of lack of family closeness (e.g., "I think of my family as very close to one another") and perceived tension in the home (e.g., "Is there tension or stress at home in your family?"). Vulnerability risk-peers is a single-item measure of felt stress in one's social life ("In the past six months, how much stress or pressure have you felt in your personal or social life?"), and vulnerability risk-school is a single-item measure of felt stress at school ("In the past six months, how much stressor pressure have you felt at school?").

Measurement of Individual-Level Protection and Risk

Only controls protection and vulnerability risk were assessed at the individual level because the other constructs in the contextual explanatory scheme (models, support, and opportunity) are not logically applicable at the level of describing the person.

Individual-level controls protection was measured by a 13-item scale (United States and China: α = .91) comprised of 10 items that assess attitudinal intolerance of deviance (e.g., "How wrong do you think it is to cheat on tests or homework?") and 3 items that assess perceived negative health effects of engaging in various problem behaviors (e.g., "Do you think regular smoking can have an effect on the health of young people your age?"). Individual-level vulnerability risk was assessed by a multiple-item measure of personal vulnerability. The 19 items in this scale (United States: α = .87; China: α = .86) all measure personal vulnerability risk including depression (3 items; e.g., "In the past six months, have you just felt really down about things?"), limited perceived chances for success in life (5 items; e.g., "What are the chances that you will have a job that pays well?"), low expectations for school achievement (4 items; e.g., "How sure are you that you will get at least a B average this year?"), and low self-esteem (7 items; e.g., "On the whole, how satisfied are you with yourself?").

The individual-level measures were used in the analyses to determine whether the social context measures added significantly to the account of problem behavior involvement when sociodemographic background and individual-level protection and risk were controlled, and to assess whether context protection moderated or buffered individual-level risk.

In general, the 18 multiple-item scales used to assess protection and risk in the four social contexts and at the individual level have good scale properties, with most alphas (14 scales in each sample) ranging from .7 to .9. Although the alphas for the remaining scales were somewhat low (.3–.6), those measures (and the 3 single-item measures of risk) were nevertheless retained to maximize the theoretical comprehensiveness of protection and risk assessment across the social contexts.

Results

The analytic procedure used to address the four research questions posed in the introduction of this chapter is hierarchical multiple regression. All analyses were run separately for the Chinese and the U.S. samples. The following sociodemographic characteristics were entered at Step 1 of the regression: gender, grade in school, intact family (i.e., families that include both biological parents vs. families missing at least 1 biological parent), socioeconomic status (an index based on father's and mother's educational attainment and father's occupational status), race and ethnicity (U.S. analyses only), and school attended.[1] Because standardized regression coefficients are inappropriate with interaction terms (Aiken & West, 1991, pp. 40–47), all theoretical measures and the criterion measure were standardized. This procedure yields unstandardized coefficients that can be compared with one another (Aiken & West, 1991, p. 44). The unstandardized regression coefficients presented in the tables are, in effect, standardized coefficients—permitting comparisons not only of main effects coefficients with one another but also comparisons among the coefficients for interaction effects.

Results pertaining to each of the four research questions are presented in order. For all analyses, one-tailed tests of significance are reported. Because large numbers of predictor measures were used in the analyses that address research questions 1, 2, and 4, a more stringent criterion for significance ($p = .01$) was used in interpreting those results.

RQ1: Do measures of protection, risk, and their interaction in each of the four social contexts—family, peers, school, neighborhood—provide independent information about problem behavior involvement beyond that provided by measures of individual-level protective and risk factors?

[1] To address the possible nonindependence of observations on the criterion measure within schools and the possible need for hierarchical linear modeling, we computed the intraclass correlation of the criterion measure within schools. Because it is negligible (.03 in the U.S. sample and .02 in the China sample), the students' responses can be treated as independent observations.

The first question was addressed by a series of four hierarchical multiple regression analyses, one for each context. The MPBI score was regressed against the predictor measures in the following order for each context: Step 1, the sociodemographic background measures; Step 2, the individual-level measures of protection, risk, and their interaction; and then, at Step 3, the social context measures of protection, risk, and their interaction for a particular context. The results of these four regression analyses are presented in Table 4.1.

As shown in Table 4.1, the three individual-level measures (controls protection, vulnerability risk, and the interaction of those two measures) entered at Step 2 accounted for significant variance in each of the samples (United States = 31%;

Table 4.1 Hierarchical regression of the multiple problem behavior index on measures of protection and risk in each social context: variance added to individual-level protection and risk by each context

		B[a], final step		ΔR^2	
		U.S.	China	U.S.	China
Step	Measures	Sample	Sample	Sample	Sample
1	Sociodemographic measures			.06**	.09**
2	Individual-level measures of protection, risk, and their interaction[b]			.31**	.22**
3	Social context measures of protection, risk, and their interaction[c]:				
	Family context analysis			*.06***	*.05***
	Models protection-family	.03	.03		
	Controls protection-family	−.19**	−.10**		
	Support protection-family	.00	.02		
	Models risk-family	.05	.09**		
	Opportunity risk-family	.06*	.03		
	Vulnerability risk-family	.08*	.08**		
	Controls protection x models risk	−.06*	−.06**		
	Controls protection x vulnerability risk	.00	−.06**		
3	Peer context analysis			*.10***	*.09***
	Models protection-peers	.03	−.03		
	Controls protection-peers	−.09*	−.02		
	Support protection-peers	.07*	.08**		
	Models risk-peers	.27**	.25**		
	Vulnerability risk-peers	.02	.00		
	Controls protection x models risk	−.11**	−.13**		
	Support protection x models risk	.08**	.03		
3	School context analysis			*.04***	*.07***
	Controls protection-school	.05	.01		
	Support protection-school	−.06*	−.08*		
	Models risk-school	.17**	.18**		
	Vulnerability risk-school	−.02	.00		
	Support protection x models risk	−.08**	−.13**		

(continued)

Table 4.1 (continued)

		B^a, final step		ΔR^2	
		U.S.	China	U.S.	China
Step	Measures	Sample	Sample	Sample	Sample
3	Neighborhood context analysis			*.04***	*.04***
	Controls protection-neighborhood	.00	−.11**		
	Support protection-neighborhood	.03	.02		
	Models risk-neighborhood	.08**	.10**		
	Opportunity risk-neighborhood	.15**	.07**		
	Controls protection x models risk	−.01	−.05*		
	Controls protection x opportunity risk	−.02	−.10**		
	Support protection x opportunity risk	−.06*	.04		
	Overall R^2 range when one context is added			*.40–.47*	*.35–.40*
	ΔR^2 range when one context is added			*.04–.10*	*.04–.09*

Note U.S. sample, N = 1,380–1,389; China sample, N = 1,658–1,675. Sample size varied due to variation in the amount of missing data in the regression analyses for the four different social contexts. Numbers in italics represent increments in variance at Step 3 for each of the four analyses. Because of the large number of variables tested, the minimal criterion for significance was set at $p = .01$
*$p = .01$; **$p = .001$
[a]Unstandardized regression coefficients because standardized coefficients are inappropriate with interaction terms (see Aiken & West, 1991, pp. 40–47); all theoretical measures and the criterion measure had been standardized by z scoring within each country, so coefficients can be compared
[b]Individual-level measures of protection (controls), risk (vulnerability), and their interaction were entered at this step so the unique effect of the social context measures could be determined at Step 3
[c]Only interactions that are significant in at least one country are tabled

China = 22%). In addition, they had significant regression coefficients in the final model for each of the four social contexts in both samples (not tabled).

As can also be seen in Table 4.1, measures of each of the various social contexts make a significant contribution, at Step 3, to explaining adolescents' involvement in problem behavior beyond that of the sociodemographic background and the individual-level protection and risk measures. This conclusion is supported, for each of the four contexts, by both the change in R^2 at Step 3 and by the regression coefficients in the final model for each context.

The two right-hand columns of Table 4.1 show that the protection and risk measures in each social context regression did contribute a significant ($p = .001$) increment in variance (4–10% in the U.S. sample; 4–9% in the China sample) when entered after the measures of sociodemographic characteristics and the individual-level measures of protection and risk. Adolescent reports of protective and risk factors in each of the four social contexts do, therefore, provide unique information about adolescents' problem behavior involvement beyond that provided by their reports of their own individual-level protective and risk factors.

In the family context, which added 6% (U.S. sample) and 5% (China sample) variance, one protective factor (controls protection) and one risk factor (vulnerability risk) had significant regression coefficients in the final model for both country

samples. Models risk also had a significant regression coefficient, but in the China sample only; and opportunity risk was a significant predictor in the U.S. sample only. As expected, higher protection is associated with lower levels of problem behavior involvement, and higher risk with higher levels of problem behavior involvement. In addition, there were significant interaction effects of controls protection with models risk in both samples, and of controls protection with vulnerability risk (China sample only). The significant negative regression coefficients of these interaction terms indicate that—in the family context—controls protection has a moderating influence on (i.e., attenuates the impact of) models risk and vulnerability risk. The R^2 change shown in the two right-hand columns was significant (p = .001) in the two samples.

In the peer context, controls protection (U.S. sample only), models risk, and the interaction of these two measures had significant regression coefficients in the expected direction in the final model. Support protection-peers was a suppressor variable in both samples (its B weight is positive; but, as expected, it had negative bivariate correlations with the criterion measure), improving the overall model by subtracting irrelevant variance from the other predictors (Cohen & Cohen, 1983). The interaction of support protection and models risk in the U.S. sample was also a suppressor effect. Again, the R^2 change was significant (p = .001) in both samples (10% in the United States and 9% in China).

In the school context, support protection, models risk, and the interaction of these two measures had significant regression coefficients in the expected direction in the final model for both countries. The significant (p = .001) R^2 change is somewhat higher in the Chinese sample (7%) than in the U.S. sample (4%).

In the neighborhood context, controls protection (China sample only), models risk, and opportunity risk had significant regression coefficients in the expected direction in the final model. In addition, there were two significant interaction effects in the Chinese sample (controls protection moderating models risk and controls protection moderating opportunity risk) and one in the U.S. sample (support protection moderating opportunity risk). The R^2 change (4% in both samples) was significant (p = .001).

The finding of significant moderator effects in each of the four contexts indicates that at higher levels of protection the impact of risk factors is attenuated. To illustrate a moderator effect, the distributions of the measure of controls protection-peers and the measure of models risk-peers were dichotomized within each sample to define groups that were low and high on protection and risk. Figure 4.2 shows the mean MPBI score for groups of participants in the lower half of protection scores who had low- or high-risk scores, and in the upper half of protection scores who had low- or high-risk scores. Figure 4.2 shows that the relation of risk to problem behavior involvement is stronger (steeper) at low levels of protection and is attenuated when protection is high. In other words, when protection is high, the impact of risk is buffered. Conversely, the difference in problem behavior involvement between low and high protection is greatest when risk is high; when risk is low, the influence of protection is less important. As can be seen, the moderator effect holds for both the U.S. and China samples.

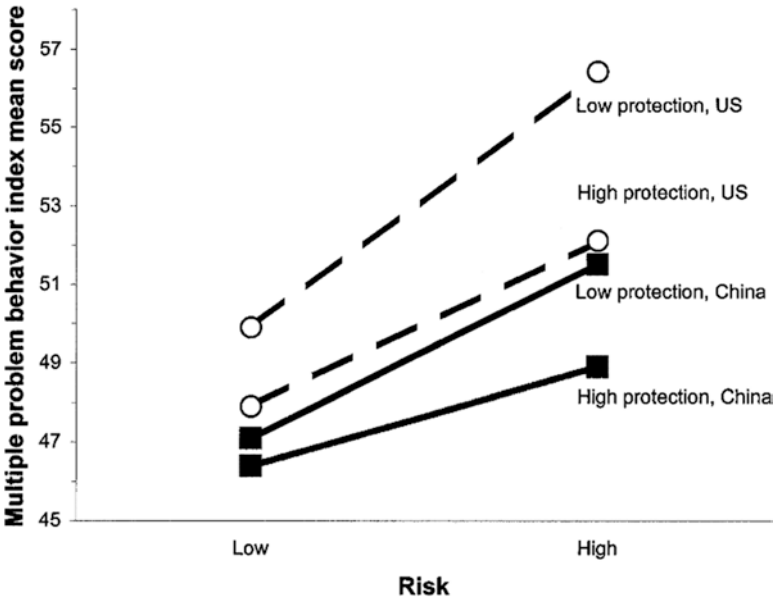

Fig. 4.2 The moderator effect of controls protection-peers on the relation of models risk-peers to adolescent problem behavior involvement

The regression analyses addressing the first research question suggest that the social context protection-risk model operates similarly in the U.S. and China samples. To more directly assess the comparability of the model in the two samples, additional regression analyses were carried out on the *combined* sample, with a country variable (coded "0" for the United States and "1" for China) included at Step 1. At Step 3, interactions of the country variable with the social context variables were entered. Only 5 of those interactions, out of 42 possible interactions,[2] were significant (p = .01), affirming the comparability of the explanatory model across both samples. The 5 significant interactions indicate that (a) the direct effect of controls protection-family is significantly stronger in the U.S. sample than in the China sample; (b) in the family context, the interaction of support protection with models risk is stronger in the China sample (but not significant in either sample); (c) the direct effect of controls protection-peers is stronger in the U.S. sample (not significant in the China sample); (d) the direct effect of opportunity risk-neighborhood is significantly stronger in the U.S. sample; and (e) in the neighborhood context, the interaction of support protection with opportunity risk is stronger in the U.S. sample (not significant in the China sample).

[2] In the analyses of the family context, 15 interactions of country with the social context measures were tested; in the analyses of the peer context, 11 interactions of country with the context measures were tested; and in the analyses of both the school context and the neighborhood context, there were 8 interactions of country with the context measures to be tested.

The amount of consistency across the two samples with respect to the social contextual main effects and interaction effects shown in Table 4.1 also supports the general comparability of the model across the two samples of adolescents. In the family context, controls protection, vulnerability risk, and the interaction of controls protection and models risk are significant predictors in both the U.S. sample and the China sample. In the peer context, models risk and the interaction of controls protection and models risk are significant for both samples. In the school context, support protection, models risk, and the interaction of these two variables are significant predictors in the two samples. In the neighborhood context, two risk factors—models risk and opportunity risk—are significant in both samples.

In sum, measures of protection and risk and their interactions in each of the four social contexts added a significant increment to the amount of variance explained in problem behavior involvement. In addition, various measures of protection, risk, and their interaction had significant regression coefficients in the final model for each context. The only exceptions to this general pattern of findings were the nonsignificance of the protection measures from the peer context in the final model for the China sample and the nonsignificance of the protection measures from the neighborhood context in the final model for the U.S. sample. Protection did, however, have a significant moderating effect on risk in both of these contexts. The findings suggest an affirmative answer to RQ1.

RQ2: Do measures of protection, risk, and their interaction in each of the four social contexts provide a unique, independent contribution to the explanation of adolescent problem behavior involvement beyond that provided by the measures of protection and risk in the other three contexts?

To address this question, the MPBI score was regressed against the predictor measures in the following order: at Step 1, the sociodemographic background measures and the individual-level measures of protection, risk, and their interaction were entered; and then, at Step 2, the social context measures of protection, risk, and their interactions for all four social contexts were entered.

The four-context model provides a substantial account of variation in adolescent problem behavior involvement in both the U.S. sample (R^2 = .53) and the China sample (R^2 = .46). What also needs emphasis is the large proportion of that account that derives uniquely from the contextual measures when entered at Step 2 (16% in both samples; results not tabled; table available from authors).

The measures of individual-level protection (controls), individual-level risk (vulnerability), and their interaction entered at Step 1 had significant regression coefficients in the final model. However, most important, the regression coefficients indicate that each of the four contexts makes a significant contribution to the account of problem behavior involvement, even when measures from all three other contexts are in the regression equation at Step 2.

In the family context, controls protection in both samples and models risk (China sample only) had significant (p = .01) coefficients in the final four-context model. There was also a significant interaction of controls protection with vulnerability risk in the China sample. In the peer context, models risk and the interaction of controls protection with models risk had significant regression coefficients in both samples in

the final model. In the school context, support protection (China sample only) and models risk were significant predictors of problem behavior involvement, as was the interaction of support protection with models risk (China sample only). Finally, in the neighborhood context, there were significant coefficients for opportunity risk and for the interaction of controls protection with opportunity risk (China sample only).

These findings indicate that each context as measured does indeed make a unique and significant contribution to the account of variance in multiple problem behavior involvement when other contexts are controlled. The answer to RQ2, therefore, can also be affirmative.[3]

RQ3: Do measures of protective factors in each of the four social contexts moderate measures of individual-level risk (i.e., are there interaction effects between context and person in accounting for adolescent problem behavior involvement)?

The possible moderating influence of measures of social context protection on measures of individual-level risk was investigated by a series of four separate hierarchical multiple regression analyses, again using the MPBI as the criterion measure. For each of the four social contexts, predictor measures were entered in the following order: sociodemographic background measures, the individual-level measure of risk, and the measures of protection from that particular social context at Step 1; then, at Step 2, the interactions of those measures of social context protection with the measure of individual-level risk were entered. Findings from these four separate regression analyses are presented in Table 4.2. Because a small number of variables were included in these analyses, the criterion for significance was set at $p = .05$.

As can be seen in Table 4.2, individual-level risk is a significant predictor in the final model for both samples in all four social context regression analyses; higher levels of individual-level risk are associated, as expected, with higher levels of problem behavior involvement. However, most important in Table 4.2, there is consistent support for a moderating effect of social context protective factors on individual-level risk. For each of the four contexts, and in both samples, when the interactions of context protection with individual-level risk were entered at Step 2, they accounted for a significant ($p = .001$) increment in variance (1–5%) in multiple problem behavior involvement.

[3] Further evidence for the unique explanatory contribution of each social context derives from a supplementary series of four hierarchical regression analyses carried out in the two separate samples. For each of the four social contexts, predictor measures were entered in the following two steps: (a) sociodemographic measures; individual-level measures of protection, risk, and their interaction; measures of protection, risk, and their interaction from three of the social contexts and (b) measures of protection, risk, and their interactions from the remaining fourth social context. In each analysis, there was a significant ($p = .01$) change in R^2 at Step 2 (i.e., each of the four contexts alone added a significant increment when the other three contexts were controlled; i.e., already entered at Step 1 of the regression analyses). The proportion of additional variance accounted for by each of the four social contexts in the U.S. and China samples, respectively, was: family context (3 % and 2 %), peer context (5 % and 4 %), school context (1 % and 3 %), and neighborhood context (1 % and 1 %).

Table 4.2 Hierarchical regression of the multiple problem behavior index on the measure of individual-level risk and measures of protection in each social context: variance added by the interaction of measures of social context protection with the measure of individual-level risk[a]

		B^b, final step		ΔR^2	
		U.S.	China	U.S.	China
Step	Measures	Sample	Sample	Sample	Sample
	Family context analysis				
1	Sociodemographic measures	.20***	.20***	.27***	.22***
	Individual-level measure of risk				
	Models protection-family	.03	.04		
	Controls protection-family	−.31***	−.23***		
	Support protection-family	−.10***	−.07**		
2	Controls protection × individual-level risk	−.13***	−.13***	*.03***	*.02***
	Peer context analysis				
1	Sociodemographic measures			.23***	.19***
	Individual-level measure of risk	.28***	.22***		
	Models protection-peers	.06*	−.08**		
	Controls protection-peers	−.31***	−.15***		
	Support protection-peers	.17***	.09***		
2	Models protection × individual-level risk	.02	−.05*	*.02***	*.05***
	Controls protection × individual-level risk	−.15***	−.10***		
	Support protection × individual-level risk	.06*	.00		
	School context analysis				
1	Sociodemographic measures			.20***	.21***
	Individual-level measure of risk	.25***	.16***		
	Controls protection-school	−.03	−.14***		
	Support protection-school	−.19***	−.17***		
2	Controls protection × individual-level risk	−.02	−.10***	*.02***	*.02***
	Support protection × individual-level risk	−.12***	−.07**		
	Neighborhood context analysis				
1	Sociodemographic measures			.17***	.21***
	Individual-level measure of risk	.31***	.19***		
	Controls protection-neighborhood	−.10***	−.23***		
	Support protection-neighborhood	.01	.01		

(continued)

		B^b, final step		ΔR^2	
		U.S.	China	U.S.	China
Step	Measures	Sample	Sample	Sample	Sample
2	Controls protection × individual-level risk	−.05*	−.14***	*.01***	*.03****
	Overall R^2, range when one context is added			18–.30	.20–.24
	ΔR^2 Change range when one context is added			.01–.03	.02–.05

Note U.S. sample, N = 1,410–1,434; China sample, N = 1,677–1,682. Sample size varied due to variation in the amount of missing data in the regression analyses for the four different social contexts. Numbers in italics represent increments in variance at Step 3 for each of the four analyses
*p = .05; **p = .01; ***p = .001
[a]Only interactions that are significant in at least one country are tabled
[b]Unstandardized regression coefficients because standardized coefficients are inappropriate with interaction terms (see Aiken & West, 1991, pp. 40–47); all theoretical measures and the criterion measure had been standardized by z scoring within each country, so coefficients could be compared

The moderator effects of social context protection on individual-level risk that reach significance demonstrate a high degree of similarity across the two samples. The interaction of controls protection with individual-level risk was a significant predictor in the final regression model for each of the four social contexts, except the school context in the U.S. sample. In both samples, too, the interaction of support protection-school with individual-level risk was significant in the final regression model. Finally, in the Chinese sample only, there was a significant interaction of models protection-peers with individual-level risk. The interaction of support protection-peers and individual-level risk in the U.S. sample was a suppressor variable.

These findings suggest that protective factors in the social contexts of adolescents' lives can attenuate the impact of individual-level risk for involvement in problem behavior.[4] Controls protection, in particular, is a consistent contextual moderator of individual-level risk in both the China and U.S. samples. In both samples, too, support protection-school (i.e., from teachers and other school personnel) is a significant moderator of individual-level risk. The answer to RQ3, therefore, appears to be affirmative.

RQ4: Do measures of protection in one social context moderate measures of risk in other social contexts (i.e., are there interaction effects across social contexts in regard to adolescent problem behavior involvement)?

[4]Although the focus of this chapter is on the role played by social context protection and social context risk in accounting for adolescent problem behavior involvement, it was also of interest to examine whether individual-level protection moderated the impact of social context risk on behavior outcomes. Regression analyses similar to those that addressed research RQ3 indicated that individual-level protection moderates models risk in all four contexts in both country samples. In addition, individual-level protection moderates opportunity risk-family, vulnerability risk-family, vulnerability risk-school (China sample only), and opportunity risk-neighborhood (U.S. sample only).

A final series of four hierarchical multiple regression analyses was carried out for each of the four social contexts, with the MPBI as the criterion measure. At Step 1, sociodemographic measures, the measures of risk from three social contexts, and the measures of protection from the remaining (fourth) social context were entered; then, at Step 2, the interactions of the measures of protection in this remaining (fourth) context with all the measures of risk in the other three contexts were entered.[5] In these analyses, the criterion for significance was again set at $p = .01$.

Table 4.3 indicates that protective factors in each of the four different contexts buffer or attenuate the impact of risk in the three other contexts. For each of the four different social contexts, and in each of the two country samples, those Protection by Risk interactions accounted for a significant ($p = .001$) increment in variance (3–7% in the U.S. sample; 4–6% in the China sample) in multiple problem behavior involvement.

For the family context regression analysis, as shown in Table 4.3, there were significant interaction effects at Step 2 between protection in the family context and risk factors in the other three social contexts. Controls protection-family moderated the impact of models risk-peers; models risk-school; and, in the U.S. sample only, opportunity risk-neighborhood.

In the analyses of cross-context moderating effects of protective factors in the peer, school, and neighborhood contexts, measures of controls protection in each of these contexts are consistently significant moderators of measures of risk factors in at least two of the three other contexts. Controls protection-peers moderated models risk-family (China sample only), opportunity risk-family (U.S. sample only), models risk-school, and opportunity risk-neighborhood; controls protection-school moderated vulnerability risk-family (China sample only), models risk-peers (China sample only), and opportunity risk-neighborhood (U.S. sample only); and controls protection-neighborhood moderated the impact of models risk-family (China sample only) and models risk-peers in both samples. In addition, there were cross-context moderating effects of models protection and support protection, primarily in the China sample. In the China sample only, models protection-peers moderated models risk-family and models risk-school. Support protection-school moderated models risk-peers in both countries, and it moderated models risk-family in the China sample. Support protection-neighborhood moderated models risk-peers in the U.S. sample only.

The findings in Table 4.3 suggest an affirmative answer to RQ4—protection in each of the four social contexts of adolescent life moderates risk in at least two of the other three contexts to attenuate its impact on adolescent involvement in problem behavior. Protection in the family, peer, and school contexts moderates risk factors in the other three contexts, and protection in the neighborhood context mod-

[5] In the analyses of the family context, 18 interactions of protection in that context with risk in the other three contexts were tested; in the analyses of the peer context, 21 interactions of protection in that context with risk in the other three contexts were tested; and, in the analyses of the school context and neighborhood context, 14 interactions of protection in that context with risk in the other three contexts were tested.

Table 4.3 Additional variance in multiple problem behavior involvement accounted for by the interactions of protective factors from each social context with risk factors from the other three social contexts

		B^a, Final step		ΔR^2	
		U.S.	China	U.S.	China
Step	Measures	Sample	Sample	Sample	Sample
	Family context analysis				
1	Sociodemographic measures			.38**	.30**
	Risk measures—three other social contexts				
	Protection measures—family context				
2	Add protection × risk interactions[b]			*.07***	*.06***
	Controls protection-family × models risk-peers	−.17**	−.13**		
	Controls protection-family × models risk-school	−.09**	−.12**		
	Controls protection-family × opportunity	−.06*	.00		
	risk-neighborhood				
	Peer context analysis				
1	Sociodemographic measures			.30**	.25**
	Risk measures—three other social contexts				
	Protection measures—peer context				
2	Add protection × risk interactions[b]			*.04***	*.04***
	Models protection-peers × models risk-family	.02	−.06*		
	Models protection-peers × models risk-school	.00	−.06*		
	Controls protection-peers × models	−.04	−.07*		
	risk-family	−.11**	.01		
	Controls protection-peers × opportunity				
	risk-family	−.10**	−.13**		
	Controls protection-peers × models				
	risk-school				
	Controls protection-peers × opportunity	−.06*	−.06*		
	risk-neighborhood				
	School context analysis				
1	Sociodemographic measures			.33**	.30**
	Risk measures—three other social contexts				
	Protection measures—school context				

Table 4.3 (continued)

		B^a, Final step		ΔR^2	
		U.S.	China	U.S.	China
Step	Measures	Sample	Sample	Sample	Sample
2	Add protection × risk interactions[b]			*.04***	*.06***
	Controls protection-school × vulnerability	−.02	−.07*		
	risk-family	−.02	−.11**		
	Controls protection-school × models				
	risk-peers				
	Controls protection-school × opportunity	−.06*	.00		
	risk-neighborhood				
	Support protection-school × models	.03	−.07**		
	risk-family				
	Support protection-school × models risk-peers	−.17**	−.10**		
	Neighborhood context analysis				
1	Sociodemographic measures			.32**	.30**
	Risk measures—three other social contexts				
	Protection measures—neighborhood context				
2	Add protection × risk interactions[b]			*.03***	*.05***
	Controls protection-neighborhood × models risk-family	−.03	−.08**		
	Controls protection-neighborhood × models risk-peers	−.08*	−.12**		
	Support protection-neighborhood × models risk-peers	−.08*	−.01		
	ΔR^2 change range when cross-context protection × risk interactions are added			*.03–.07*	*.04–.06*

Note U.S. Sample, N = 1,332–1,359; China Sample, N = 1,642–1,667. Sample size varied due to variation in the amount of missing data in the regression analyses for the four different social contexts. Numbers in italics represent increments in variance at Step 3 for each of the four analyses. Because of the large number of variables tested, the minimal criterion for significance was set at p = .01

* p = .01; ** p = .001

[a]Unstandardized regression coefficients because standardized coefficients are inappropriate with interaction terms (see Aiken & West, 1991, pp. 40–47); all theoretical measures and the criterion measure had been standardized by z scoring within each sample, so coefficients could be compared

[b]Only interactions that are significant in at least one country are tabled

erates risk factors in the family and peer contexts. Furthermore, the pattern of replicated findings across the two samples suggests that controls protection in one context is a fairly consistent moderator of models risk in other social contexts.

Discussion

The importance of the role played by four contexts of adolescent life—family, peers, school, and neighborhood—has been reinforced by the results of this study. Each context was shown to make a significant contribution to the account of variation in adolescent problem behavior in samples from the United States and China; together, their explanatory contribution was substantial in both samples. The theoretical conceptualization of social contexts as constituted of protective factors and risk factors that have both main and interactive or moderator effects on problem behavior was also supported. It would appear that social and developmental inquiry could clearly benefit from giving increased attention to contextual reports.

Measures of contexts were shown to add unique variance to the explanation of problem behavior involvement beyond that of sociodemographic background and individual-level psychosocial measures; each context, as measured, was shown to contribute unique variance beyond that of the other three contexts; measures of protection in each social context were shown to moderate the impact of individual-level risk; and measures of protection in each social context were shown to moderate the impact of risk in two or more of the other three contexts. That all of these outcomes were established in two independent samples of adolescents—one from the United States and one from China—substantially adds to their compellingness. The findings also reveal the critical importance of protective factors and the potential importance of enhancing protection in environmental intervention efforts. In this regard, Rutter's (1993) comment is apposite: "resilience may reside in the social context as much as within the individual" (p. 626).

It is, of course, important to recognize that some social contexts are "nested" within other social contexts and that individual attributes themselves may have been influenced by contexts. For example, family controls may be responsive to school or neighborhood risk factors (such as models risk or opportunity risk), and individual risk factors such as low self-esteem or low perceived life chances may be affected by context support protection. The multivariate analytic strategy used in this study, therefore, may well have resulted in underestimates of the magnitude of social contextual effects. Our concern in this chapter, however, is not to make parameter estimates of the magnitude of contextual effects but to demonstrate that different social contexts can have effects when individual-level or other social contextual influences are controlled. Despite the possibility that social contextual effects may have been mediated by individual-level variables or by other social contextual variables controlled in the different analyses, measures of protection and risk in each of the four social contexts were shown to provide a unique contribution to the explanation of problem behavior involvement beyond that provided by the measures of individual-

level protection and risk and by measures of protection and risk in the other three contexts.

The articulation of three types of contextual protection—models, controls, and supports—and three types of risk—models, opportunity, and vulnerability— proved useful in yielding more differentiated measures of context and in permitting the demonstration of interactions among them. The various kinds of protection specified are consistent with the emphasis of much recent socialization literature on such notions as "regulation" and "connectedness" (Barber, 1997; Barber & Olsen, 1997; Herman, Dornbusch, Herron, & Herting, 1997). Clearly, the realm of context protection is not exhausted by the three types thus far delineated, likewise for context risk; further specification is certainly called for as long as the additional categories remain systematically behavior relevant.

Although a relatively new endeavor, the exploration of cross-contextual moderator effects is a logical extension of contemporary research on social context in adolescent behavior and development. Cook et al. (2002) reported no evidence for cross-context interactions in predicting successful adolescent development. Their summary measures of family, friend, school, and neighborhood contexts, however, yielded an assessment of the overall quality of each social context, rather than assessing protective factors and risk factors separately. Only two other studies, to our knowledge, are similar to part of what we report here; and our research supports and extends that work. Beam et al. (2002) and Crosnoe et al. (2002) found evidence for cross-context moderating effects in accounting for variation in problem behavior involvement in adolescence. Our study advances this work by including not only a more comprehensive assessment of protective and risk factors, but also by assessing a wider range of social contexts and characteristics of the individual, by examining the moderating influence of social context protection on individual-level risk, and by engaging diverse societies. By demonstrating theoretically meaningful moderating effects across multiple contexts, and moderating effects of social context protective factors on individual-level risk, our findings document this relatively unexplored aspect of the role of context in research on adolescent behavior.

The family context and the peer context appeared, in Table 4.1, to have a stronger influence than the school and neighborhood in the U.S. sample, whereas the peer and school contexts were the most influential in the Chinese sample; with the neighborhood context being least influential in both samples. Although these outcomes are consistent with expectations based on the U.S. adolescent development literature, and with the influential role that schools in China play in facilitating adolescents' socioemotional as well as cognitive and career development (Dong & Chen, 2001), and with findings from other studies of neighborhood context effects (Cook et al., 2002; Greenberg, Lengua, Coie, & Pinderhughes, 1999; Leventhal & Brooks-Gunn, 2003), it is not possible to rule out the alternative inference that the obtained differences among contexts may be due to differential adequacy of the measures of the different contexts; particularly of measures of protection in the neighborhood context.

The variance added by the measures of each social context to the sociodemographic background and individual-level measures, and to the measures of the other contexts, ranges from 4% to 10% in the former analyses and 1% to 5% in the latter.

It is important to note that these percentages, although generally small, represent unique variance because shared variance has already gone to the measures entered at earlier steps. The issue of the magnitude of variance added is also relevant to the findings about moderator effects. With regard to individual-level risk, the moderator effects of protection in each of the four contexts yielded ΔR^2s of 1% to 5%; and, with regard to context risk, cross-context moderator effects of protection yielded ΔR^2s of 3% to 7%. All of these moderator effects, although small, are significant; and they fall in the usual range found in field studies (see McClelland & Judd, 1993). The critical issue, beyond magnitude and statistical significance, remains their theoretical significance; buttressing that is the fact that the findings are quite robust across two very diverse, independent samples.

Controls protection emerges as the key protective factor in all contexts except the school context (and, in the United States, the neighborhood context) and for adolescents in both samples. Controls protection is the most consistent moderator of individual-level risk, as well as of risk in each of the other contexts. Support protection played a much more limited role as compared with controls protection. The current emphasis on connectedness, as against regulation, in contemporary developmental studies is therefore not supported by our findings, which give the preeminent role to regulation (i.e., to what we have termed "controls protection"). It is possible, of course, that the strength of controls protection relative to support protection is a function of the particular criterion measure involved in this study (i.e., problem behavior) for which controls may be uniquely relevant (e.g., see Herman et al., 1997). Support protection could well play a larger role when the criterion is positive, prosocial behavior; and that possibility remains a matter for further inquiry.

The third type of protection assessed, models protection, yielded no moderator effects that were significant in both samples. In the China sample, however, models protection in the peer context was shown to moderate social contextual and individual-level risk. Although limited, these findings are notable in that they support Beam et al.'s (2002) observation that the peer context may be an important source of protection as well as, as is more commonly expected and reported, a source of risk for adolescent problem behavior involvement. Based on their moderation of risk at the individual level and of risk in other contexts, the data indicate the relative importance of the different types of protection: controls, supports, and models (in that order).

This effort to examine the role of social contexts in accounting for problem behavior involvement has engaged adolescents from a society markedly different from the United States in social organization, family structure, and cultural traditions. As reported elsewhere (Jessor et al., 2003), and as may be seen in Fig. 4.2, problem behavior was less prevalent in the Chinese sample than in the U.S. sample (this was especially the case for the Chinese girls). As would then be expected from the theory, protection was indeed found to be higher in the Chinese sample, and risk was generally lower. The explanatory consonance revealed by our study, not only across samples of adolescents from these two very different societies, but across samples that differed significantly in mean levels of problem behavior and of the protection and risk theoretical constructs, provides support for the generality of the protection and risk theory of social context.

Although the explanatory model was in many ways consonant across the two samples, important differences between the two samples at this analytic level were nevertheless observed (e.g., the somewhat more consistent effects of controls protection in the neighborhood context in the China sample). Obviously, the broad differences between the two societies in social organization and culture cannot be fully captured by a limited and selected set of measures of protection and risk. The existence of more organized relations among neighborhood inhabitants in China (Rojek, 2001) and the more pervasive influence of teachers and schools in young people's lives in that country (Dong & Chen, 2001), for example, deserve additional attention in the exploration of social contextual influences on variation in adolescent behavior.

Although boys and girls in the U.S. sample report very comparable levels of involvement in problem behavior, boys in the China sample report significantly greater problem behavior involvement than do girls (Jessor et al., 2003). In our study, gender was controlled in all of the regression analyses. As expected, there was a significant main effect of gender in the expected direction in all analyses of the Chinese sample. For the U.S. sample, there was a main effect of gender in only a few of the analyses; and the findings indicated higher mean problem behavior involvement among boys. Additional regression analyses were carried out to examine whether there were interactions of gender with the measures of social context (i.e., whether the model described in Table 4.1 varied by gender). Results indicate that the model is essentially the same for boys and girls in each sample.

In this study, age cohort (grade in school) was also controlled in Step 1 of all of the regression analyses. For both country samples, there was a main effect of cohort in the majority of the analyses with the findings indicating higher mean problem behavior involvement among older students. When additional regression analyses were carried out to examine whether the model described in Table 4.1 varied by cohort, results indicate the model is largely invariant across cohorts, although there are some effects that vary as a function of age cohort. In the U.S. sample, the moderator effect of controls protection on the impact of models risk in the family context is significant for younger students (Grades 7 and 8) but not for older ones (Grade 9). In the peer context, on the other hand, the interaction of controls protection with models risk is significant for older students (Grades 8 and 9) but not for younger ones (Grade 7). In the China sample, several risk factors (models risk-peers, models risk-school, and opportunity risk-neighborhood), although significant in all three age cohorts, have a stronger effect among older students compared with younger ones. One interaction effect (Controls Protection by Opportunity Risk in the neighborhood context) is stronger among the older students as well; and another interaction (Support Protection by Models Risk in the school context) is significant only for the 9th-grade students. These cross-sectional findings may well be suggestive of developmental changes in the impacts of social contextual protective and risk factors. Further examination of that possibility will depend on longitudinal analyses and theory-based hypotheses about expected developmental change in social contextual influences.

In the analyses presented in this chapter we have examined a theory-based model of protection and risk in two diverse samples of adolescents. Although the same social contextual predictor measures of protection (models, controls, support), risk (models, opportunity, vulnerability), and Protection by Risk interactions are not always significant in both country samples, about one half of the significant outcomes are replicated across samples. With respect to significant main effects, controls protection in the family context; support protection in the school context; vulnerability risk in the family context; opportunity risk in the neighborhood context; and models risk in the peer, school, and neighborhood contexts emerge as consistent predictors of problem behavior in the two samples of adolescents. With respect to significant interaction or moderator effects, controls protection in all but the school context was a moderator of individual-level risk in both samples; and controls protection was a moderator of models risk within both the family context and the peer context. There were also several consistent moderator effects of controls protection and risk (especially models risk) *across* contexts, including controls protection in the family context moderating models risk in the peer and school contexts, controls protection in the peer context moderating models risk in the school context, controls protection in the neighborhood context moderating models risk in the peer context, and controls protection in the peer context moderating opportunity risk in the neighborhood context. It may well be that when there is this type of consistent protective effect from multiple contexts that their impact on the reduction of risk may be greater. Support protection in the school context was also shown to be of importance in the two samples for its moderating influence on individual-level risk, and on models risk in the school and peer contexts. In light of the relatively stringent significance criterion used in the analyses, this empirical consistency across the two independent samples provides additional conviction about the validity of the findings.

The findings from this study can inform the development of intervention programs designed to enhance protection for adolescents at risk for problem behavior involvement. The impact of individual-level risk and social contextual risks such as peer and parental models for problem behaviors may be buffered or moderated by school and community programs that offer support, adult mentoring, and regulation, and by engaging in activities that promote positive development.

The limitations of the study warrant acknowledgment. Because the social context predictor measures and the criterion measure of problem behavior are both based on adolescent reports, any relation is vulnerable to the inflationary bias of common method. By controlling for individual difference-level and background attributes in examining context effects, we have demonstrated that the different contexts have unique effects despite deriving from the same reporter. In addition, we carried out a substudy of parents of the samples in the United States ($n = 316$) and China ($n = 347$), asking for their own reports about the various types of protection and risk in their adolescent's same four contexts. With parallel measures from a parent-adolescent pair, it was possible to explore whether there was any degree of relation between the two different observers. All correlations for the nine protection measures in various contexts, except for controls protection in the school and neigh-

borhood contexts, were significant in both country samples; averaging .24 (range .14–.30) in the U.S. sample and .21 (range .12–.34) in the China sample. With regard to the eight measures of risk across the contexts, the average correlation was .27 (range .09–.46) in the U.S. sample and .18 (range .13–.26, one measure excluded) in the Chinese sample. These significant correlations across 15 different measures, although generally small, do indicate some degree of concordance about contexts by two different observers and in both samples. Nevertheless, this remains a limitation for this and other studies that have to rely on adolescent reports about context.

A further limitation is that the measurement of individual-level protection (controls protection) and of individual-level risk (vulnerability risk) in these analyses was relatively limited. Although each measure is a multiple-item, highly reliable scale, reliance on only two logically relevant, individual-level measures could well permit a larger contribution by the context measures to adolescent problem behavior than might be the case were a larger number of individual-level measures employed (e.g., including high self-efficacy as a protective factor). The 13-item measure of individual-level controls protection, however, has consistently been our strongest individual-level measure (e.g., see Costa et al., 1999; Jessor et al., 1995, 1998b, 2003), and the 19-item measure of vulnerability risk is a composite of four well-established scales (low self-esteem, depression, low expectations for academic achievement, and low perceived chances for success in life) encompassing a variety of individual-level characteristics that reflect the construct. In addition, the individual-level measures employed generally accounted for substantial amounts of variance. It seems, therefore, that despite the limited number of measures, variation in individual-level protection and risk was fairly well represented.

That the four contexts assessed in this research do not exhaust the contextual sources that impact the daily lives of adolescents is another limitation. Notably absent is the media context including radio, television, and the World Wide Web, which is pervasively important for contemporary adolescents in both countries. The work setting is another context that should be engaged, especially in research on U.S. adolescents and especially as they reach senior high school age. In addition, it is possible that, despite efforts to maximize measurement comparability, the concept of neighborhood in a socialist society like China is different enough from its connotation in the United States to have affected the findings. For example, controls protection-neighborhood moderated models risk-family in China but not in the United States; an outcome that would be consonant with the socially organized regulatory role of neighborhood in China but not in the United States.

The reliance on single-item measures for three of the nine measures of risk constitutes another measurement limitation. More comprehensive assessment of these constructs can, of course, only be beneficial. Similarly, the measurement framework could be expanded to include additional, theoretically meaningful constructs such as “opportunity protection” (e.g., availability of or access to after-school or community-based youth development programs), as well as more comprehensive measurements of constructs that are already in the model (e.g., neighborhood and school models for prosocial engagement as indicators of models protection). More comprehensive models might better inform the development of

prevention-intervention efforts as well as advance theory-based understanding of adolescent behavior.

Finally, the focus on early adolescence and the cross-sectional nature of the data are also important limitations. The relative importance of the various social contexts, as well as the central role of controls protection, could well reflect the developmental stage of the adolescent participants—all in middle school or Grade 9. As adolescents mature and become more independent, they may be less responsive to informal social controls, especially in the family context. There is a need for longitudinal research to explore change in relative context importance, and in the importance of controls protection, as adolescents move further from childhood toward later adolescence.

These limitations notwithstanding, the contributions of this research clearly show that adolescent social contexts matter; they show that protective factors and risk factors are theoretically and empirically useful ways of describing those contexts; and perhaps most important, they show that context protection can moderate risk at both the individual and the context level. The similarity of the findings across the samples from two such diverse societies gives them generality and increases their compellingness. Engaging the social contexts of adolescent life continues to promise large returns for developmental inquiry.

Acknowledgments This study was supported by Grant award 99202099 from the William T. Grant Foundation. We are grateful to the officials of the school districts involved for their support and cooperation, especially Dr. Gene Jacquez for his contributions to the assessment instrument and for his unfailing efforts to ensure a high level of cooperation in the U.S. school district. We also acknowledge Carissa Low for exceptionally competent assistance in many aspects of the research.

References

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Arthur, M. W., Hawkins, J. D., Pollard, J. A., Catalano, R. F., & Baglioni Jr., A. J. (2002). Measuring risk and protective factors for substance use, delinquency, and other adolescent problem behaviors: The communities that care youth survey. *Evaluation Review, 26*(6), 575–601.

Barber, B. K. (1997). Introduction: Adolescent socialization in context: Connection, regulation, and autonomy in multiple contexts. *Journal of Adolescent Research, 12*(2), 173–177.

Barber, B. K., & Olsen, J. A. (1997). Socialization in context: Connection, regulation, and autonomy in the family, school, and neighborhood, and with peers. *Journal of Adolescent Research, 12*(2), 287–315.

Beam, M. R., Gil-Rivas, V., Greenberger, E., & Chen, C. S. (2002). Adolescent problem behavior and depressed mood: Risk and protection within and across social contexts. *Journal of Youth and Adolescence, 31*(5), 343–357.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*(6), 723–742.

Chen, C. S., Greenberger, E., Lester, J., Dong, Q., & Guo, M. S. (1998). A cross-cultural study of family and peer correlates of adolescent misconduct. *Developmental Psychology, 34*(4), 770–781.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Mahwah, NJ: L. Erlbaum Associates.

Cook, T. D., Herman, M. R., Phillips, M., & Settersten Jr., R. A. (2002). Some ways in which neighborhoods, nuclear families, friendship groups, and schools jointly affect changes in early adolescent development. *Child Development, 73*(4), 1283–1309.

Costa, F. M., Jessor, R., & Turbin, M. S. (1999). Transition into adolescent problem drinking: The role of psychosocial risk and protective factors. *Journal of Studies on Alcohol, 60*(4), 480–490.

Cronbach, L. J. (1982). Prudent aspirations for social inquiry. In W. H. Kruskal (Ed.), *The social sciences, their nature and uses* (pp. 61–81). Chicago: University of Chicago Press.

Crosnoe, R., Erickson, K. G., & Dornbusch, S. M. (2002). Protective functions of family relationships and school factors on the deviant behavior of adolescent boys and girls: Reducing the impact of risky friendships. *Youth Society, 33*(4), 515–544.

Dong, Q., & Chen, C. (2001). The role of relationships with teachers in adolescent development among a national sample of Chinese urban adolescents. *Chinese Journal of Applied Psychology, 7*(2), 3–10.

Eccles, J. S., Early, D., Frasier, K., Belansky, E., & McCarthy, K. (1997). The relation of connection, regulation, and support for autonomy to adolescents' functioning. *Journal of Adolescent Research, 12*(2), 263–286.

Elder Jr., G. H., & Conger, R. (2000). *Children of the land: Adversity and success in rural America*. Chicago: University of Chicago Press.

Elliott, D. S., Menard, S., Rankin, B., Elliott, A., Wilson, W. J., & Huizinga, D. (2006). *Good kids from bad neighborhoods: Successful development in social context*. New York: Cambridge University Press.

Elliott, D. S., Wilson, W. J., Huizinga, D., Sampson, R. J., Elliott, A., & Rankin, B. (1996). The effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime and Delinquency, 33*(4), 389–426.

Furstenberg Jr., F. F., Cook, T. D., Eccles, J., Elder Jr., G. H., & Sameroff, A. (1999). *Managing to make it: Urban families and adolescent success*. Chicago: University of Chicago Press.

Geisinger, K. F. (1994). Cross-cultural normative assessment: Translation and adaptation issues influencing the normative interpretation of assessment instruments. *Psychological Assessment, 6*(4), 304–312.

Gore, S., & Aseltine Jr., R. H. (1995). Protective processes in adolescence: Matching stressors with social resources. *American Journal of Community Psychology, 23*(3), 301–327.

Greenberg, M. T., Lengua, L. J., Coie, J. D., & Pinderhughes, E. E. (1999). Predicting developmental outcomes at school entry using a multiple-risk model: Four American communities. *Developmental Psychology, 35*(2), 403–417.

Greenberger, E., Chen, C. S., Beam, M., Whang, S. M., & Dong, Q. (2000). The perceived social contexts of adolescents' misconduct: A comparative study of youths in three cultures. *Journal of Research on Adolescence, 10*(3), 365–388.

Guo, J., Hill, K. G., Hawkins, J. D., Catalano, R. F., & Abbott, R. D. (2002). A developmental analysis of sociodemographic, family, and peer effects on adolescent illicit drug initiation. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*(7), 838–845.

Herman, M. R., Dornbusch, S. M., Herron, M. C., & Herting, J. R. (1997). The influence of family regulation, connection, and psychological autonomy on six measures of adolescent functioning. *Journal of Adolescent Research, 12*(1), 34–67.

Herrenkohl, T. I., Maguin, E., Hill, K. G., Hawkins, J. D., Abbott, R. D., & Catalano, R. F. (2000). Developmental risk factors for youth violence. *Journal of Adolescent Health, 26*(3), 176–186.

Hops, H., Andrews, J. A., Duncan, S. C., Duncan, T. E., & Tildesley, E. (2000). Adolescent drug use development: A social interactional and contextual perspective. In A. J. Sameroff, M. Lewis, & S. M. Miller (Eds.), *Handbook of developmental psychopathology* (2nd ed., pp. 589–605). New York: Kluwer Academic/Plenum Publishers.

Jessor, R., Donovan, J. E., & Costa, F. M. (1991). *Beyond adolescence: Problem behavior and young adult development*. New York: Cambridge University Press.

Jessor, R., Graves, T. D., Hanson, R. C., & Jessor, S. L. (1968). *Society, personality, and deviant behavior: A study of a tri-ethnic community*. New York: Holt, Rinehart and Winston.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic.

Jessor, R., Turbin, M. S., & Costa, F. M. (1998a). Protective factors in adolescent health behavior. *Journal of Personality and Social Psychology, 75*(3), 788–800.

Jessor, R., Turbin, M. S., & Costa, F. M. (1998b). Risk and protection in successful outcomes among disadvantaged adolescents. *Applied Developmental Science, 2*, 194–208.

Jessor, R., Turbin, M. S., Costa, F. M., Dong, Q., Zhang, H., & Wang, C. (2003). Adolescent problem behavior in China and the United States: A cross-national study of psychosocial protective factors. *Journal of Research on Adolescence, 13*(3), 329–360.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental Psychology, 31*(6), 923–933.

Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2001). *Monitoring the future: National survey results on drug use, 1975–2000. Volume I: Secondary school students (NIH publication no. 01–4924)*. Bethesda, MD: National Institute on Drug Abuse.

Kandel, D. B. (1985). On processes of peer influences in adolescent drug use: A developmental perspective. *Advances in Alcohol & Substance Abuse, 4*(3–4), 139–163.

Knight, G. P., & Hill, N. E. (1998). Measurement equivalence in research involving minority adolescents. In V. C. McLoyd & L. D. Steinberg (Eds.), *Studying minority adolescents: Conceptual, methodological, and theoretical issues* (pp. 183–210). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Leventhal, T., & Brooks-Gunn, J. (2003). Children and youth in neighborhood contexts. *Current Directions in Psychological Science, 12*(1), 27–31.

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers*. New York: Harper & Row.

Liu, J., & Messner, S. F. (2001). Modernization and crime trends in China's reform era. In J. Liu, L. Zhang, & S. F. Messner (Eds.), *Crime and social control in a changing China* (pp. 3–21). Westport, CT: Greenwood Press.

McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin, 114*(2), 376–390.

Novak, S. P., & Clayton, R. R. (2001). The influence of school environment and self-regulation on transitions between stages of cigarette smoking: A multilevel analysis. *Health Psychology, 20*(3), 196–207.

Patterson, G. R., & Yoeger, K. (1997). A developmental model for late-onset delinquency. In D. W. Osgood (Ed.), *Motivation and delinquency: Nebraska symposium on motivation* (Vol. 4, pp. 119–177). Lincoln, NE: University of Nebraska Press.

Rankin, B. H., & Quane, J. M. (2002). Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems, 49*(1), 79–100.

Reid, J. B., & Patterson, G. R. (1989). The development of antisocial behaviour patterns in childhood and adolescence. *European Journal of Personality, 3*(2), 107–119.

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., et al. (1997). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association, 278*(10), 823–832.

Rojek, D. G. (2001). Chinese social control: From shaming to reintegration to "getting rich is glorious". In J. Liu, L. Zhang, & S. F. Messner (Eds.), *Crime and social control in a changing China* (pp. 89–103). Westport, CT: Greenwood Press.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57*(3), 316–331.

Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health, 14*(8), 626–631.

Sampson, R. J. (1997). Collective regulation of adolescent misbehavior: Validation results from eighty Chicago neighborhoods. *Journal of Adolescent Research, 12*(2), 227–244.
Van de Vijver, F., & Hambleton, R. K. (1996). Translating tests: Some practical guidelines. *European Psychologist, 1*(2), 89–99.
Zhang, L. N., & Messner, S. E. (1996). School attachment and official delinquency status in the People's Republic of China. *Sociological Forum, 11*(2), 285–303.

Chapter 5
Neighborhood Variation and Successful Adolescent Development

Richard Jessor

The last several decades have witnessed a pervasive transformation in the organization of knowledge and the process of social inquiry. In salutary contrast to their traditional—and parochial—preoccupation with disciplinary concerns, the social sciences have increasingly begun to take complex social problems as the starting point in their confrontation with the empirical world. Indeed, with regard to a particular discipline, that of sociology, Neil Smelser expressed doubt not long ago that this name would denote an identifiable field in the future, and he predicted that "scientific and scholarly activity will not be disciplinary in character but will, instead, chase problems" (1991, pp. 128–29). In the same vein, the prestigious Kellogg Commission noted pointedly that "…society has problems; universities have departments" (1997, p. 747). It is largely from the focus on complex problems of concern to society that whole new fields of knowledge have emerged in recent decades—among them behavioral science—and that *trans*disciplinary perspectives have, of logical necessity, come to inform and shape empirical inquiry. This volume by Elliott and colleagues exemplifies these recent developments and beautifully instantiates the transdisciplinary perspective of contemporary behavioral science.

Reflecting these trends, and self-consciously committed to furthering them, the MacArthur Foundation Research Network on Successful Adolescent Development in High-Risk Settings undertook a large-scale and extended program of collaborative, transdisciplinary research. The concerted aim of its various research projects was to further understanding about how young people growing up in circumstances of disadvantage, adversity, and even danger, nevertheless manage to do well, that is, to

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Jessor, R. (2006). Foreword. In D. S. Elliott, S. Menard, B. Rankin, A. Elliott, W. J. Wilson & D. Huizinga (Eds.), *Good kids from bad neighborhoods: Successful development in social context* (pp. x–xvi). New York: Cambridge University Press.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_5

keep out of serious trouble, to stay on track, and to prepare themselves for the transition into young adult roles—in short, how they manage to "make it" (Jessor, 1993).

This volume is the third in a series reporting findings from those collaborative, converging, transdisciplinary endeavors, all in pursuit of that concerted aim—the illumination of successful adolescent development despite settings of disadvantage and diversity. The first volume, *Managing to Make It: Urban Families and Adolescent Success* (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999), while also considering multiple contexts of adolescent life in inner-city Philadelphia, had a primary focus on the family context and, especially, on the strategies parents employ to safeguard and ensure their adolescents' future in the face of limited resources and constrained opportunity The second volume in the series, *Children of the Land: Adversity and Success in Rural America* (Elder & Conger, 2000), explored the responses of farm and small-town families in rural central Iowa to raising their adolescents during the drastic farm crisis of the 1980s that had decimated their financial resources and drove many from the land.

Elliott and his colleagues began their project with a key focus on the neighborhood context in both Denver and Chicago, but the logic of their theoretical and analytic framework required them to examine closely the other important contexts of daily adolescent life as well—the family, the school, and the peer group. By first articulating and then testing a comprehensive, transdisciplinary framework for explaining neighborhood effects, and also engaging the larger ecology of youth development, these authors have provided us with a landmark accomplishment in social inquiry It is an achievement that will surely set the standard for future investigations of the role that the everyday settings of social life play in shaping the way young people grow up.

The contributions of this work are theoretical, analytical, and empirical, and some of these will be noted. But first, it is important to position it in relation to widely shared stereotypes about the urban poor. There has been an unfortunate tendency to emphasize dysfunction and failure as characteristic of those living in poverty and of the institutions—families, schools, communities—in which they are embedded. Compounding this stereotype has been a perspective that erases individual variation among the disadvantaged, seeing them as essentially homogeneous—a monolithic subgroup of the larger population. This volume makes clear that nothing could be further from reality, and in this regard its findings, fully consonant with those of the earlier volumes in the series, are a welcome and compelling corrective.

From the outset, and by deliberate contrast, the MacArthur Network projects sought to account for the observable success of so many young people despite circumstances of poverty and adversity in their everyday lives. As one scholar had earlier noted about adolescent black males growing up poor, "Given these cumulative disadvantages, it is remarkable that the proportion of black male adolescents who survive to become well-adjusted individuals and responsible husbands and fathers is so high, or that the percentage who drop out of school, become addicted to drugs, involved in crime, and end up in jail is not considerably greater" (Taylor, 1991, p. 156). The concurrence of the authors of this volume with that perspective is evident in the conclusion they draw from their comprehensive findings: "…a majority of youth from the worst neighborhoods appear to be on track for a successful transition into adulthood" (Chap. 1).

Rejecting the myths of homogeneity and of failure and dysfunction among the poor as being no more than caricatures, the present research instead established those factors at the contextual and individual levels, which underlie and explain the extensive variation in successful developmental outcomes that are, in fact, obtained among youth in high-risk settings. Their research strategy was to develop a multilevel, multicontext framework that conceptually could link attributes of neighborhoods (in this case, level of disadvantage) to adolescent developmental outcomes (in this case, level of success). This theory is elaborated cumulatively, chapter by chapter, from a model of the neighborhood, to a neighborhood plus family model, to models that then add the school and the peer contexts, culminating ultimately in the specification of the full conceptual framework for the explanation of neighborhood effects on youth development. *This transdisciplinary theory of neighborhood effects, assimilating constructs from sociology*, *social psychology*, *anthropology, geography, and epidemiology, must be seen as a major contribution in its own right.* It advances this field of research beyond its usual reliance on single dimensions, such as the concentration of poverty, to characterize neighborhoods in more complex ways; it permits the appraisal of indirect neighborhood effects, especially those that may be mediated through other contexts embedded in the neighborhood-the family, the school, or the peer group; and perhaps most important, it specifies the mechanisms or processes that constitute the chain of influence between neighborhood, on the one hand, and the course and content of adolescent development, on the other.

Despite a long history and a recent resurgence of social science interest in the neighborhood, its conceptualization and specification have remained problematic. Even the geographic delineation of urban neighborhoods, usually relying on census units, differs across studies; indeed, in this very volume, the Chicago site employed the larger unit of census tract, whereas the Denver site used the smaller unit of block group. What is ultimately at issue, and what runs throughout the authors' grapplings with the neighborhood notion, is how to ensure that the specification of neighborhood employed *is relevant to the experience and actions of its residents,* and it is in this regard that they make another important contribution. For the geographic delineation of a neighborhood, invoking the criterion of relevance to experience/action clearly favors employing the smaller unit wherever possible. That criterion also influenced the descriptive characterization of neighborhoods-a multidimensional characterization is likely to be more relevant to experience/action than any one of its components.

But most important are the implications of that criterion for the constitution of neighborhoods *theoretically.* Descriptive attributes of neighborhoods, such as dilapidated housing, have to be seen as remote or distal in the causal chain, their influence on experience/action requiring mediation by theoretical constructs, such as neighborhood social organization and neighborhood culture, which are causally closer, that is, more proximal to experience/action. This theoretical mediation is clearly illustrated in the full, multicontextual model at which the authors arrive. The descriptive characteristics of the neighborhood are represented as causally most distal from the adolescent developmental outcomes of interest, and their influence is represented as mediated by the theoretically defined properties of neighborhoods,

that is, their organization and their culture. This is a contribution to thinking about neighborhoods that should help shift the balance more toward theoretically guided specification and away from the customary reliance on descriptive characteristics that happen to be readily available.

The authors' concern with the theoretical properties of neighborhoods advances understanding in yet another way. It makes clear the critical difference between the compositional effects of neighborhoods (the effects that derive from the individual-level characteristics of the people who happen to live there or might have moved there, their socioeconomic status, for example, or their ethnicity) and what might be called "true" neighborhood effects (those that reflect the organized interactions among its residents, their informal social networks, for example, or the degree of their consensus on values). These are *neighborhood-level* properties, what the authors of this volume refer to as "emergents," and it is these that capture what the construct of neighborhood should mean if it, indeed, means something more than the average of the characteristics of the people who live in it. Here is yet another contribution of this volume; it not only makes this distinction a guiding premise of the research, but the measures devised and the design of the analyses permit a clear separation between these two types of neighborhood effects.

This volume is rich with compelling findings that force our thinking in new directions about the influence of neighborhoods on successful adolescent development. The research reaffirms our expectation from the literature that neighborhoods do matter. But it also reveals that they matter quite differently, if we are seeking to explain neighborhood-level differences in rates of a developmental outcome (i.e., differences between neighborhoods) or seeking to explain differences in a developmental outcome at the individual level (i.e., differences between individuals). The neighborhood measures, taken together, are shown to provide a significant account of neighborhood-level differences in rates of success and, as expected, rates of successful development are indeed higher in better neighborhoods. But what emerges most strikingly about neighborhoods as a source of influence on successful adolescent development is *how modest that influence is at the individual level.* In short, what the research reveals is that most of the individual-level variation in success occurs *within neighborhoods***,** *not between neighborhoods*, and the implications of that finding are enormous. It requires rejecting the idea that there is an inexorable linkage between growing up in a poor neighborhood and being destined for poor developmental outcomes. Indeed, the magnitude of within-neighborhood variation in successful outcomes—in both advantaged and disadvantaged neighborhoods—is such that the neighborhood per se, disadvantaged or otherwise, cannot be considered to mortgage an adolescent's developmental future. A more salutary finding would be difficult to envision.

It is in their exploration and dissection of the within-neighborhood variation that the authors of this volume make perhaps their most significant contribution to neighborhood research. By designing the project to permit examination not only of the neighborhood context itself, but also of the social contexts that are embedded within it—families, schools, and peer groups—the investigators were able to advance knowledge in several important ways. First, they were able to show that

most of whatever effects neighborhoods have on adolescent developmental outcomes are indirect—mediated by their effects on the other contexts they encompass. Second, in examining those other contexts, they found that, within any given neighborhood, there can be considerable variation in quality vis-a-vis successful developmental outcomes. That is to say, the quality of parenting in families, for example, or of the climate of schools, or of the modeling by peer groups within a neighborhood remains highly variable; said otherwise, the quality of its social contexts is not, or is only weakly, determined by the quality of the neighborhood. Thus, to explain within-neighborhood variation in successful developmental outcomes requires an account of within-neighborhood variation in families, schools, and peer groups—and this is precisely what these investigators have been able to do. Third, they have been able to establish that there is variability among these contexts in quality such that knowing, for example, that there are dysfunctional families in a neighborhood tells little about the quality of its schools or of its peer groups. In short, there seems to be only what, in the Network's studies, came to be referred to as "loose coupling," not just between a neighborhood and these other social contexts, but also among these other contexts themselves. Such findings underline the importance of attending to within-neighborhood differentiation—conceptually and empirically—in any study of neighborhood effects.

A bountiful harvest of findings about neighborhood effects, beyond those already noted, and with clear implications for social policy and for community interventions, awaits the reader. These include findings about the relative importance of the different social contexts of adolescent life; about the variables in those contexts that are most influential in shaping an adolescent's course of development along a trajectory of success; about how different predictors are engaged when the outcome being predicted is different, say, problem behavior instead of personal competence; about the difference developmental stage seems to make; and about much more. Along the way, the reader will find the volume inviting, accessible, and transparent, reflecting the care taken by its authors to provide a synopsis at the beginning of each chapter, to build the argument chapter by chapter, to summarize their major findings in the final chapter, and to reserve most technical material for the Appendixes.

As is the case with all research, especially research dealing with the complexities of the social environment, there are limitations to the conclusions that can be drawn from this study; these are sensitively acknowledged and clearly confronted by the authors. However, it needs to be emphasized here that the main findings of the study are unusually compelling. This stems, first, from the attention given to operationalizing the physical, compositional, and theoretical or emergent attributes of neighborhoods, and then to directly measuring them; it stems also from the authors having constituted innovative and comprehensive measures of adolescent developmental success. The study gains its most substantial increment in compellingness by having carried out the test of its explanatory model in two very different urban sites—Denver and Chicago—and in both advantaged and disadvantaged neighborhoods in both sites. The major findings remain consistent across those tests. Finally, the study's findings are consistent with those reported in the two earlier volumes, thereby supporting the reach of the authors' transdisciplinary explanatory model and further extending its generality.

In addressing an important social problem in the way that they have, D. S. Elliott and colleagues have not only strengthened our grasp on successful youth development in disadvantaged neighborhoods, but they have, at the same time, enriched behavioral science.

References

Elder Jr., G. H., & Conger, R. (2000). *Children of the land: Adversity and success in rural America*. Chicago: University of Chicago Press.

Furstenberg Jr., F. F., Cook, T. D., Eccles, J., Elder Jr., G. H., & Sameroff, A. (1999). *Managing to make it: Urban families and adolescent success*. Chicago: University of Chicago Press.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48*(2), 117–126.

Kellogg Commission. (1997). As cited in Abelson, P. H. evolution of higher education. *Science, 277*(5327), 747.

Smelser, N. J. (1991). Sociology: Retrospect and prospect. In R. Jessor (Ed.), *Perspectives on behavioral science: The Colorado lectures* (pp. 115–130). Boulder, CO: Westview Press.

Taylor, R. L. (1991). Poverty and adolescent black males: The subculture of disengagement. In P. B. Edelman & J. A. Ladner (Eds.), *Adolescence and poverty: Challenge for the 1990s*. Washington, DC: Center for National Policy Press.

Chapter 6
Problem Behavior Theory and Adolescent Problem Behavior in Sub-Saharan Africa

Robert P. Ndugwa, Caroline W. Kabiru, John Cleland, Donatien Beguy, Thaddeus Egondi, Eliya M. Zulu, and Richard Jessor

Introduction

Although adolescence provides a challenging developmental period for young people throughout the world, the difficulties faced by young people in developing countries are often exacerbated by poverty, limited access to education, and unstable social contexts. Such circumstances can constitute pressures toward engaging in problem behaviors, that is, behaviors that transgress societal norms and that can compromise adolescent health and development.

Much of the literature on adolescent problem behavior has come from western societies, and theories about adolescent problem behaviors have largely been tested on adolescents living in those settings (Hawkins, Lishner, Catalano, & Howard, 1986; Jessor, 1987; Jessor & Jessor, 1977; Williams, Ayers, Abbott, Hawkins, & Catalano, 1996). A conceptual framework or theory that, while developed in the United States, has been applied in both developed and developing countries, is Jessor's Problem Behavior Theory (Jessor & Jessor, 1977; Jessor, Donovan, & Costa, 1991; Jessor et al., 2003; Turbin et al., 2006; Vazsonyi, Trejos-Castillo, & Huang, 2006). To our knowledge, however, Problem Behavior Theory has not yet been widely employed to account for variation in problem behavior among young people in sub-Saharan Africa, more particularly those that live in urban informal

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Ndugwa, R. P., Kabiru, C. W., Cleland, J., Beguy, D., Egondi, T., Zulu, E. M., & Jessor, R. (2010). Adolescent problem behavior in Nairobi's informal settlements: Applying Problem Behavior Theory in sub-Saharan Africa. *Journal of Urban Health, 88*(Suppl. 2), S298–S317.

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settlements (commonly called slum settlements) and are exposed to the extreme poverty and dangers that characterize such settings. In this study, we explore the applicability of Problem Behavior Theory as an explanation of problem behavior among adolescents in two slum settlements in Nairobi, Kenya.

Problem Behavior Theory

Problem Behavior Theory describes the relations of psychosocial protective and risk factors to involvement in various adolescent problem behaviors such as delinquency, tobacco use, alcohol abuse, other illicit drug use, early sexual intercourse, aggression, or risky driving (Jessor, 1987, 1991; Jessor & Jessor, 1977). The theory incorporates both contextual attributes and individual characteristics conceptualized as protective factors and risk factors. The explanatory model takes into account both the direct effects of protective factors and risk factors as well as the moderating or buffering effect that protection may have on the impact of exposure to risk. In a large number of studies, psychosocial risk and protective factors have been shown to account for substantial amounts of variation in adolescent problem behavior for both males and females, for younger and older adolescents, and across groups varying in socioeconomic status, race, and ethnicity (Donovan, Jessor, & Costa, 1999; Jessor, 2008, 1991; Vazsonyi, et al., 2006).

Three types of protective factors (models protection, controls protection, and support protection) and three types of risk factors (models risk, opportunity risk, and vulnerability risk) are specified in the theory. According to the theory, the greater the risk factors and the less the protective factors in an adolescent's life situation, the greater the likelihood of an adolescent's involvement in problem behavior (Jessor, 1991). Only a few studies have tested the cross-national applicability of the theory. One such study tested the theory among adolescents in China and the United States and showed that the model was able to account for substantial variation in problem behavior in both countries, even though problem behaviors were more prevalent among US than Chinese adolescents (Jessor et al., 2003). In addition, a recent comparative study among Georgian and Swiss youth also supported the applicability of the theory beyond the United States borders (Vazsonyi et al., 2008). Few studies, however, have tested the applicability of the theory within less developed countries like Kenya, and more so in an increasingly important population of urban youth.

Kenya and Urban Informal Settlements

Urban informal settlements (commonly referred to as slums or slum settlements), are characterized by congestion, high levels of unemployment, inadequate social services, extreme poverty, insecurity, crime, and hopelessness, and, therefore, offer

a unique setting to study adolescent problem behavior (African Population and Health Research Center, 2002b; United Nations Human Settlement Programme, 2008). Slum settlements are largely the result of rapid urbanization amidst declining economies and poor governance (African Population and Health Research Center, 2002b; United Nations Human Settlement Programme, 2008).

Kenya is a typical example of a country where rapid urbanization and social change have continued unabated. In Nairobi, the capital city, over half of the residents live in slum settlements or slum-like conditions, without proper access to sanitation or affordable clean water (United Nations Human Settlement Programme, 2003, 2008). The informal classification of slum settlements has for long justified the unwillingness or inability of governments and local councils to provide formal health, education, and social services to residents of slum settlements. This has had large impacts on health and social outcomes among dwellers of slum settlements. For example, the HIV prevalence among adults in the slum settlements aged 15–49 is estimated to be about 11.5% (African Population and Health Research Center, 2009) compared to 9.9% among the same age group for Nairobi City as a whole (Kenya Government and ORC Macro, 2004). Other socioeconomic and health indicators of slum settlements are not any better; for example, there are large differences in educational attainment or access to educational resources, levels of teacher absenteeism, and large disparities in the quality of schools in slum settlements compared to non-slum areas (Mugisha, 2006). Consequently, while 90% of children living in low income but non-slum areas transition from primary to secondary school, only 40% of their counterparts in slum areas do so (Mugisha, 2006). Indeed, poverty coupled with lack of formal education and livelihood opportunities among young people in slum settings has been shown to be associated with an increased risk of involvement in anti-social behaviors, drug abuse, risky sexual behaviors, and a higher likelihood of dropping out from school (Dodoo, Zulu, & Ezeh, 2007; Mugisha, 2006; Mugisha, Arinaitwe-Mugisha, & Hagembe, 2003; Zulu, Dodoo, & Ezeh, 2002, 2004). The above risk factors have been found to play a significant role in increasing the incidence of HIV/AIDS among adolescents in sub-Saharan Africa (Asiimwe-Okiror et al., 1997; Kilian et al., 1999). For slum adolescents, the challenges they face are further compounded by lack of access to proper health services (African Population and Health Research Center, 2002a).

Since urbanization is projected to increase in developing countries (United Nations Human Settlement Programme, 2003, 2008), an understanding of factors that reduce risky behaviors and enhance protection among adolescents is key to developing policies that can enhance well-being among adolescents living in poor urban settings. Problem behavior can be understood by applying existing theoretical frameworks. In this paper, we examine the applicability of Problem Behavior Theory and explore the contribution that psychosocial protection and risk factors can make to explaining problem behavior among adolescents aged 12–19 in two informal settlements in Nairobi city.

Data and Methods

Study Design, Participants, and Procedures

This paper draws on data collected under two research projects nested to the Nairobi Urban Health and Demographic Surveillance System (NUHDSS). These are the Transition-To-Adulthood (TTA) project and the Education Research Program (ERP). In 2008, the NUHDSS mid-year population was 59,570 people living in 24,100 households located in Korogocho and Viwandani slum settlements in Nairobi city. The NUHDSS, TTA and ERP have ethical approval from the Kenya Medical Research Institute's ethical review board. In addition, all research staff, fieldworkers, and data processors are trained on research ethics. For all studies, potential respondents are first briefed on the study objectives and then invited to participate. Respondents are requested to give verbal or signed consent; for respondents aged 12–17, consent is also requested from their parents or guardians.

The Transition-to-Adulthood Project

TTA is a component of the 5-year Urbanization, Poverty and Health Dynamics research program conducted by the African Population and Health Research Center. The TTA's general objective is to identify protective and risk factors in the lives of adolescents growing up in these two informal settlements in Nairobi and to examine how these factors influence their transition to adulthood. Adolescents were randomly selected within the households in the study area using records of residents in the NUHDSS for the year 2007. Allowing for an annual attrition rate of 16% for Korogocho and 24% for Viwandani, and given the planned 3-year follow-up, 2,478 and 3,028 randomly selected young people were targeted for recruitment from Korogocho and Viwandani, respectively. Between October 2007 and June 2008, about 4,058 (75% response rate) adolescents aged 12–21 were interviewed. A structured questionnaire was administered by interviewers and included questions covering reproductive aspirations (e.g., parenthood, marriage); key health and other concerns (e.g., worry about HIV/AIDS, getting a job, marriage, finishing school, employment); living arrangements and nature of interactions with parents, guardians, teachers, and peers; involvement in youth groups (e.g., religious and social groups); and involvement in risky behaviors (e.g., early sexual debut and delinquency). The complete questionnaire was translated from English to Swahili and administered in Swahili, the language most spoken in the study area.

The Education Research Program

This is a longitudinal study designed to compare educational outcomes between two slum settlements (Korogocho and Viwandani) and two non-slum communities (Harambee and Jericho) in Nairobi city. The ERP has been interviewing all children

aged 5–21 years since 2005 using five modular interviewer-administered questionnaires that collect information on household characteristics, school characteristics, school enrolment, and children's behavior (African Population and Health Research Center, 2006). Information on adolescent sexual and other risk behaviors is collected as part of the module that assesses children's schooling status and experiences, as well as informal training and apprenticeships. The behavior section of the module is completed by respondents aged at least 12 years, and the section must be completed with the child as the respondent. By December 2008, a baseline survey and four waves of data collection were completed by the ERP. Wave 4 was collected from December 2007 to August 2008. Details of the sample design and other survey procedures are available elsewhere (African Population and Health Research Center, 2006).

Description of the Merged Sample

As both the ERP and the TTA are nested to the NUHDSS, it is possible to merge information collected around the same time from the same individuals by the two studies. The merged file would contain detailed information on risk and protective factors from the TTA and details relating to schooling and substance use from the ERP. We merged data from the TTA and ERP Wave 4 collected between October 2007 and August 2008 using the unique identification numbers that are assigned to all residents in the NUHDSS. Overall, 2,028 respondents aged 12–21 years were found in both the ERP and the TTA databases. In order to provide a better comparison with other studies, the adolescents aged 12–19 years were selected and since involvement in sexual relations was used as one of the measures for problem behavior, we excluded adolescents who were or had ever been married. The final sample had 1,722 never married adolescents. To rule out 'selection bias', the characteristics of this sample were compared to the larger ERP and TTA primary samples and were generally comparable for several selected characteristics (gender, age, slum location, parental co-residence, education status). The age group 12–19 is wide and covers adolescents at markedly different stages of their maturation. This was evident in the differences in prevalence of problem behaviors by age. Hence, adolescents were grouped into two age cohorts (12–14 and 15–19 years) for this study. Socio-demographic characteristics of the sample and the prevalence of problem behaviors are presented in Table 6.1.

Socio-demographic variables used in the analysis were: age in years (continuous); sex (male and female); household size; study site (Korogocho and Viwandani); duration of stay in the study area; parental co-residence (staying alone, with both parents, with one of either parent, or with other relative or non-relative); and schooling status (in school versus out of school). Socioeconomic status was assessed using a three-category wealth index (least wealthy, middle, and most wealthy) constructed using household assets and amenities collected through the NUHDSS in 2007. These included asset ownership (e.g., radio, television set, motorcycle, mattress, kerosene lamp, phone, and sewing machine), building materials (floor material,

Table 6.1 Descriptive characteristics of study participants and prevalence of problem behaviors by age-cohort

Characteristics	12–14 years (n = 780)	15–19 (n = 942)	Total (N = 1,722)
Slum site (%)			
Korogocho	47.8	57.2	53.0
Viwandani	52.2	42.8	47.0
Sex (%)			
Male	50.8	54.5	52.8
Female	49.2	45.5	47.2
Parental co-residence (%)			
Stay alone or other	7.1	23.3	16.0
With one parent	27.3	28.6	28.0
With both parents	65.6	48.1	56.0
Socioeconomic status (%)			
Least wealthy	41.8	41.8	41.8
Middle	31.0	27.4	29.0
Most wealthy	27.2	30.8	29.2
Currently in school (%)	95.6	63.8	78.2
In secondary or higher (%)[a]	1.61	54.0	24.9
Median duration of stay in slum (years)	12	15	13
Ever been pregnant or made someone pregnant (%)	0.3	4.0	2.3
Ever drunk alcohol (%)	1.7	9.7	6.0
Had sex before 15 years (%)	3.2	9.0	6.4
Ever had sex (%)	3.2	24.6	15.0
Ever smoked cigarettes (%)	0.9	4.0	2.6
Ever used illicit drugs (%)	2.6	10.3	6.8
Ever started a fight with peers (%)	34.4	33.8	34.1
Ever hit or threatened to hit someone (%)	27.2	25.9	26.5
Ever tried to take something belonging to others (%)	22.6	19.4	20.8

[a]Base is currently in school

roof, wall material) and availabilities of amenities (water supply, electricity), etc. Principal components analysis was used to construct the socioeconomic index (Filmer & Pritchett, 2001).

About 53% of the participants were living in Korogocho and about 47% resided in Viwandani. More than half of all the adolescents reported living with both parents (56%), while 28% were living with one of the parents and 16% were living alone or with other people (relatives or non-relatives). As expected, the proportion of adolescents living with no parent was higher in the older age cohort. About 78% of the adolescents indicated that they were currently in school, with the vast majority of the younger cohort (95.6%) versus close to two-thirds of the older ones being in

school. Of the older cohort (more or less secondary going ages) who were in school, 54% were in secondary school.

With regard to problem behavior, few adolescents had ever been pregnant or made someone pregnant (2.3%), while about 6.4% reported having had sexual intercourse before reaching 15 years. Older adolescents reported higher levels of involvement in early sexual activity, ever being pregnant or having made someone pregnant, and drinking alcohol than the younger ones (see Table 6.1).

Measuring Problem Behavior

A composite eight-item Multiple Problem Behavior Index (MPBI) was constructed assessing delinquent behaviors (three items), early sexual experience (one item), illicit drug use (two items), alcohol consumption (one item), and tobacco smoking experience (one item). Although premarital sexual behavior may not be a problem behavior per se, early sexual activity is problematic because of the adverse health and socioeconomic consequences associated with it, and there are societal pressures to preserve young people's virginity until marriage or as long as possible. Campaigns to promote abstinence and discussion of health consequences of early initiation of sex have especially been highlighted in the widespread HIV prevention programs for adolescents. Therefore, early sexual intercourse was included as a component of the MPBI, with early sexual experience defined as sex before the age of 15 years. This arbitrary cut-off age is a good representation of the median age at first sex for young people growing up in slum settlements (Zulu et al., 2002). Using this cut-off, early sexual experience among adolescents aged less than 15 years was equivalent to "Ever had sex (yes/early sex=1, No/early sex=0)" while for those above 15 years the measure was "whether sex was before reaching 15 years (early sex=1) or after 15 (early sex=0) or never had sex (early sex=0)".

Measuring Protective and Risk Factors

The three types of protective factors (models, controls, supports) and the two types of risk factors (models and vulnerability) were constructed as composite measures. Opportunity risk, the third type of risk factor had very low variability and was, therefore, dropped from the analysis. Controls protection was measured as two separate sub-composites, one assessing personal (individual-level) controls, and the other informal social controls or social regulation. For adolescents not in school, items in reference to school-related controls or protection were inapplicable to them and were coded as zero at analysis stage. Alpha reliability was used to assess the internal consistency of items for each composite measure. A composite score for each type of theoretical predictor was constructed using standardized values of the individual items in each scale (see Table 6.2). All the resulting predictors were

Table 6.2 Description of items used to construct multiple problem behavior index, protective and risk factor measures

	Items	Response codes
	Multiple problem behavior index	
1	*Sexual behavior:* have you ever had sexual intercourse?	1 (Yes), 2 (No)
	How old were you when you first had sexual intercourse?	Age in years
2–5	*Substance use:* have you ever used [substance] anytime in your life?	1 (Yes), 2 (No)
	(Drugs: miraa, glue, alcohol, cigarettes)	
6–8	*Delinquent behaviors:* how many times have you done any of the following things in the last 4 months? Starting a fight with your peers? took or tried to take something that belonged to someone else, without their knowledge?, hit or threatened to hit a peer or adult?	0 (Never), 1 (Once), 2 (More than once)
	Social controls protection (Cronbach's alpha = 0.83) How much would you say your parents/guardians really know about the following things about you?	
1–9	Where you spend time in the evenings on weekdays? Who you spend time with in the evenings on weekdays? Where you spend time on weekends? Who do you spend time with on weekends? What you do during your free time? How you spend your money? Whether you have or do homework? What TV programs, videos, or films you watch? Who your friends are?	1 (Never know) to 3 (Always know)
10–11	How often does your parent/guardian scold or reprimand you when you do something wrong; for example, if you come home late, don't do your chores, watch too much TV? When you do something wrong, how often does your parent/guardian spank or slap you?	1 (Never) to 5 (Every time)
12	If you are currently in school, how important is it to your friends that you do well in school?	1 (Not too important) to 3 (Very important)
13–14	How do most of your friends feel about someone your age drinking alcohol? How do most of your friends feel about someone your age using marijuana or other drugs?	1 (Strongly disapprove) to 4 (Strongly approve)
	Individual controls protection (Cronbach's alpha = 0.66)	
1–6	How important is it to you to rely on religious teaching when you have a problem? How important is it to you to believe in God? How important is it to you to rely on religious beliefs as a guide for day-to-day living? How important is it to be able to turn to prayer when you are facing a personal problem? How important is finishing secondary school? Going to university?	1 (Not important) to 4 (Very important)
7	How well do you resist peer pressure from the rest of the group?	1 (Very well) to 4 (Not well at all)
8–9	Young women should remain virgins till they marry? Young men should remain virgins till they marry?	1 (Agree), 2 (Disagree)
	Would you say you strongly agree; somewhat agree; neither disagree nor agree; somewhat disagree; or strongly disagree with the following statements about you?	

(continued)

Table 6.2 (continued)

	Items	Response codes
10–13	In general, I like school a lot? I get along well with my teachers?, I try my best in school?, Doing well in school is important for my future?	1 (Strongly agree) to 5 (Strongly disagree)
	Models protection (Cronbach's alpha = 0.64)	
1–4	How many of your friends get good marks in school? How many of your friends participate in sports? How many of your friends attend church/mosque?, How many of your friends want to go to secondary school/university/college?	1 (None of them) to 4 (All of them)
	Support protection (Cronbach's alpha = 0.77)	
1–4	Since the beginning of this school year, how often has your (father/father figure) checked your homework or asked you to make sure you had done it? Since the beginning of this school year, how often have you talked to your (father/father figure) about any progress or problems you were having at school? Since the beginning of this school year, how often has your (mother/mother figure) checked your homework or asked you to make sure you had done it? Since the beginning of this school year, how often have you talked to your (mother/mother figure) about any progress or problems you were having at school?	1 (Never) to 5 (Almost every day)
5–10	How often does your father/father figure teach you things you didn't know? How often do you share secrets or private feelings with your father/father figure? How often does your father/father figure try to help you when you need something? How often does your mother/mother figure teach you things you didn't know? How often do you share secrets or private feelings with your mother/mother figure? How often does your mother/mother figure try to help you when you need something?	1 (Never) to 5 (All the time)
11–15	When you are with your girlfriend/boyfriend, you feel completely able to relax and be yourself. No matter what happens, you know that your girlfriend/boyfriend will always be there for you, You know that your girlfriend/boyfriend has confidence in you, Your girlfriend/boyfriend often lets you know that she/he thinks you are a worthwhile person. The teachers at my school will spend extra time to help pupils/students do their best.	1 (Strongly agree) to 4 (Strongly disagree)
16–19	Do (his/her) homework. Not skip school. Get involved in positive activities outside of school (e.g. religious activities, sports, etc.)	1 (More than enough) to 3 (Not enough)
	Stay in school until he/she graduates from secondary school	
	Models risk (Cronbach's alpha = 0.73)	
1–8	Have any of your brothers or sisters ever had premarital sex? Have any of your brothers or sisters ever smoked or do any currently smoke cigarettes?, Have any of your brothers or sisters ever drunk or do any currently drink alcohol?, Have you ever lived with anyone who was a problem drinker or alcoholic?, Have you witnessed your mother/mother figure being beaten?, Do you know of any close friends who have kissed or been kissed?, Do you know of any close friends who have fondled or been fondled?, Do you know of any close friends who have had sexual intercourse?	1 (Yes), 2 (No)

(continued)

Table 6.2 (continued)

	Items	Response codes
9–10	Drinking and drug use is a problem at my school, teachers in my school try to have sex with pupils, and sometimes do have sex with them	1 (Strongly agree) to 5 (Strongly disagree)
11–15	How many of your friends get into trouble at school (e.g. disciplinary action, get into fights, etc.)? How many of your friends drink alcohol? Run away from home? Get in trouble with the police? Have sexual intercourse?	1 (None of them) to 4 (All of them)
	Vulnerability risk (Cronbach's alpha = 0.83)	
1–3	How well do you get along with others your age? How well do you live up to what other people expect of you? What about your ability to do well in school (even if you are not in school currently)?	1 (Very well) to 4 (Not well at all)
4	How attractive do you think you are?	1 (Very attractive) to 4 (Not attractive at all)
5	On the whole, how satisfied are you with yourself?	1 (Very satisfied) to 4 (Not satisfied at all)
6–15	What are the chances that you will finish primary school? What are the chances that you will join secondary school? Finish secondary school? Go to university?, have a job that pays well?, be able to own your own home?, have a job that you enjoy doing?, have a happy family?, stay in good health most of the time?, be respected in your community?	1 (High) to 3 (Low)

standardized (to have a mean equal to zero and standard deviation equal to one). This was necessary in order to enable reasonable interpretations of any possible moderator or interaction effects that might emerge in the analyses. As can be seen in Table 6.2, the alpha reliabilities of the explanatory measures are all acceptable (Cronbach's alpha > 0.6), and for four of the six measures reliabilities are good (Cronbach's alpha > 0.7).

Statistical Methods

Data were analyzed using STATA version 10 (2008). Univariate statistics were computed to describe the respondents' socio-demographic characteristics by age cohort. To assess the linear relationships among the theoretical predictors as well as with the problem behavior outcome measure, correlation coefficients were computed. The outcome and theoretical predictors were assessed for the assumptions of normality. The MPBI measure was skewed to the right and a natural log transformation of (MPBI + 1) was applied to normalize the distribution of this outcome. Hierarchical linear regression methods were then used to assess the applicability of Problem Behavior Theory by modeling the relation of the theoretical predictors, as well as

their interactions, to the log-transformed MPBI outcome measure. First, the log-transformed MPBI outcome measure was fitted by including only the sociodemographic variables as predictors. A second model was fitted by including the socio-demographic variables (as controls) and then adding the four protective factor composite measures. A third model was fitted by now adding the two risk factor composite measures to the first model. Finally, a fourth model was fitted by adding all significant interactions between the four protective and the two risk factor composite measures to the third model. These four models were fitted separately for the two age cohorts. The results were then back-transformed to reflect the true relationship between the predictor measures and MPBI that are presented in the tables.

Results

Results are presented first for the bi-variate relations among the explanatory measures and for their relations to the problem behavior outcome measure, the MPBI. Next, results for the multi-variate analyses are described, controlling for one's socio-demographic characteristics. Finally, the findings about interactions or moderator effects of protection on the impact of exposure to risk are presented.

Examining the Applicability of Problem Behavior Theory: Bi-variate Analyses

Before examining whether the multi-variate explanatory model of Problem Behavior Theory applies to adolescents living in the slum settlements in Nairobi City, we computed bi-variate correlations to establish the relationships of the predictor measures with the problem behavior outcome variable, the Multiple Problem Behavior Index. Correlations are presented separately for each age cohort (Table 6.3). As expected, nearly all four protective factors were positively correlated with each other in both age cohorts except for support protection and models protection (MP) among the young cohort (negative but not significant). Similarly, positive correlations were observed for the two risk factor measures, and the correlations were negative between the protective and the risk factor measures. All of these correlations were significant in the older cohort, and most were significant in the younger cohort. As also expected, and in both age cohorts, the four protective factors were significantly and negatively correlated with the MPBI while the two risk factor measures, models risk and vulnerability risk, were significantly and positively correlated with the MPBI.

Among the older cohort, the magnitudes of the coefficients for all four protective factors and for the two risk factors were considerably larger than those observed among the younger cohort. Overall, the bi-variate results provide strong support for the problem behavior conceptual framework.

Table 6.3 Correlation coefficients of outcome and predictor variables by age cohorts

12–14 years (*n* = 780)	MPBI[a]	MP[b]	SCP[b]	ICP[b]	SP[b]	MR[c]	VR[c]
MPBI	1						
Model protection (MP)	−0.111*	1					
Social controls protection (SCP)	−0.214*	0.136*	1				
Individual controls protection (ICP)	−0.171*	0.011	0.2002*	1			
Support protection (SP)	−0.169*	−0.009	0.137*	0.191*	1		
Model risk (MR)	0.308*	−0.045	−0.118*	−0.259*	−0.170*	1	
Vulnerability risk (VR)	0.138*	−0.095*	−0.342*	−0.185*	−0.093*	0.073*	1
15–19 years (*n* = 942)							
MPBI	1						
Model protection (MP)	−0.362*	1					
Social controls protection (SCP)	−0.246*	0.222*	1				
Individual controls protection (ICP)	−0.289*	0.235*	0.295*	1			
Support protection (SP)	−0.260*	0.209*	0.209*	0.216*	1		
Model risk (MR)	0.457*	−0.308*	−0.269*	−0.305*	−0.254*	1	
Vulnerability risk (VR)	0.229*	−0.226*	−0.341*	−0.291*	−0.271*	0.294*	1

*$p < 0.05$ (one-tailed)
[a]Increasing values reflect greater MPBI levels
[b]Increasing values reflect higher protection levels
[c]Increasing values reflect higher risk levels

Examining the Applicability of Problem Behavior Theory: Multi-variate Analyses

To test the Problem Behavior Theory explanatory model of adolescent problem behavior involvement, four regression models were fitted separately for each of the two age cohorts, with the log-transformed MPBI measure as the outcome variable, and the four protective factors, and the two risk factors as independent predictors while controlling for socio-demographic characteristics. The back-transformed results from the fitted models, including those that add in the significant interactions between the protective and risk factors are presented in Table 6.4. In Models 1 and 5, only the socio-demographic measures were fitted; these accounted for 5.8% of the variance in the MPBI among the adolescents aged 12–14 years, and for 12.4% of the variance in the MPBI for the older cohort. In both age cohorts, the negative

Table 6.4 Linear regression (back-transformed) of the multiple problem behavior index on socio-demographics, protective, and risk factors among adolescents in two Nairobi slum settlements

	12–14 years				15–19 years			
	1	2	3	4	5	6	7	8
Variables	β	β	β	β	β	β	β	β
Socio-demographic variables								
Slum location (ref = Korogocho)	−0.025	−0.012	−0.035	−0.033	−0.007	0.034	−0.033	−0.033
Gender (ref = female)	−0.091***	−0.062**	−0.064***	−0.065***	−0.230***	−0.203***	−0.187***	−0.186***
Household size	0.01	0.009	0.007	0.008	−0.004	0.005	0.002	0.004
Age in years (continuous)	0.034**	0.025*	0.013	0.015	0.038***	0.005	−0.002	0.003
Living arrangement (ref = both parents)								
Alone or other arrangement	0.121**	0.090*	0.075	0.063	0.098*	0.04	−0.003	−0.018
With one parent	0.028	0.006	−0.007	−0.009	0.068	0.071*	0.032	0.032
Education level (ref = primary or more)								
Secondary or more	0.114	0.079	0.112	0.120	−0.062*	0.002	0.015	0.016
No. of adolescents in household	0.002	−0.001	−0.001	0.001	−0.017	−0.019	−0.02	−0.018
Duration of stay in slum settlements (years)	0.003	−0.003	−0.003	−0.003	0.006*	0.004	0.003	0.002
Socioeconomic status (ref = least wealthy)								
Middle	−0.012	−0.013	−0.014	−0.019	0.02	0.027	0.02	0.018
Most wealthy	0.003	0.003	0.006	0.002	0.003	−0.002	0.007	0.012
Protective factors								
Model protection (MP)		−0.030*	−0.021	−0.048**		−0.149***	−0.105***	−0.079***
Social controls protection (SCP)		−0.086***	−0.059*	−0.059*		−0.046*	−0.01	−0.001
Individual controls protection (ICP)		−0.077**	−0.032	−0.023		−0.120***	−0.081***	−0.073***
Support protection (SP)		−0.069*	−0.047	−0.05		−0.102***	−0.075***	−0.091***

(continued)

Table 6.4 (continued)

	12–14 years				15–19 years			
	1	2	3	4	5	6	7	8
Variables	β	β	β	β	β	β	β	β
Risk factors								
Model risk (MR)			0.241***	0.240***			0.247***	0.200***
Vulnerability risk (VR)			0.036	0.038			0.037	0.015
Protection × risk interactions[a]								
MP × MR				−0.093*				−0.133***
MP × VR				−0.076**				
ICP × VR								−0.049*
SP × MR								0.080*
Constant	−0.694**	−0.475*	−0.191	−0.234	−0.705**	−0.113	0.067	−0.033
R^2	0.058	0.111	0.186	0.198	0.124	0.275	0.342	0.364
Bic	190.4	171.8	116.8	118.1	964.6	812.8	736.0	724.8
N	780	780	780	780	942	942	942	942

***$p < 0.001$; **$p < 0.05$; *$p < 0.1$

[a]Only significant interactions are presented

gender coefficients indicate that females were significantly less likely to be involved in multiple problem behaviors. Multiple problem behavior involvement increased with increasing age as seen from the positive significant coefficients for age in both age cohorts. In addition, adolescents who lived alone or with other relatives or nonrelated members were more likely to be involved in multiple problem behaviors. Duration of stay and an educational level higher than primary among older adolescents only, were associated with increased and decreased involvement in problem behavior, respectively.

In Models 2 and 6, all four protective factor measures were added to the sociodemographic measures. This yields an increase in variance accounted for in MPBI of 5.3% for the younger cohort and of 15.1% for the older cohort, a much larger contribution for the latter. When the two risk factor measures were added in Models 3 and 7, variance accounted for increased by 7.5% and 6.7% for the younger and older cohorts, respectively. Finally, the full theoretical Models 4 and 8, which add the significant interactions, yield additional increments in variance that accounted for 1.2% for the 12–14 year olds and for 2.2% for the 15–19 year olds. The final R squares are highly significant, with 19.8% of variance in MPBI accounted for in the younger cohort, and 36.4% of variance accounted for in the older cohort.

In the final models for both age cohorts (Models 4 and 8, Table 6.4), the coefficients of all four protective factors were negative as expected, although nonsignificant for individual controls protection (ICP) among the younger adolescents, and for social controls protection (SCP) among the older adolescents. Similarly, in both age cohorts, the two risk factors had positive coefficients, as expected, with strong significant effects observed for the models risk (MR) composite measure. The vulnerability risk composite measure (VR) was not significant for either cohort.

It is of interest to compare the unique variance accounted for by the protective factors and by the risk factors separately because it may have implications for interventions that focus on enhancing protection versus those that seek to reduce risk. Since the protective factors and the risk factors share common variance, when the four protective factors enter the regression equation in Models 2 and 6, they "capture" all the shared variance; thus, the increment in variance accounted for of 5.3% for the younger cohort and of 15.1% for the older cohort over Models 1 and 5 reflects both the unique variance of the protective factors and the variance they share with the risk factors. The unique variance of the two risk factors is shown by the increment in variance accounted for in Models 3 (7.5%) and 7 (6.7%) for the younger and older groups, respectively, since the shared variance was already taken up by the protective factors in the preceding models. In order to determine the unique variance of the four protective factors, additional regressions were run in which the protective factors entered the regression equation *after* the risk factors. These alternative Models 3 and 7 (not shown; available from the authors) indicate that the unique variance for the protective factors is 1.8% and 5.7% for the younger and older cohorts, respectively.

Examining Protection-by-Risk Interactions or Moderator Effects of Protection

In order to assess the moderator effects of protection on the association of risk to the adolescent MPBI, all eight protection-by-risk interaction terms were included in Models 4 and 8. Non-significant interactions at the 5% level were later dropped, and those models were re-fitted with only the significant interactions. The final models (4 and 8) for both age cohorts are shown in Table 6.4. There were two significant interactions out of the eight for the younger cohort, and three out of the eight for the older cohort. In both age cohorts, MP significantly moderated the relation of MR to the MPBI. The moderating effect of MP on the relationship between MR and the back-transformed MPBI is illustrated in Figs. 6.1 and 6.2 for the younger and the older cohorts, respectively.

For both age cohorts, the moderating effect of MP on the relationship between MR and MPBI is evident. The relation of MR to the MPBI is strong when models protection is low, but when models protection is high, the relation of MR to the MPBI is much weaker. This is illustrated by the smaller difference between the High and Low risk groups under high protection than under low protection. In addition to the interactions illustrated in Figs. 6.1 and 6.2, there was also a significant moderator effect of MP on the relation of vulnerability risk to the MPBI in the younger adolescent cohort. Among younger adolescents, high vulnerability was more likely to be related to problem behavior involvement under low MP than under high MP. Finally, for older adolescents, there was a negative moderator effect of individual controls protection on vulnerability risk as theoretically expected, and a positive moderator effect of support protection on MR. The latter direction, theoretically unexpected, indicates that high support protection enhances the relation of MR to the MPBI, a finding that may reflect that support protection is mainly coming from peer models. The evidence of significant interactions or moderator effects provides further support for the applicability of Problem Behavior Theory and indicates that protection can have both direct and buffering effects on exposure to risk.

Discussion

The current study investigated the applicability of Problem Behavior Theory in explaining engagement in multiple problem behaviors among adolescents living in two slum settlements in Nairobi, Kenya. The psychosocial protective and risk factors of the theory provided a substantial and informative account of variation in adolescent problem behavior among both younger and older cohorts of adolescents in the Nairobi slum settlements. Controlling for the social demographic variables, the theoretical measures alone accounted for 14% of variance in the MPBI in the younger cohort, and for 24% in the older cohort. These findings show that even

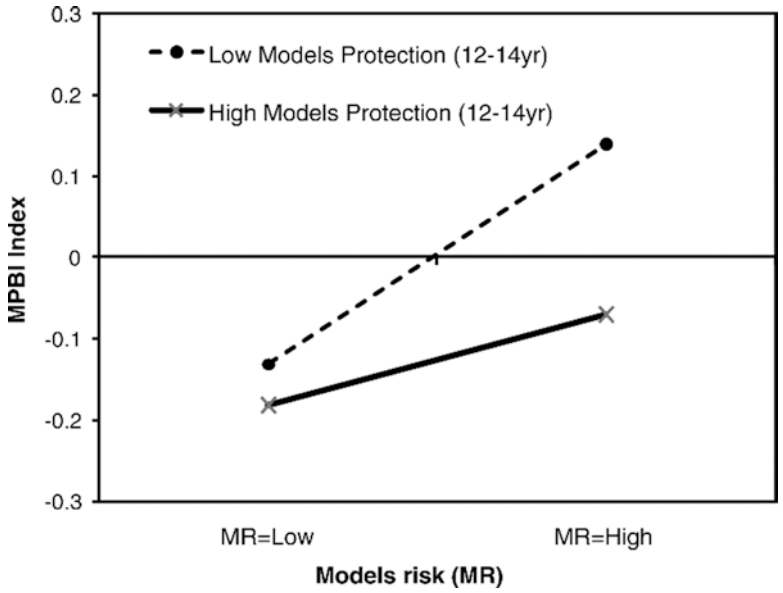

Fig. 6.1 Moderator effects for MP on the relationship of MR to the MPBI among 12–14-year-old adolescents

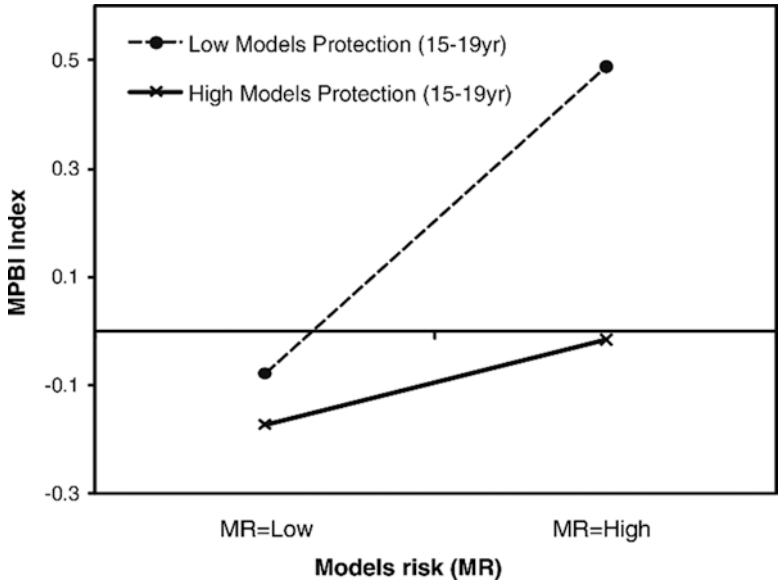

Fig. 6.2 Moderator effects for MP on the relationship of MR to the MPBI among 15–19-year-old adolescents

within slum areas, there is ample variation in problem behavior that can be accounted for significantly by the psychosocial constructs of Problem Behavior Theory. This application of the theory in a developing country in sub-Saharan Africa has demonstrated its generality and appropriateness beyond the United States and other Western societies (see also Jessor, 2008). The results of the study add to the sparse literature on problem behavior among poor urban youth in developing countries.

Among the younger adolescents, significant associations were observed for the models protection, social controls protection, and support protection measures and for the measure of models risk. For the older adolescents, significant coefficients were observed for models protection, individual controls protection, support protection, and models risk. This consistency across both age cohorts is noteworthy. The measures of models protection and models risk were much stronger predictors of variation in problem behavior in both age cohorts than socio-demographic factors, with models risk positively associated with the MPBI and models protection negatively associated with the MPBI, both as theoretically expected. Overall, the evidence supports the theoretical concepts of models (both protection and risk), controls (both individual and social), supports, and vulnerability and it points to them as targets of intervention for programs designed to ameliorate the impact of the urban slum context on adolescent health and development.

The finding of significant interactions or moderator effects in this study provides further support for the usefulness of Problem Behavior Theory and is noteworthy because of the well-known difficulty of demonstrating interaction effects in field studies (McClelland & Judd, 1993). Models protection was shown to moderate models risk in both age cohorts, and models protection also moderated vulnerability risk among younger adolescents. The moderating effect of models protection on the association between vulnerability and MPBI among younger adolescents indicated that at low levels of vulnerability, adolescents with low levels of models protection have about the same likelihood of involvement in problem behavior as their peers with high models protection. At high levels of vulnerability, however, adolescents with high levels of models protection show less involvement in problem behavior than their peers with low levels of models protection.

Another moderator effect, individual controls protection moderating vulnerability risk among the older adolescents, was of interest. Strong individual controls protection, such as a strong belief in the importance of finishing secondary school, or religiosity, or the ability to resist peer pressure, lessened the likelihood that adolescents with high vulnerability (low perceived life chances or low self-esteem) would engage in multiple problem behaviors. However, the finding that the moderating effect of support protection was to enhance the relation of models risk to the MPBI in the older cohort was in the theoretically unexpected direction. Support protection at the bi-variate level was negatively associated with the MPBI in both age cohorts, as theoretically expected. This finding may suggest, therefore, that the primary source of support protection is from peers, who also are the main source of models risk.

The findings about the unique variance of the protective versus the risk factors cannot ignore the fact that protection was measured by four measures while risk was measured by only two. Nevertheless, it is worth discussing the relative importance of protection and risk and their implications for intervention and prevention programs. Among young adolescents, the unique variance for risk factors (7.5%) was greater than for protective factors (1.8%), signaling that programs need to emphasize risk reduction while also strengthening protection. For older adolescents, a marginal difference between the unique variance accounted for by protective (5.7%) and risk (6.7%) factors was observed suggesting that equal weight be given to both risk reduction and protection enhancement efforts. A similar result was observed among US and Chinese adolescents, where researchers examined the relative importance of protection versus risk factors as determinants of problem behaviors and found that both had relevant influences (Jessor et al., 2003).

The socio-demographic measures, such as slum location, household size, number of adolescents in the household, and socioeconomic status, accounted for only limited amounts of variance in problem behavior involvement. Since the samples were all drawn from within slum areas, this is not surprising, and those measures might be expected to be more influential in studies comparing slum with non-slum contexts. However, being male, and living alone or with neither biological parent, were both associated with an increase in problem behavior involvement. The observed differences in adolescent problem behaviors due to differences in parental living arrangements highlights the importance of having parental monitoring and support, and limiting the effects of parental deprivation in these urban communities where other family-related social networks may not be available to young adolescents. These findings are consistent with previous research that found parental monitoring to be associated with lower levels of delinquent behavior, greater schooling performance, and lower levels of sexual behavior (Jacobson & Crockett, 2000; Kumi-Kyereme, Awusabo-Asare, Biddlecom, & Tanle, 2007). The findings have implications for programming for successful adolescent transition to adulthood in resource limited settings. Presence of parents or guardians and a friendly home environment are a key starting point for encouraging better communication between adults or siblings who act as advisers or role models to adolescents in settings where the traditional extended family network has been weakened. The significant influence of models risk whether in the classroom or with older siblings in the family or older peers in the neighborhood requires individual and community level programming that recognizes the linkages between risk behaviors and capitalizes on adolescent's positive potential. Equally, knowledge contributions from influential social settings and adolescent networks that go beyond homes, such as schools, churches, and clubs are key areas that can be improved and strengthened.

There are, of course, several study limitations that warrant acknowledgment. First, as a cross-sectional study, it is limited in making inferences about causal direction in the relationships observed. Toward that end, subsequent data waves assessing later development will be required. In addition, the data employed are all self-reported and therefore subject to possible bias in the direction of socially and

culturally desirable responding. Problem behaviors can, of course, be influenced by many social-structural factors that we were unable to measure in the current study such as limited opportunity, corruption, poor schooling and teacher absenteeism, community disorganization, and other social and environmental factors. Finally, some of the behavior measures were based on dichotomous items assessing involvement versus non-involvement rather than assessing intensity of involvement which would yield greater variation.

Despite these limitations, the study has advanced understanding of adolescent problem behavior in the informal settlements around a rapidly urbanizing city in a sub-Saharan African context. In so doing, it has documented the generality and appropriateness of a particular conceptual framework, Problem Behavior Theory, and it has identified protective and risk factors that can constitute targets for intervention programs to better the lives of young people in the developing world and facilitate a healthier transition to adulthood.

Acknowledgments The Transitions-To-Adulthood study is part of a larger project on Urbanization, Poverty and Health Dynamics, that is funded by the Wellcome Trust (Grant Number GR 07830 M). Funding for the Education Research Project was provided by the William and Flora Hewlett Foundation (Grant Number 2004-4523). The authors' analysis and writing time is supported by funding from the Wellcome Trust (Grant Number GR 07830 M), the William and Flora Hewlett Foundation (Grant Number 2006-8376) and the Rockefeller Foundation (Grant Number 2007-HE 008). We are grateful to the colleagues at APHRC for their contributions and the adolescents in the study communities for participating in this study.

References

African Population and Health Research Center. (2002a). *Health and livelihood needs of residents of informal settlements in Nairobi City*. Nairobi, Kenya: APHRC.

African Population and Health Research Center. (2002b). *Population and health dynamics in Nairobi's informal settlements*. Nairobi, Kenya: APHRC.

African Population and Health Research Center. (2006). *Handbook for analysis of ERP data—Version 1.1*. Nairobi, Kenya: African Population and Health Research Center.

African Population and Health Research Center. (2009). *The economic, health, and social context of HIV infection in informal urban settlements of Nairobi*. Nairobi, Kenya: APHRC.

Asiimwe-Okiror, G., Opio, A. A., Musinguzi, J., Madraa, E., Tembo, G., & Carael, M. (1997). Change in sexual behaviour and decline in HIV infection among young pregnant women in urban Uganda. *AIDS*, *11*(14), 1757–1763.

Dodoo, F. N. A., Zulu, E. M., & Ezeh, A. C. (2007). Urban-rural differences in the socioeconomic deprivation—Sexual behavior link in Kenya. *Social Science & Medicine*, *64*(5), 1019–1031.

Donovan, J. E., Jessor, R., & Costa, F. M. (1999). Adolescent problem drinking: Stability of psychosocial and behavioral correlates across a generation. *Journal of Studies on Alcohol*, *60*(3), 352–361.

Filmer, D., & Pritchett, L. H. (2001). Estimating wealth effects without expenditure data—Or tears: An application to educational enrollments in states of India. *Demography*, *38*(1), 115–132.

Hawkins, J. D., Lishner, D., Catalano, R. F., Jr., & Howard, M. O. (1986). Childhood predictors of adolescent substance abuse: Toward an empirically grounded theory. *Journal of Children in a Contemporary Society, 8*(1–2), 11–48.

Jacobson, K. C., & Crockett, L. J. (2000). Parental monitoring and adolescent adjustment: An ecological perspective. *Journal of Research on Adolescence*, *10*(1), 65–97.

Jessor, R. (1987). Problem behavior theory, psychosocial development, and adolescent problem drinking. *British Journal of Addiction, 82*(4), 331–342.

Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health, 12*(8), 597–605.

Jessor, R. (2008). Description versus explanation in cross-national research on adolescence. *Journal of Adolescent Health, 43*(6), 527–528.

Jessor, R., Donovan, J. E., & Costa, F. M. (1991). *Beyond adolescence: Problem behavior and young adult development*. New York: Cambridge University Press.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic.

Jessor, R., Turbin, M. S., Costa, F. M., Dong, Q., Zhang, H., & Wang, C. (2003). Adolescent problem behavior in China and the United States: A cross-national study of psychosocial protective factors. *Journal of Research on Adolescence*, *13*(3), 329–360.

Kenya Government and ORC Macro. (2004). *Kenya demographic and health survey 2003*. Nairobi, Kenya: Central Bureau of Statistics and Ministry of Health.

Kilian, A. H. D., Gregson, S., Ndyanabangi, B., Walusaga, K., Kipp, W., Sahlmuller, G., et al. (1999). Reductions in risk behaviour provide the most consistent explanation for declining HIV-1 prevalence in Uganda. *AIDS*, *13*(3), 391–398.

Kumi-Kyereme, A., Awusabo-Asare, K., Biddlecom, A. E., & Tanle, A. (2007). Influence of social connectedness, communication and monitoring on adolescent sexual activity in Ghana. *African Journal of Reproductive Health*, *11*(3), 133–149.

McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin*, *114*(2), 376–390.

Mugisha, F. (2006). School enrollment among urban non-slum, slum and rural children in Kenya: Is the urban advantage eroding? *International Journal of Educational Development, 26*(5), 471–482.

Mugisha, F., Arinaitwe-Mugisha, J., & Hagembe, B. O. N. (2003). Alcohol, substance and drug use among urban slum adolescents in Nairobi, Kenya. *Cities*, *20*(4), 231–240.

Stata Version 10 Statistical Software [computer program]. Version 10. (2008). Texas: StataCorp LP.

Turbin, M. S., Jessor, R., Costa, F. M., Dong, Q., Zhang, H., & Wang, C. (2006). Protective and risk factors in health-enhancing behavior among adolescents in China and the United States: Does social context matter? *Health Psychology*, *25*(4), 445–454.

United Nations Human Settlement Programme. (2003). *The challenges of slums: Global report on human settlements*. Nairobi, Kenya: UN-HABITAT.

United Nations Human Settlements Programme. (2008). *The state of African cities 2008: A framework for addressing urban challenges in Africa*. Nairobi, Kenya: UN-HABITAT.

Vazsonyi, A. T., Chen, P., Young, M., Jenkins, D., Browder, S., Kahumoku, E., et al. (2008). A test of Jessor's problem behavior theory in a Eurasian and a Western European developmental context. *Journal of Adolescent Health*, *43*(6), 555–564.

Vazsonyi, A. T., Trejos-Castillo, E., & Huang, L. (2006). Risky sexual behaviors, alcohol use, and drug use: A comparison of Eastern and Western European adolescents. *Journal of Adolescent Health*, *39*(5), 753.e751–753.e711.

Williams, B. H., Ayers, C. D., Abbott, R. D., Hawkins, J. D., & Catalano, R. F. (1996). Structural equivalence of involvement in problem behavior by adolescents across racial groups using multiple group confirmatory factor analysis. *Social Work Research*, *20*(3), 168–177.

Zulu, E. M., Dodoo, F. N.-A., & Ezeh, A. C. (2002). Sexual risk-taking in the slums of Nairobi, Kenya, 1993–98. *Population Studies*, *56*(3), 311–323.

Zulu, E. M., Dodoo, F. N.-A., &Ezeh, A. C. (2004). Urbanization, poverty, and sex: Roots of risky behaviors in slum settlements in Nairobi, Kenya. In E. Kalipeni, S. Craddock, J. R. Oppong, J. Ghosh (Eds.), H*IV and AIDS in Africa: Beyond epidemiology* (pp. 167–174). Malden, MA: Blackwell.

Chapter 7
Successful Adolescence in the Slums of Nairobi, Kenya

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Adolescents growing up in resource-poor settings are at heightened risk for negative behavioral and psychological outcomes including risky sexual behavior (Dodoo, Zulu, & Ezeh, 2007; Ngom, Magadi, & Owuor, 2003; Zulu, Dodoo, & Ezeh, 2002), substance use (Mugisha, Arinaitwe-Mugisha, & Hagembe, 2003), delinquency, and violence (Blum et al., 2000). Yet, many adolescents "make it," that is, progress successfully through adolescence despite living in such adverse conditions. In other words, they are resilient in spite of the odds against them. Understanding the factors that are associated with resilience among these adolescents can shed light on mechanisms for promoting well-being among youth in such high-risk settings. In this chapter, we draw on a protection-risk conceptual framework to examine factors that are associated with positive academic and behavioral outcomes among a sample of 12–19 year olds living in two urban slums in Nairobi, Kenya's capital city.

Defining "Resilience"

We adopt Fergus and Zimmerman's (2005) definition of resilience as the "process of overcoming the negative effects of risk exposure, coping successfully with traumatic experiences, and avoiding the negative trajectories associated with risks"

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Kabiru, C. W., Beguy, D., Ndugwa, R. P., Zulu, E. M., & Jessor, R. (2012). "Making it": Understanding adolescent resilience in two informal settlements (slums) in Nairobi, Kenya. *Child & Youth Services, 33*(1), 12–32.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_7

(p. 399). Common elements in the operationalization of resilience are the presence of risk or adversity and of protective factors that enable a person to successfully cope, adapt, or overcome risks and achieve positive outcomes (Buckner, Mezzacappa, & Beardslee, 2003; Fergus & Zimmerman, 2005; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003; Tiet & Huizinga, 2002). Simply put, resilience refers to successful adaptation in risk settings. Fergus and Zimmerman (2005) note that protective or promotive factors, which enhance the likelihood of positive outcomes, can be either *assets*, that is, individual characteristics that enhance positive outcomes, or *resources*, that is, attributes of the social environment that enable an individual to surmount adversity. For example, parental monitoring, an attribute of the social environment, has been linked to non-engagement in risk behavior (e.g., smoking and drinking) among adolescents in the United States and in Kenya (Mistry, McCarthy, Yancey, Lu, & Patel, 2009; Ngom et al., 2003).

In this study, we delineate three positive or prosocial outcomes in our operationalization of resilience: academic achievement, participation in civic activities (including voluntary community service), and non-engagement in delinquent behavior, substance use, or early sexual intercourse. Academic achievement and low levels of risk behavior have been used elsewhere as measures of resilience (Buckner et al., 2003; Jessor, 1993; Tiet & Huizinga, 2002). Existing literature suggests that civic participation may be protective against risk behaviors (Nicholson, Collins, & Holmer, 2004; Weitzman & Kawachi, 2000). Some scholars also suggest that civic organizations may reflect social cohesion within the community which may be protective (Larson, 2000; Roth, Brooks-Gunn, Murray, & Foster, 1998; Sampson & Wilson, 1995). Involvement in civic activities may also expose youth to positive role models and keep them engaged in constructive activities that reduce the likelihood of delinquent behavior (Denault & Poulin, 2009).

We argue that these prosocial outcomes are appropriate markers of successful adaptation in the study context given the low educational opportunities (African Population and Health Research Center [APHRC], 2008) and high levels of risk behavior (Dodoo et al., 2007; Mugisha et al., 2003; Ngom et al., 2003; Zulu et al., 2002) that characterize urban slums in Kenya. Living in a context characterized by widespread deprivation, few educational and livelihood opportunities, high rates of violence, and weak social ties increases the chances that young slum dwellers will have poor academic and behavioral outcomes.

Conceptual Framework

Given the linkages between resilience, and protective or promotive factors and risk factors, we apply a well-established protection-risk conceptual framework, Jessor's Problem Behavior Theory (Costa et al., 2005; Jessor, 1991; Jessor, Turbin, & Costa, 1998a; Jessor et al., 2003; Jessor, van Den Bos, Vanderryn, Costa, & Turbin, 1995), to examine variation in resilience among adolescents living in Nairobi's urban slums. To the best of our knowledge, only a handful of studies (Ndugwa et al., 2010)

have adopted a protection-risk theoretical framework to examine adolescent behavior in urban slums in a sub-Saharan African context. The framework outlines three types of protective factors (models protection, controls protection, and support protection) and three types of risk factors: models risk, opportunity risk, and vulnerability risk (Jessor et al., 2003). Theoretically, protective factors promote positive, prosocial or health-enhancing behavior while risk factors increase the probability of engaging in risk behaviors. The framework also posits that protective factors can moderate the impact of exposure to risk. While risk and protective factors are often inversely related, the framework posits them as orthogonal, that is, high protection can co-occur with high risk, and low protection with low risk (Jessor et al., 1995). Below we briefly describe the sets of protective and risk factors used in this study.

Models protection includes measures of parent and peer models for prosocial behavior (e.g., having friends who are committed to doing well in school). Controls protection includes individual-level (e.g., religiosity) or social environment-level (e.g., parental monitoring) measures of informal regulatory controls. Support protection refers to contextual supports at the peer, family, school, and other social environments that promote prosocial or health enhancing behavior (e.g., being in a school where teachers are willing to spend extra time helping students).

Models risk includes measures of models for unconventional or health-compromising behavior (e.g., household members who are alcohol dependent may serve as behavioral models for children and adolescents who live in the same household). Opportunity risk refers to exposure to or access to situations that increase the likelihood of engaging in risk behaviors (e.g., selling drugs may provide an opportunity to engage in drug use). Lastly, vulnerability risk refers to individual characteristics that increase the likelihood of engaging in risk behavior (e.g., low perceived life chances, low self-esteem, and experiencing adverse life events may heighten the likelihood of engaging in risk behavior).

Although the conceptual framework was developed in the United States, it has now been successfully applied cross-nationally and within very different societies and cultures (Jessor, 2008). For example, in a study examining the cross-national generality of the framework in China and the United States, Jessor et al. (2003) observed that, while the Chinese and American adolescents differed on mean levels of the descriptive and theoretical measures, the predicted associations between the theoretical constructs and the problem behaviors were similar across the two societies. Vazsonyi et al. (2008) tested the applicability of the problem behavior conceptual framework in explaining engagement in alcohol and drug use as well as delinquent behavior, such as theft and vandalism, among adolescents in Georgia and Switzerland. Overall, their findings showed that the conceptual model fit the data from both the Georgian and the Swiss samples. And, in a more recent study, Vazsonyi et al. (2010) tested the extent to which the framework explained variation in problem behavior involvement (vandalism, school misconduct, general deviance, as well as theft and assault) among adolescents from eight cross-national settings in Asia, Eastern and Western Europe, North America, and Eurasia. They again observed wide similarities across the eight countries in the linkages of the risk and protective factors with problem behavior involvement.

The Problem Behavior Theory framework has also been used to explain variation in prosocial and health-enhancing behaviors (Jessor, Turbin, & Costa, 1998b; Turbin et al., 2006). Thus, the model provides a useful framework for explaining why some adolescents living in high risk settings nevertheless achieve positive educational and behavioral outcomes. Indeed, previous work on resilience among adolescents delineates several characteristics that distinguish resilient from non-resilient youth. Buckner et al. (2003) observed that low-income youths in the United States reporting high self-esteem, high parental monitoring and high self-regulation were more likely to be resilient. In another study, also in the United States, investigating the association between risk and protective factors and successful outcomes among socioeconomically disadvantaged adolescents, Jessor et al. (1998b) reported that, under similar conditions of high risk, adolescents with high levels of protective factors (in particular, an intolerant attitude toward deviance, a positive orientation to health and fitness, and peer models for prosocial behavior) were more likely to be resilient. However, the extent to which these findings hold true for adolescents living in resource-poor settings in sub-Saharan Africa is unknown.

The Unique Context of Urban Informal (Slum) Settlements in Nairobi

Urban slums provide a unique context in which to study resilience among adolescents. With increasing rates of urbanization coupled with unstable economies, many low income countries have been unable to provide basic services to meet the demands of urban populations. This has led to the growth of large informal settlements (slums) in many cities in the developing world that epitomize the characteristics of poverty. In spite of the hardships faced by slum dwellers, informal settlements continue to grow because they offer close proximity to industries that depend heavily on casual laborers and, in addition, provide a cheap housing option for new migrants to the city. In Nairobi, slums house over half of the city's population of over three million people. Incidentally, children, women and adolescents are heavily represented amongst the poor for social, cultural, biological, economic and political reasons. Indeed, majority of the residents of Nairobi's slums (over 50%) are children and adolescents aged 24 years or younger (United Nations Human Settlements Programme [UN-HABITAT], 2008a).

The United Nations Human Settlements Programme (UN-HABITAT) defines a slum household as "a group of individuals living under the same roof that lack one or more of the following conditions: access to safe water; access to sanitation; secure tenure; durability of housing; and sufficient living area" (UN-HABITAT, 2003). Based on this definition, a place is defined as a slum area if "half or more of all households lack improved water, improved sanitation, sufficient living area, durable housing, secure tenure, or combinations thereof" (United Nations Human Settlements Programme [UN-HABITAT], 2008b). Slums in Nairobi typify this

phenomenon. These slums are characterized by poor housing and sanitation, weak or nonexistent infrastructure, a lack of basic services such as education and health care, high unemployment rates, and high rates of violence. Disparities in transition from primary to secondary school are also evident. For example, a recent study shows that while 90% of children living in low income, but non-slum areas in Nairobi transition from primary to secondary school, only 40% of their counterparts living in slums do so (APHRC, 2008). Limited formal education and employment opportunities (World Bank, 2008) mean that young people living in these deprived communities are prone to involvement in crime, violence, and risky behaviors such as alcohol and drug use, as well as risky sexual behaviors that place them at heightened risk for sexually transmitted infections, unwanted pregnancies, and poor health and social outcomes.

By 2050 most developing nations will be predominantly urban, (UN-HABITAT, 2008b) governments must therefore, find ways to address challenges faced by urban populations. Addressing these challenges is part of the government's obligations to ensure that citizens' rights to better health, education, human dignity, and sanitation are met. For example, the country has embarked on a second generation poverty reduction strategy termed *Vision 2030* that aims at social, political and economic equity, growth and development that guarantees Kenyans their right to a "decent" life. Attention to adolescents who "make it" in spite of their disadvantaged surrounding adds a different dimension to the formulation of policies to address social problems in urban areas. Jessor (1993) states that focusing on successful adaptation and associated processes "suggests that a social policy agenda should be concerned not only with the reduction of risk but with the strengthening of protection as well" (p. 121). Mohaupt (2008) also notes that emphasizing strengths over "deficits" enhances intervention uptake among the target population because of its positive orientation.

The Present Study

The present study examines the association between protective and risk factors and positive or prosocial developmental outcomes, what we are terming resilience, using data collected from 12–19 year adolescents living in two Nairobi slums. Given that appropriate behavior is dictated by "age-graded norms and age-related expectations" (Costa, 2008), we conduct our analysis separately for younger (12–14 years) and older (15–19) adolescents. Indeed, studies show large differences between age cohorts in substance use and sexual behavior between younger and older adolescents (Resnick et al., 1997). The distinction between these two periods—earlier and later adolescence—is also important because of other age-related developmental changes. For example, as noted by Greenberger and Chen (1996), early adolescence is a highly stressful period marked by oft-confusing pubertal changes, the transition from primary to secondary school, changes in parent-child relationships, and increased pressure to conform to peer norms and expectations.

Jessor's protection-risk conceptual framework was used to articulate protective factors and risk factors at both the individual level and in the social context. Our main hypothesis is that resilience—here, a composite index measuring academic achievement, participation in civic activities, and non-engagement in delinquent behavior, substance use, or early sexual intercourse—will be positively associated with measures of theoretical constructs of protection, and negatively associated with theoretical constructs of risk. In addition, we hypothesize that protective factors will moderate the impacts of exposure to risk. Finally, given the greater variation in prevalence of involvement in risk behavior likely in the older age-cohort, it is expected that a greater amount of variation in resilience will be explained in the analyses based on data from the older adolescents.

Method

Study Design

This chapter is based on data drawn from two separate but overlapping studies conducted among adolescents living in two slums in Nairobi—Korogocho and Viwandani: The Transitions to Adulthood (TTA) study and the Education Research Program (ERP). Further details on these studies are provided elsewhere (APHRC, 2006; Ndugwa et al., 2010). Both studies are nested in the larger Nairobi Urban Health and Demographic Surveillance System (NUHDSS), which collects longitudinal health and demographic data from households in the two slums. By the end of 2009, the NUHDSS included about 73,000 individuals living in about 26,000 households. Ethical approvals for the NUHDSS, TTA, and ERP are granted by the Kenya Medical Research Institute. All respondents in the ERP and TTA must provide informed consent prior to the interview. For respondents aged 12–17 years, parental consent is also required.

As both studies are nested in the NUHDSS, it is possible to merge data collected from the same adolescent individual under the two different studies. We therefore merged data from Wave 1 of the TTA and Wave 4 of the ERP project, both collected in the same year, in order to draw on the rich information about the school context and adolescent risk behavior collected under the ERP and the detailed information on protective and risk factors collected under the TTA project. During the first wave of the TTA study (November 2007–June 2008), 4,057 adolescents (50% males) aged 12–22 were interviewed in the TTA study. The fourth wave of data collection in the ERP project was conducted between October 2007 and May 2008, a period coinciding with the first wave of the TTA project. During the fourth wave, 5,239 adolescents (52% male) aged 12–22 completed a child behavior survey. We successfully matched data from 2,014 youth of whom 1,722 (86%) were never-married, 12–19 year olds. We find that compared to youth not interviewed in both studies, adolescents in the merged sample have resided in the slums longer, are younger

Table 7.1 Demographic and behavioral characteristics by age cohort

	12–14 years $n = 780$	15–19 years $n = 942$	Total $N = 1722$
Demographic characteristics			
Study site			
Korogocho	47.8%	57.2%	53.0%
Viwandani	52.2%	42.8%	47.0%
Sex			
Male	50.8%	54.6%	52.9%
Female	49.2%	45.4%	47.2%
Parent co-residence			
Stay alone or with no parents	7.1%	23.5%	16.0%
One parent	27.3%	28.5%	27.9%
Both parents	65.6%	48.1%	56.0%
Median HH size (range)[a]	5 (2–14)	5 (1–15)	5 (1–15)
Median number of adolescents in HH (range)	2 (1–8)	2 (1–9)	2 (1–9)
Median duration of stay in study area in years (range)	12 (1–14)	15 (0–19)	13 (0–19)
Behavioral characteristics			
Academic achievement			
Low	30.1%	49.0%	40.5%
High	69.9%	51.0%	59.5%
Participates in civic activities	84.0%	76.3%	79.8%
Never drank alcohol or used other drugs	96.3%	84.2%	89.7%
Never had sex	96.5%	78.8%	86.8%
Never engaged in delinquent behavior	52.6%	52.3%	52.4%

[a]*HH* household

(thus less mobile), and are more likely to live in Korogocho, whose population is less mobile than that in Viwandani (Beguy, Bocquier, & Zulu, 2010). We find no difference based on sex distribution.

Participants

Table 7.1 summarizes the socio-demographic and behavioral characteristics of the 1,722 never-married, 12–19-year-old participants in the merged sample by age cohort. Approximately 45% of adolescents were aged 12–14 years. Of adolescents, 53% were males. About 93% and 77% of younger and older adolescents, respectively, were living with both or one parent. The median household size was 5 with a median number of adolescents of 2 per household. The median duration of stay in the study area was 13 years. On average, residents of Korogocho had lived in the slums longer than their peers in Viwandani (not shown in the tables). About 80% of adolescents participated in civic activities. The majority (87%) of adolescents had never had sex. Just over 50% had never engaged in delinquent behavior.

Measures

Measuring Resilience

Resilience was assessed as a composite index based on five behavioral criteria that capture academic achievement, participation in civic activities (including voluntary community service), and non-engagement in delinquent behavior, substance use, or early sexual intercourse. Academic achievement is defined as being in school at the time of survey with performance in school rated as *excellent* or *good* by the parent/guardian, or as being out of school but having completed secondary school or college. Participation in civic activities includes involvement in clubs and/or community service. For substance use and sexual behavior, we assess whether an adolescent has ever smoked, drunk alcohol, used recreational drugs, or ever had early sexual intercourse. With respect to sexual behavior, an adolescent is scored as resilient if first intercourse occurs at 18 years (the age of legal adulthood in Kenya) or older. This cut-off age also takes into account the median age at first sexual intercourse (approximately 18 years) based on data from the 2008–2009 Kenyan Demographic and Health Survey (Kenya National Bureau of Statistics [KNBS] & ICF Macro, 2010) and preliminary analyses of the timing of first sex in the TTA study. A continuous resilience index (Cronbach's alpha = 0.56) was constructed using standardized values of 24 individual items all scored in the positive (resilient) direction using Stata's (2007) "standardize" function. Of respondents, 96% had complete information for all resilience items, fewer than 4% had missing information on one item, and less than 1% had missing information on two or more items. For those with missing data on individual items, we imputed the resilience index measure using available information.

Measuring Protective Factors and Risk Factors

Three types of protective factors were assessed: models protection, controls protection, and support protection. Internal consistency of scores on the variable scales was assessed using Cronbach's alpha (Crocker & Algina, 1986). For each type of protective factor, a composite score was generated from standardized values of individual items. Table 7.2 summarizes the protective factor measures, including their alpha reliabilities and sample items. The models protection scale (4 items) (Cronbach's alpha = 0.64) measured perceived models among friends for four prosocial behaviors: (a) academic achievement, (b) participation in extracurricular activities in school, (c) attending religious services, and (d) aspiring to higher education. Controls protection was measured using two subscales: social controls, and individual controls protection. The social controls protection subscale, a 14-item composite (Cronbach's alpha = 0.83), assessed parental monitoring and perceived peer sanctions for transgressions. The individual controls protection subscale included 13 items (Cronbach's alpha = 0.66) from four scales that measured

Table 7.2 Description of protective and risk factors

Measures	# of items	Alpha	Sample items	Response options
Protective factor measures				
Models protection	4	0.64	How many of your friends get good marks in school?	1 (None of Them) to 4 (All of Them)
Social controls protection	14	0.83	How much would you say your parents/guardian really knows about…where you spend your evenings?	1 (Never) to 3 (Always)
Individual controls protection	13	0.66	How important is it to you to rely on religious teaching when you have a problem?	1 (Not important) to 4 (Very important)
Support protection	26	0.86	How often does your father try to help you when you need something?	1 (Never) to 5 (All the time)
Risk factor measures				
Models risk	14	0.73	Have any of your brothers or sisters ever smoked or do any currently smoke cigarettes?	1 (Yes), 2 (No)
Vulnerability risk	21	0.83	On the whole, how satisfied are you with yourself?	1 (Very satisfied) to 4 (Not satisfied at all)

individual self-regulation: religiosity, positive attitude toward schooling, perceived ability to resist peer pressure, and conservative attitudes regarding sexual behavior. Support protection refers to the presence of a supportive environment; the support protection scale (26 items) (Cronbach's alpha = 0.86) assessed perceived parental, teacher, and peer support.

Three types of risk factors were assessed: models risk, vulnerability risk, and opportunity risk. The models risk measure (14 items) (Cronbach's alpha = 0.73) assessed models for risk behavior in three social contexts: family, peers, and school. The vulnerability risk index (21 items) (Cronbach's alpha = 0.83) assessed low self-esteem, low perceived life chances, adverse life experiences, and perceived peer pressure to engage in sex. Less than 2% of adolescents had sold or delivered drugs or alcohol, the two measures of opportunity risk. Thus, opportunity risk was dropped from further analyses.

Measuring Sociodemographic and Behavioral Characteristics

Several sociodemographic measures were obtained for descriptive purposes and for use as controls in multivariate analyses: sex, parental co-residence, household size, study site, and duration of living in the study area. Parental co-residence comprised three categories: living alone or with non-parents, living with both parents, or living with one parent only (see Table 7.1).

Analyses

To explore expected age-related differences in the role of protective and risk factors, all analyses were conducted by age cohort. Correlation coefficients were computed to assess linear relationships among the theoretical predictors and between them and the resilience index (see Table 7.3). Since the composite resilience index was negatively skewed, the Stata "lnskew0" command, which adds a constant and then performs a log transformation, was used to create a normally distributed logged resilience outcome variable. Using multivariate linear regression, we examined the associations between protective and risk factors in the conceptual framework and the log-transformed resilience criterion measure, controlling for sociodemographic characteristics. In the first regression model, only sociodemographic variables were entered. In the second model, the theoretical predictors were added. A third model added all eight risk by protective factor interactions since the explanatory framework specifies that protective factors can moderate exposure to the impact of risk. Interaction terms were computed using mean-centered theoretical measures. We also ran models (not shown) with interactions between gender and all the theoretical predictors to determine whether the findings were general across sex. None of the six gender interactions was significant for the younger cohort, and there was only one among the older cohort. Since some households had more than one adolescent, models were adjusted using Stata's "cluster" option.

Results

Bivariate Analyses

As expected, protective factor measures were all positively correlated with other protective factor measures, risk factor measures were positively correlated with each other, and protective factor measures were negatively correlated with risk factor measures in both age cohorts. As Table 7.3 illustrates, these correlations were considerably stronger among the older cohort. As theoretically expected, the bivariate correlations between the theoretical measures of protection and the resilience criterion index were in the positive direction, while the risk factor measures were negatively correlated with resilience. Although only the correlations of the individual controls protection measure and of the models risk measure with resilience were significant in the younger age cohort, all correlations were statistically significant in the older cohort.

Table 7.3 Correlations among resilience index, protective factors, and risk factors, by age group

	12–14 years (n = 780)						15–19 years (n = 942)					
	R	MP	SCP	ICP	SP	MR	R	MP	SCP	ICP	SP	MR
Resilience[a] (R)	1.00						1.00					
Models protection (MP)[b]	0.08	1.00					0.21*	1.00				
Social controls protection (SCP)[b]	0.09	0.14*	1.00				0.14*	0.22*	1.00			
Individual controls protection (ICP)[b]	0.12*	0.01	0.20*	1.00			0.20*	0.24*	0.29*	1.00		
Support protection (SP)[b]	0.06	0.03	0.11	0.18*	1.00		0.16*	0.22*	0.18*	0.23*	1.00	
Models risk (MR)[c]	−0.28*	−0.03	−0.11*	−0.26*	−0.14*	1.00	−0.36*	−0.31*	−0.27*	−0.30*	−0.25*	1.00
Vulnerability risk (VR)[c]	−0.03	−0.12*	−0.40*	−0.18*	−0.08	0.10	−0.19*	−0.24*	−0.38*	−0.31*	−0.24*	0.31*

*$p < 0.05$ (two-tailed)
[a]Increasing values reflect greater resiliency
[b]Increasing values reflect higher protection
[c]Increasing values reflect higher risk

Multivariate Analyses

Table 7.4 presents regression coefficients from the multivariate linear regression models by age group. Sociodemographic factors alone (Model 1) accounted for 2% of the variance in resilience among 12–14 year olds. Among the younger group of adolescents, living alone had a significant negative weight compared to living with both parents. The addition of the theoretical predictors accounted for an additional 7% of the variance. Both the models protection and the models risk measures had significant coefficients (Models 2–3). In addition, the social controls protection measure had a marginally significant coefficient at the 0.10 level.

Among the older cohort, sociodemographic factors accounted for 7% of the variance in resilience. Among older adolescents, females relative to males scored higher on the resilience index (Models 4–6), and increasing length of stay in the slums was associated with lower resilience. Adding the theoretical predictors accounted for an additional 10% of the variance. As with the younger adolescents, the models protection and the models risk measures were significantly associated with the resilience criterion (Models 5–6).

Among younger adolescents, there was no significant risk by protection interaction. Among older adolescents, however, there was a marginally significant interaction between the social controls protection measure and the vulnerability risk measure, with social controls protection moderating the impact of vulnerability risk on resilience. To illustrate this interaction effect, we followed the procedure described in Aiken and West (1991) to generate an interaction plot (Fig. 7.1). The figure shows that the impact of high vulnerability on resilience is buffered or attenuated by high social controls protection, as theoretically expected.

Discussion

Despite living under high-risk circumstances, a significant proportion of adolescents growing up in urban slums show resilience, that is, they manage to stay in and do well in school and avoid engagement in risk behaviors. This chapter used cross-sectional data to examine resilience among never-married, adolescents living in two Kenyan urban slums. To the best of our knowledge, this is the first application of a well-established protection-risk conceptual framework—Jessor's Problem Behavior Theory—to examine resilience among adolescents living in urban slums in sub-Saharan Africa.

The bivariate analyses revealed the theoretically expected, directional relationships between protective and risk factors, on the one hand, and resilience, on the other, with protective factors being positively correlated with resilience, and risk factors being negatively correlated with resilience. The multivariate account of variation in resilience was 17% in the older cohort and 11% in the younger cohort, with both accounts being significant. These findings are consistent with those of Jessor

Table 7.4 Regression of log-transformed resilience index on protective and risk factors, by age group

	12–14 years			15–19 years		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	B [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]
Sociodemographics						
Viwandani (ref: Korogocho)	−0.117**	−0.120**	−0.110**	−0.055	−0.007	−0.012
	[−0.022, −0.235]	[−0.014, −0.256]	[−0.005, −0.245]	[0.025, −0.153]	[0.064, −0.097]	[0.061, −0.105]
Female (ref: male)	0.058*	0.038	0.036	0.161***	0.148***	0.147***
	[0.110, −0.007]	[0.093, −0.030]	[0.092, −0.034]	[0.188, 0.126]	[0.177, 0.110]	[0.178, 0.109]
Household size	−0.014	−0.011	−0.012	−0.008	−0.01	−0.011
	[0.009, −0.039]	[0.011, −0.034]	[0.010, −0.035]	[0.010, −0.027]	[0.007, −0.029]	[0.006, −0.030]
Living arrangements (ref: both parents)						
Alone or others	−0.238**	−0.194**	−0.169*	−0.161**	−0.029	−0.025
	[−0.026, −0.564]	[−0.004, −0.483]	[0.009, −0.436]	[−0.030, −0.336]	[0.068, −0.160]	[0.072, −0.158]
One parent	−0.029	0.000	−0.002	−0.111**	−0.046	−0.053
	[0.056, −0.141]	[0.078, −0.102]	[0.077, −0.104]	[−0.011, −0.240]	[0.039, −0.154]	[0.034, −0.165]
Number of adolescents in household	−0.011	−0.010	−0.011	0.022	0.023	0.023
	[0.021, −0.047]	[0.021, −0.045]	[0.021, −0.046]	[0.052, −0.010]	[0.051, −0.007]	[0.051, −0.007]
Duration of stay in slum	0.001	0.002	0.003	−0.010***	−0.006**	−0.006*
	[0.010, −0.008]	[0.011, −0.006]	[0.012, −0.005]	[−0.003, −0.016]	[−0.000, −0.012]	[0.000, −0.012]
Theoretical predictors						
Models protection[b]		0.061**	0.059**		0.041**	0.040*
		[0.102, 0.012]	[0.102, 0.008]		[0.076, 0.001]	[0.075, −0.001]
Social controls protection[b]		0.077*	0.063		−0.014	−0.017
		[0.135, −0.000]	[0.125, −0.017]		[0.040, −0.077]	[0.038, −0.082]
Individual controls protection[b]		0.028	−0.001		0.028	0.007
		[0.103, −0.072]	[0.084, −0.116]		[0.078, −0.032]	[0.065, −0.063]
Support protection[b]		−0.034	−0.032		0.010	0.01
		[0.038, −0.125]	[0.040, −0.123]		[0.065,-0.056]	[0.067, −0.060]
Models risk[c]		−0.497***	−0.440***		−0.331***	−0.315***
		[−0.301, −0.746]	[−0.252, −0.682]		[−0.214, −0.470]	[−0.199, −0.455]

(continued)

Table 7.4 (continued)

	12–14 years			15–19 years		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	B [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]	*B* [95% CI][a]
Vulnerability risk[c]		0.029	0.059		−0.092**	−0.065
		[0.099, −0.064]	[0.125, −0.030]		[−0.007, −0.196]	[0.019, −0.170]
Protection × risk interactions[d]						
Social controls protection ×		–	–			0.067*
vulnerability risk						[0.128, −0.014]
R^2	0.023	0.096	0.113	0.071	0.167	0.174
N	780	780	780	942	942	942

Note *ref* reference
*$p < .10$; **$p < .05$; ***$p < .01$ (*p* values are two-tailed)
[a]Back-transformed coefficients, 95% confidence intervals in parentheses
[b]Increasing values reflect higher protection
[c]Increasing values reflect higher risk
[d]Only significant interactions are shown

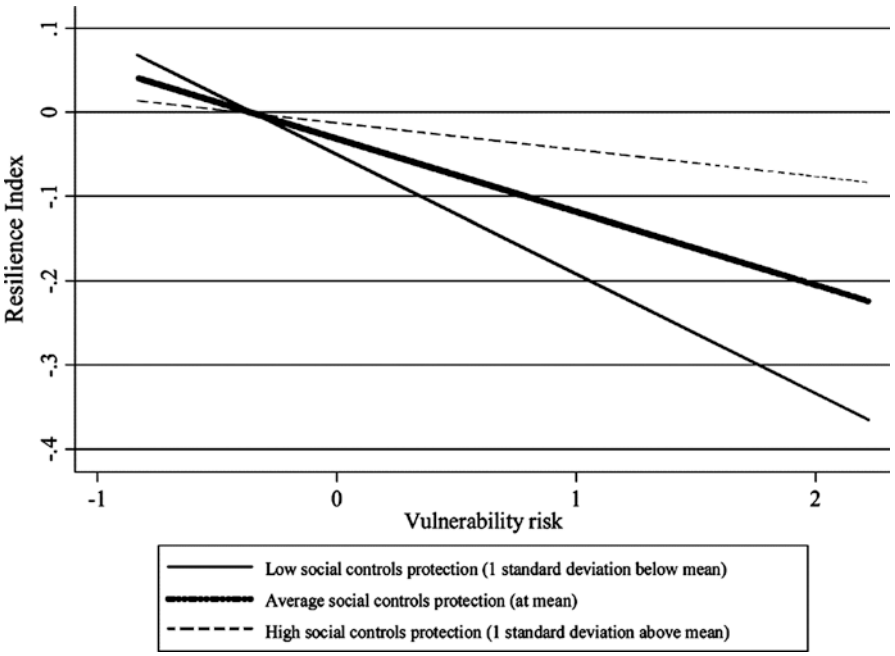

Fig. 7.1 The moderator effect of social controls protection on the relationship between vulnerability risk and resilience among 15−19 year olds

et al. (2003) and Costa et al. (2005) in their application of the same conceptual framework to account for the association of protective and risk factors with involvement in problem behaviors among Chinese and American adolescents. The multivariate analyses accounted for lower levels of variance than other studies (Jessor et al., 2003). This may stem, in part, from shared variance among predictors, and use of a less exhaustive set of measures since our study is based on data that were neither collected to examine resilience nor to test the Problem Behavior Theory.

Among the theoretical predictors, models protection and models risk are consistently associated with resilience and in both cohorts. The importance of models, especially peer models, in shaping adolescent behavior is consistent with previous evidence. Indeed, increased identification with peer groups is a key characteristic of adolescence (Haffner, 1998) and a focus on the importance of peers and other models as points of reference in shaping young people's values, attitudes, and practices is emphasized in several approaches (Baranowski, Perry, & Parcel, 2002; Dishion & Owen, 2002; Mirande, 1968; Montano & Kasprzyk, 2002). This finding that models emerge as the key predictors of resilience in circumstances of adversity makes clear that resilience reflects not only individual or personality attributes, but also social context factors (Fergus & Zimmerman, 2005; Schoon, Parsons, & Sacker, 2004). The programmatic and policy implications suggested are that efforts to enhance resilience among adolescents in disadvantaged urban settings need to make models for risk behavior less salient, while enhancing models for positive, prosocial behavior. Further research is warranted to understand modalities for achieving this in a context characterized by weak social ties as well as high exposure to violence, crime, and risky behaviors, such as alcohol and drug use.

The difficulty of establishing moderator effects in field studies is well known (McClelland & Judd, 1993). Although, the moderating effect of social controls protection on the association of vulnerability risk (low self esteem, low perceived life chances, adverse life experiences, and perceived peer pressure to engage in sex) with resilience, observed among the older adolescents was only marginally significant, the suggested interaction illustrates the potential moderating effect of protection on risk. At high levels of vulnerability risk, adolescents with high social controls protection, that is, adolescents perceiving greater parental monitoring and greater peer disapproval for risk behavior, are more resilient than those with low social controls protection. While further evidence on the role of informal social controls in regulating risk behavior and promoting prosocial behavior is clearly needed, this finding suggests that encouraging greater parental involvement in monitoring children's activities may be an important tool for achieving positive outcomes among young people living in urban slums.

The fact that the findings are notably stronger for the older cohort than for the younger cohort is of problematic interest. A possible reason for the observed age-cohort difference in amounts of variation explained by the multivariate analysis is, as noted earlier, the greater prevalence of and variation in risk behavior involvement among older adolescents. It may also be possible that the theoretical measures, especially the protective factors, such as parental social controls, play a somewhat different, more regulatory role at a later than at an earlier developmental stage.

Further, if we consider resilience as a process that develops over time—in other words, a person gains critical skills such as self-control over time—then we can expect wider variations in resilience among older adolescents who have had time to develop their own capacity to adapt to risk settings. Pursuing these alternatives would be facilitated by longitudinal research.

Several limitations in the present research need acknowledgement. First, the index measure of resilience is limited to only five behaviors and omits other potential components of positive adjustment such as mental health (Tiet & Huizinga, 2002). A more comprehensive mapping of the resilience construct would make the findings more compelling. Second, the index relied on a binary criterion of engagement versus non-engagement in the three risk behaviors, rather than on continuous measures that could take into account frequency and quantities consumed (in the case of substance use). Third, the cross-sectional study design, of course, precludes causal inferences about the effects of the protective and risk factors on the resilience outcome measure; instead, the study relies upon directional associations that are consonant with theoretical expectations. Only longitudinal analyses, with time-extended data, can strengthen inferences about causal influence. Finally, given the sensitive nature of information sought from participants, we must be cognizant of possible self-report bias.

Policy and Program Implications

These limitations notwithstanding, the study has illuminated key protective and risk factors that may contribute to positive development among youth living in poor urban settlements in sub-Saharan Africa. In particular, study findings highlight the need to involve parents as informal social control agents in programs designed to address youth risk behavior, empowerment and well-being. Study findings also underscore the need for policies and programs to ensure that young people living in resource-poor urban neighborhoods have access to education and recreational services as well as opportunities for civic involvement that address local needs and ensure that young people are prosocially engaged. While government is primarily responsible for providing such services, public-private partnerships should be explored. Further accumulation of evidence on positive youth development can provide a more compelling rationale for interventions to promote positive outcomes for young people growing up in an ecology of adversity. This is especially critical given an increasing rate of urbanization in the region that is rarely matched with improvements in living conditions, educational and livelihood opportunities, and social services.

Acknowledgments Funding for the Education Research Project (ERP) was provided by the William and Flora Hewlett Foundation (Grant Number 2004-4523). The Transitions to Adulthood study (TTA) was part of a larger project, the Urbanization Poverty and Health Dynamics program, funded by the Wellcome Trust (Grant Number GR 07830 M). Analysis and writing time was supported by funding from the Wellcome Trust (Grant Number GR 07830 M), the William and Flora

Hewlett Foundation (Grant Number 2009-4051), and the Rockefeller Foundation (Grant Number 2009-SCG 302). The authors thank colleagues at APHRC for their contributions. We are, of course, immensely grateful to the youth in Korogocho and Viwandani and to the fieldworkers who worked tirelessly to collect these data.

References

African Population and Health Research Center [APHRC]. (2006). *Handbook for analysis of ERP data—Version 1.1*. Nairobi, Kenya: African Population and Health Research Center.

African Population and Health Research Center [APHRC]. (2008). *Policy and program issues emerging from APHRC's education research in urban informal settlements of Nairobi, Kenya*. Nairobi, Kenya: African Population and Health Research Center.

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.

Baranowski, T., Perry, C. L., & Parcel, G. S. (2002). How individuals, environment, and health behavior interact: Social cognitive theory. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health behaviors and health education: Theory, research, and practice* (pp. 165–184). San Francisco: Jossey-Bass.

Beguy, D., Bocquier, P., & Zulu, E. M. (2010). Circular migration patterns and determinants in Nairobi slum settlements. *Demographic Research, 23*, 549–586.

Blum, R. W., Beuhring, T., Shew, M. L., Bearinger, L. H., Sieving, R. E., & Resnick, M. D. (2000). The effects of race/ethnicity, income, and family structure on adolescent risk behaviors. *American Journal of Public Health, 90*(12), 1879–1884.

Buckner, J. C., Mezzacappa, E., & Beardslee, W. R. (2003). Characteristics of resilient youths living in poverty: The role of self-regulatory processes. *Development and Psychopathology, 15*(1), 139–162.

Costa, F. M. (2008). *Problem-behavior theory: A brief overview*. Retrieved October 27, 2010, from http://www.colorado.edu/ibs/jessor/pb_theory.html

Costa, F. M., Jessor, R., Turbin, M. S., Dong, Q., Zhang, H., & Wang, C. (2005). The role of social contexts in adolescence: Context protection and context risk in the United States and China. *Applied Developmental Science, 9*(2), 67–85.

Crocker, L. M., & Algina, J. (1986). *Introduction to classical and modern test theory*. Belmont, CA: Wadsworth.

Denault, A. S., & Poulin, F. (2009). Intensity and breadth of participation in organized activities during the adolescent years: Multiple associations with youth outcomes. *Journal of Youth and Adolescence, 38*(9), 1199–1213.

Dishion, T. J., & Owen, L. D. (2002). A longitudinal analysis of friendships and substance use: Bidirectional influence from adolescence to adulthood. *Developmental Psychology, 38*(4), 480–491.

Dodoo, F. N. A., Zulu, E. M., & Ezeh, A. C. (2007). Urban-rural differences in the socioeconomic deprivation—Sexual behavior link in Kenya. *Social Science & Medicine, 64*(5), 1019–1031.

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health, 26*, 399–419.

Greenberger, E., & Chen, C. S. (1996). Perceived family relationships and depressed mood in early and late adolescence: A comparison of European and Asian Americans. *Developmental Psychology, 32*(4), 707–716.

Haffner, D. W. (1998). Facing facts: Sexual health for American adolescents. *Journal of Adolescent Health, 22*(6), 453–459.

Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health, 12*(8), 597–605.

Jessor, R. (1993). Successful adolescent development among youth in high-risk settings. *American Psychologist, 48*(2), 117–126.

Jessor, R. (2008). Description versus explanation in cross-national research on adolescence. *Journal of Adolescent Health, 43*(6), 527–528.

Jessor, R., Turbin, M. S., & Costa, F. M. (1998a). Protective factors in adolescent health behavior. *Journal of Personality and Social Psychology, 75*(3), 788–800.

Jessor, R., Turbin, M. S., & Costa, F. M. (1998b). Risk and protection in successful outcomes among disadvantaged adolescents. *Applied Developmental Science, 2*(4), 194–208.

Jessor, R., Turbin, M. S., Costa, F. M., Dong, Q., Zhang, H., & Wang, C. (2003). Adolescent problem behavior in China and the United States: A cross-national study of psychosocial protective factors. *Journal of Research on Adolescence, 13*(3), 329–360.

Jessor, R., Van Den Bos, J., Vanderryn, J., Costa, F. M., & Turbin, M. S. (1995). Protective factors in adolescent problem behavior: Moderator effects and developmental change. *Developmental Psychology, 31*(6), 923–933.

Kenya National Bureau of Statistics [KNBS], & ICF Macro. (2010). *Kenya demographic and health survey 2008–09*. Calverton, Maryland: KNBS and ICF Macro.

Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist, 55*(1), 170–183.

McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin, 114*(2), 376–390.

Mirande, A. M. (1968). Reference group theory and adolescent sexual behavior. *Journal of Marriage and the Family, 30*(4), 572–577.

Mistry, R., McCarthy, W. J., Yancey, A. K., Lu, Y., & Patel, M. (2009). Resilience and patterns of health risk behaviors in California adolescents. *Preventive Medicine, 48*(3), 291–297.

Mohaupt, S. (2008). Review article: Resilience and social exclusion. *Social Policy & Society, 8*(1), 63–71.

Montano, D. E., & Kasprzyk, D. (2002). The theory of reasoned action and the theory of planned behavior. In K. Glanz, B. K. Rimer, & F. M. Lewis (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 67–98). San Francisco: Jossey-Bass.

Mugisha, F., Arinaitwe-Mugisha, J., & Hagembe, B. O. N. (2003). Alcohol, substance and drug use among urban slum adolescents in Nairobi, Kenya. *Cities, 20*(4), 231–240.

Ndugwa, R. P., Kabiru, C. W., Cleland, J., Beguy, D., Egondi, T., Zulu, E. M., & Jessor, R. (2010). Adolescent problem behavior in Nairobi's informal settlements: Applying problem behavior theory in sub-Saharan Africa. *Journal of Urban Health, 88*(Suppl. 2), S298–S317.

Ngom, P., Magadi, M. A., & Owuor, T. (2003). Parental presence and adolescent reproductive health among the Nairobi urban poor. *Journal of Adolescent Health, 33*(5), 369–377.

Nicholson, H. J., Collins, C., & Holmer, H. (2004). Youth as people: The protective aspects of youth development in after-school settings. *The Annals of the American Academy of Political and Social Science, 591*, 55–71.

Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent resilience: A concept analysis. *Journal of Adolescence, 26*(1), 1–11.

Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., Jones, J., et al. (1997). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association, 278*(10), 823–832.

Roth, J., Brooks-Gunn, J., Murray, L., & Foster, W. (1998). Promoting healthy adolescents: Synthesis of youth development program evaluations. *Journal of Research on Adolescence, 8*(4), 423–459.

Sampson, R. J., & Wilson, W. J. (1995). Toward a theory of race, crime, and urban inequality. In J. Hagan & R. D. Peterson (Eds.), *Crime and inequality* (pp. 37–54). Stanford, CA: Stanford University Press.

Schoon, I., Parsons, S., & Sacker, A. (2004). Socioeconomic adversity, educational resilience, and subsequent levels of adult adaptation. *Journal of Adolescent Research, 19*(4), 383–404.

Stata. (2007). Stata statistical software (Version 10). College Station, TX: StataCorp.

Tiet, Q. Q., & Huizinga, D. (2002). Dimensions of the construct of resilience and adaptation among inner-city youth. *Journal of Adolescent Research, 17*(3), 260–276.

Turbin, M. S., Jessor, R., Costa, F. M., Dong, Q., Zhang, H., & Wang, C. (2006). Protective and risk factors in health-enhancing behavior among adolescents in China and the United States: Does social context matter? *Health Psychology, 25*(4), 445–454.

UN-HABITAT. (2003). *The challenges of slums: Global report on human settlements*. Nairobi, Kenya: UN-HABITAT.

United Nations Human Settlements Programme [UN-HABITAT]. (2008a). *The state of African cities 2008: A framework for addressing urban challenges in Africa*. Nairobi, Kenya: UN-HABITAT.

United Nations Human Settlements Programme [UN-HABITAT]. (2008b). *State of the world's cities 2008/2009: Harmonious cities*. Nairobi, Kenya: UN-HABITAT.

Vazsonyi, A. T., Chen, P., Jenkins, D. D., Burcu, E., Torrente, G., & Sheu, C.-J. (2010). Jessor's problem behavior theory: Cross-national evidence from Hungary, the Netherlands, Slovenia, Spain, Switzerland, Taiwan, Turkey, and the United States. *Developmental Psychology, 46*(6), 1779–1791.

Vazsonyi, A. T., Chen, P., Young, M., Jenkins, D., Browder, S., Kahumoku, E., et al. (2008). A test of Jessor's problem behavior theory in a Eurasian and a western European developmental context. *Journal of Adolescent Health, 43*(6), 555–564.

Weitzman, E. R., & Kawachi, I. (2000). Giving means receiving: The protective effect of social capital on binge drinking on college campuses. *American Journal of Public Health, 90*(12), 1936–1939.

World Bank. (2008). *Kenya poverty and inequality assessment* (Volume 1: Synthesis Report)—Draft Report (44190-KE). Retrieved from www.hackenya.org.

Zulu, E. M., Dodoo, F. N. A., & Chika-Ezeh, A. (2002). Sexual risk-taking in the slums of Nairobi, Kenya, 1993–98. *Population Studies, 56*(3), 311–323.

Chapter 8
Problem Behavior Theory and the Transition to Adulthood in the Slums of Nairobi, Kenya

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In this chapter, we explore *home-leaving* (establishing independent residence) among young people in two informal settlements (slums) in Nairobi, Kenya's capital city. We seek to understand home-leaving as one indicator of the transition to adulthood within resource-poor informal settlements. Specifically, we investigate the association between the occurrence and timing of home-leaving and sociodemographic, contextual, and psychosocial characteristics.

The transition to adulthood is a period of significant developmental changes that shape the nature and quality of young people's future lives (Lloyd, 2005). Independence is considered an important hallmark of adulthood. Consequently, the act of leaving the parental home and establishing an independent residence is considered an important marker of the transition to adulthood (Goldscheider & Goldscheider, 1993; Koc, 2007; Mulder & Clark, 2000). For example, a study by Rusconi (2000) in Germany and Italy, indicates that becoming residentially independent is considered indexical of economic and individual autonomy from the household of origin. Similarly, a study conducted in Zambia highlights home-leaving as a focal point for other critical developmental tasks and transitions (Benefo, 2004). Investigations of the dynamics of home-leaving in Italy have shown that economic resources play a key role in young people's transition into independent living (Aassve, Billari, & Ongaro, 2001). Studies in the United States also

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Egondi, T., Kabiru, C., Beguy, D., Muindi, K., & Jessor, R. (2013). Adolescent home-leaving and the transition to adulthood: A psychosocial and behavioural study in the slums of Nairobi. *International Journal of Behavioral Development, 37*(4), 298-308.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_8

show that the higher a young person's income level, the more likely she or he is to be living independently (Avery, Goldscheider, & Speare, 1992; Haurin, Hendershott, & Kim, 1993; Whittington & Peters, 1996). In the UK, Ermisch (1999) found that the cost of housing also influences young people to leave their parental home. Specifically, some youth delay home-leaving, while others may return to their parental home after a stint of living independently because of financial constraints. Some studies in The Netherlands and China have shown that young people leave home earlier when the parental household has a high level of transferable material resources (e.g., income and property) and that non-transferable material resources (e.g., living space, help with meal preparation and housework, etc.) delay home-leaving (An, Mertig, & Liu, 2003; De Jong Gierveld, Liefbroer, & Beekink, 1991; Laferrère, 2005). There is also evidence that family size can influence leaving the parental home. For example, it has been found that a higher number of siblings increases the likelihood of leaving home for union formation and employment reasons; however, it decreases the likelihood of leaving home for furthering education (Billari & Ongaro, 1999). Overall, most theorizations of home-leaving frame home-leaving as a personal choice or an independent decision of the young person concerned. In this chapter, we move beyond this limited assumption to examine a broader conceptualization that takes into account both contextual and individual-level constructs and that might better illuminate home-leaving among young people in impoverished circumstances.

Leaving home is also an important event because of its interdependencies and consequences (Aassve et al., 2001). Thus, in addition to exploring the dynamics of home-leaving in the slums, we will examine the association between independent living and other transition behaviors (e.g., sexual initiation and marriage), some of which can also represent a claim on a more mature status. Since some of these other transition behaviors (e.g., early sexual initiation) can be viewed as risk behaviors, we have engaged a well-established explanatory framework, Jessor's Problem Behavior Theory (Costa et al., 2005; Jessor, 1991; Jessor et al., 2003), to illuminate the interlinkages between home-leaving and other markers of the transition to adulthood. The explanatory framework involves psychosocial protective factors, for example, informal social controls and supports that lessen the likelihood of engaging in risk behavior, and psychosocial risk factors, such as models risk and vulnerability risk, that enhance the likelihood of engaging in risk behavior.

Problem Behavior Theory posits that behavior is influenced by both protective and risk factors. The theory outlines three types of protective factors: models protection, controls protection, and support protection, and three types of risk factors: models risk, opportunity risk, and vulnerability risk (Jessor et al., 2003). Protective factors promote pro-social behaviors while risk factors increase the likelihood of risk behaviors. Protective factors may also moderate the impact of risk factors on behavior. According to the theory, models risk includes measures of models for risk behavior (e.g., friends who engage in substance use may serve as behavioral models). Opportunity risk refers to situational factors that provide an opportunity to engage in risk behaviors (e.g., presence of alcohol in the household may provide an opportunity to consume alcohol). Lastly, vulnerability risk refers to individual

characteristics, such as low self-esteem, that increase the likelihood of engaging in risk behavior. Models protection, on the other hand, includes measures of parent and peer models for pro-social behavior (e.g., friends who value education). Controls protection are informal regulatory controls that are either individual-level (e.g., high religiosity) or social-environmental (e.g., parental monitoring). Finally, support protection refers to contextual supports for pro-social behavior (e.g., having a supportive parent). In this study, we posit that young people reporting high levels of protective factors will be less likely to leave home and will report lower levels of engagement in risk behavior even if they are living independently. In contrast, young people reporting higher levels of risk factors will be more likely to report independent residence.

In addition to the associations postulated by Problem Behavior Theory, we also posit that the experience of other markers of the transition to adulthood, and whether a young person is a migrant or not, will be associated with home-leaving. First, in most societies, married couples are expected to establish an independent household. Consequently, we expect to find that married youth will live independently. In addition, early pre-marital pregnancy may also result in the transition to independent living. Further, young people with an income may be more likely to live independently because they have the resources to support an independent household. Living independently also may give young people the freedom to engage in risk behavior. Conversely, young people who engage in risk behavior may desire to live alone in order to have more freedom. Finally, with respect to migration, we consider that home-leaving may take several pathways; those who migrate from their rural areas to start their own independent living in the city and those who leave their parental homes in the same slum or other parts of the city to form their own independent living in the slum.

The overall conceptual framework for the study is shown in Fig. 8.1.

Study Context

It is noteworthy that studies of the dynamics of residential independence have primarily focused on youth living in the global North. Conversely, little is known about home-leaving in sub-Saharan Africa, where different cultural factors may have substantial effects on home-leaving—an important marker of transition to adulthood in African settings. Nairobi's informal settlements (or "slums") provide a unique context for examining residential independence for three main reasons. First, overcrowding and inadequate dwelling spaces typify these slums. Dwelling units have average measurements of 10 by 10 ft. and are constructed with substandard materials such as iron sheets or mud and timber. Several scholars (Amuyunzu-Nyamongo & Magadi, 2006; Dodoo, Zulu, & Ezeh, 2007) have investigated the association between the lack of space and the sexual behavior of youths resident in the slums. However, space constraints in informal settlements are also likely to be linked to the timing of residential independence among young people. In other words, in addition

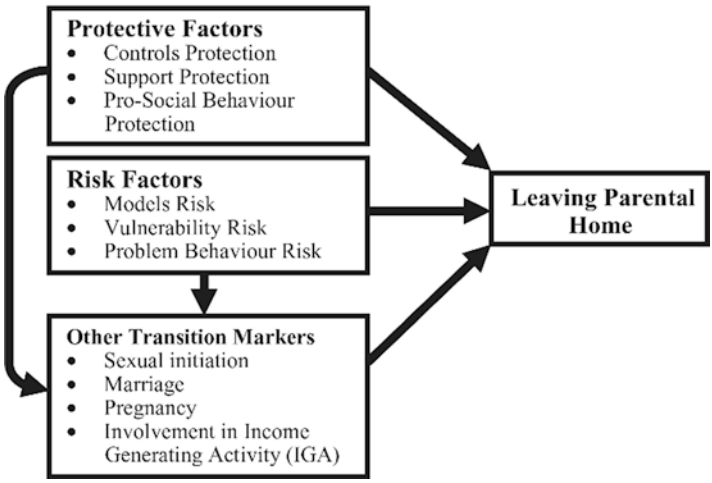

Fig. 8.1 Conceptual framework (Adapted from Jessor's Problem Behavior Theory ; Costa et al., 2005; Jessor, 1991; Jessor et al., 2003)

to other reasons, leaving home is likely to be a function of pragmatic considerations: youths in the slums may be prompted to establish a separate residence from that of their parents simply because sufficient space in their household of origin cannot be taken for granted.

The second reason for which Nairobi's slum settlements constitute a unique study site has to do with the fact that they are home to a diversity of ethnic groups. This diversity may also play a role in influencing the establishment of independent households by young people. The traditional expectation for certain ethnic groups (the Kikuyu, for instance) is that boys will live on their own once they have undergone circumcision, a rite that symbolizes the transition to adulthood for some subcultures in Kenya and that is performed on boys around the age of 13 years. Of significance is the fact that this sort of cultural expectation has little to do with the youth's personal choice or desire to leave home or not. Rather, it is more of an obligation to which male youth must adhere. Third, while many theorizations of home-leaving center on the economic resources of the home-leaver to establish an independent residence, the slum setting (which is characterized by high levels of poverty and unemployment) raises questions about the centrality of economics to residential independence among young people in the slums of Nairobi. The slums of Nairobi are characterized by a high unemployment rate and a shortage of productive investment. Basic public services such as affordable and clean water, access to electricity, and stable sources of income are lacking. The realities of the dire economic challenges in the slums create a situation in which leaving home may be realized through unique living arrangements. For instance, while some young people who have left home may be living a fully (economically) independent life, others may have "left home" in that they live in, and are responsible for paying for, their own independent residence, but they continue to be supported in other ways by

their household of origin. For example, food and educational expenses may be borne by their parents or caregivers. Other young people will live with their peers.

The present study examines the dynamics and consequences of home-leaving in two informal "slum" settlements in Nairobi. The study seeks to address the following three questions: (1) is home-leaving related to other transition-to-adulthood markers, including first sexual intercourse, marriage, childbearing, and involvement in income-generating activities?; (2) do psychosocial protective and risk factors, as well as sociodemographic characteristics, explain the occurrence and timing of the home-leaving transition?; and (3) do protective factors moderate the impact of risk factors on adolescents' home-leaving?

Methods

Study Design, Participants and Procedures

The data used in this study are drawn from the baseline (Wave 1) and the follow-up (Waves 2 and 3) surveys of the Transition-To-Adulthood (TTA) project, a component of the 5-year Urbanization, Poverty and Health Dynamics (UPHD) project conducted by the African Population and Health Research Center (APHRC) in two slums in Nairobi. The study is nested in the Nairobi Urban Health and Demographic Surveillance System (NUHDSS), which collects routine health and demographic data from about 76,094 people in 29,900 households (as at the end of 2009) in the two slums (African Population and Health Research Center, 2009). During the first wave of data collection, about 4,057 youths were interviewed using a structured interviewer-administered questionnaire between October 2007 and June 2008. In the second wave (March 2009–August 2009), 2,527 youths were re-interviewed and 1,629 youths were re-interviewed in the third wave (April 2010–August 2010).

The questionnaire included questions covering social demographic characteristics (e.g., independent housing and schooling), and living arrangements, as well as other psychosocial and behavioral factors. The questionnaire was developed and reviewed by a team of experts in youth issues and was pilot tested among a group of young people living in villages adjacent to the Demographic Surveillance Area (DSA). The complete questionnaire was translated from English to Kiswahili and administered in Kiswahili, the language most spoken in the study area.

Measures

Outcome variables Independent housing (residential status) was assessed based on the response to a single question: "Have you ever owned or rented your own residence, such as a structure or house?" This variable was used as proxy for *the event status of leaving home.* Fieldworkers were trained to ensure that respondents

understood that residential independence referred to being primarily responsible for paying rent or being the head of household. Respondents who had lived independently were also asked at what age they first lived independently; and in what month and year they first owned or rented their residence. A variable denoting *the timing of first independent housing* was derived from this second question. The outcome criterion measure is the dichotomous variable indicating whether or not an individual had ever lived independently. Analyses of this criterion in this paper adopted three approaches: variable-centered analysis, predictive analysis of leaving home, and person-centered analysis. The variable-centered analysis focused on the association between the psychosocial and behavioral explanatory variables in the conceptual framework and residential status at Wave 1. The second approach was a predictive analysis to establish whether the explanatory variables, measured at Wave 1, predicted home-leaving by Wave 2, for the cohort that had not left home by the first round of survey. Third, the person-centered analysis involved the creation of subgroups, based on transitions made, and then comparing predictor variables among the groups, again based on Wave 1 data.

Socio-demographic variables Socio-demographic measures included respondents' sex and schooling status (whether or not a respondent was in school at Wave 1), youth sexual behavior, employment status, migration status and marriage. Schooling status was included as an independent variable since being in or out of school may influence the decision to move out of the parent's home. Migration status comprised two categories: whether or not the respondent was born in the study area. Migration is controlled for in this case because those who move into their study area without their families are thought to be more likely to acquire independent housing than those who were born there.

Marital status was assessed using the responses to three questions. Respondents were asked, "Have you ever been married or lived together with a man/woman as if married?" If they responded "yes", they were asked, "Are you currently married or living together with a man/woman as if married?" If they gave an affirmative response, they were asked about the month and year when they first got married/started living with a partner, and where the date was unknown, they reported the age when they first got married or started living with a partner. Sexual behavior was assessed by asking the respondents, "Have you ever had sexual intercourse?" If their response was in the affirmative, they were asked about the age when they had their first sexual intercourse. Respondent's pregnancy history was derived from the questions "Have you ever been pregnant?" for girls and "Have you ever made someone pregnant?" for boys. The date when this first happened was also recorded. The age or date when these events happened were collected to determine whether they happened before or after leaving the parental home. Respondents were also asked about their involvement in income-generating activities (IGA). Involvement in IGA is considered as a measure of economic independence and the ability to afford independent living (Aassve et al., 2001; Rusconi, 2000).

A socio-economic index was constructed using data on household characteristics and possessions collected under the Demographic Surveillance System. Principal

Components Analysis (PCA) was used to construct the socio-economic index using information on asset ownership, access to utilities and infrastructure (e.g., source of water), and housing characteristics (e.g., building material) were used. Descriptive analysis (frequencies) was performed to guide in deciding which variables to include in the analysis. If most or very few households owned the asset then these variables were dropped from the analysis. The variables that were excluded are vehicle, car, motorcycle, refrigerator, mattresses, fan, blankets, and roof material which had less than 1% of households owning them. Variables with many categories or low frequencies were combined and recoded into binary variables. A continuous score obtained from (PCA) was grouped into tertiles of poorest, poor, and least poor.

Measures of psychosocial and behavioral protective and risk factors We constructed composite measures of three key psychosocial protective factors (controls protection, support protection, and behavior protection), and three key psychosocial risk factors (models risk, vulnerability risk, and problem behavior risk) from the Problem Behavior Theory framework. Composite measures of protection and of risk were generated by averaging all the equally weighted items in the component subscales and standardizing them with mean of zero. The alpha reliabilities of the composite measures of risk and protective factors, and of their component subscales, are presented in Table 8.1. The composite protection and risk measures were generated to assess the relationship of overall protection and overall risk with the home-leaving criterion measure.

The *controls protection* composite comprised items in three multiple-item subscales that assess parental, personal, and friends' controls. *Parental controls* were measured using 10 items that assessed the respondent's perception of how much their parents or guardians know about the respondent's daily activities (e.g., "Where

Table 8.1 Psychosocial and behavioral protective and risk factor composite measures, component subscales, and alpha reliabilities

Protective factors	Alpha
Controls protection	0.83
Parental controls (10)	0.88
Personal controls (6)	0.69
Friends controls (3)	0.76
Support protection (6)	0.67
Pro-social behavior protection (8)	0.61
Risk factors	
Models risk	0.68
Sibling models (4)	0.74
Peer models (pressure)(1)	–
Vulnerability risk (6)	0.59
Problem behavior involvement	0.82
Delinquency (7)	0.75
Substance use (8)	0.87

you spend time in the evenings on weekdays, or who your friends are") and parental sanctions (e.g., "How often does your parent scold or reprimand you when you do something wrong?"). *Personal controls* included individual reliance on religious beliefs (e.g., "How important is it to you to be able to rely on religious teachings when you have a problem?") and individual-level intolerance for normative transgressions (e.g., "Young women/men should remain virgin until they marry"). *Peer controls* included peers' approval of pro-social behavior (e.g., "How important is it to your friends that you do well in school?") and peers' feelings about substance use (e.g., "How do most of your friends feel about someone your age drinking alcohol, using marijuana or other drugs?"). The *support protection* composite comprised six items assessing parental support using questions (e.g. "How often does your father/mother teach you things?", "How often do you share secrets with your father/mother?" and "How often does your father/mother try to help you?"). *Pro-social behavior protection* included involvement in positive community activities (e.g. "Do you belong to a religious group, drama/dance/choir group, anti-AIDs club, anti-drugs club or self help group?").

The *models risk* composite comprised four items related to siblings and a single item related to peers (e.g., "How much pressure is there on people your age to have sex?" and "Have any of your brothers or sisters ever had premarital sex, smoked, drunk alcohol?"). *Vulnerability risk* was measured using a six-item scale of self-esteem including the following questions: "How well do you get along with others?", "How well do you live up to what is expected of you?", "What is your ability to do well in school?", "How attractive do you think you are?", "How satisfied are you with yourself?", "How well do you resist peer pressure from the rest of the group?" The composite measure of *problem behavior involvement* comprised two multi-item subscales; delinquent-type behavior and substance use. Delinquency was assessed using seven items that measured the frequency with which the respondent engaged in delinquent behaviors, for example, staying away from home for at least one night without parental permission. Eight items assessing cigarette smoking, alcohol drinking, and use of other recreational drugs were used to generate a scale for substance use.

Statistical Analyses

Descriptive characteristics of the sample are presented by residential status (see Table 8.2). Two analytic approaches were used to examine the relation of our psychosocial and behavioral variables to home-leaving. First, a variable-centered approach was used to examine the association of the explanatory measures with the home-leaving measure using logistic regression. We expect the three protective factor measures to be associated with a lower likelihood of leaving the parental home; conversely, we expect the three risk factor measures to be associated with a higher likelihood of leaving home. Second, person-centered analysis, based on leaving home sub-groups, was employed to address the hypothesis that problem behavior

involvement will be higher among adolescents with low protection and high risk who left their parental home.

Bivariate analyses were performed to assess the association between each independent variable and the criterion measure of home-leaving. Multivariable analyses (logistic regression) were then conducted to assess the combined effects of the explanatory variables on the odds of home-leaving. Socio-demographic variables and other transition-to-adulthood variables that were significantly associated with leaving home were included in the multivariate model to control for their effect in assessing the role of the psychosocial and behavioral protective and risk factors. The final model was obtained through stepwise model selection, keeping all the psychosocial variables in the model. The final model was fitted for the overall sample, and then stratified by sex and age group. The stratified analysis by sex and age was performed since home-leaving among adolescents may differ by sex and age. The moderating effect of protective factors on the impact of risk factors on home leaving was assessed through examining interaction effects between protective and risk factors. The approach used for the predictive analysis also employed logistic regression. The predictive analysis assessed whether the psychosocial and behavioral protective and risk factors, at Wave 1, predicted home-leaving by either Wave 2 or Wave 3, for those who had not left the parental home at Wave 1. To make more apparent the overall effect of the risk and protective factors, analyses of composite psychosocial measures were also undertaken.

Results

Descriptive Findings About Home-Leaving

The study used data on 3,237 youths aged 14–22 years (excluding 820 adolescents aged 12–13 years) with about equal number of male and female respondents (1,618 males; 1,619 female). The study excluded youth aged 12 and 13 years because this group is less likely to experience any of the transition to adulthood markers. Only 2% of 12–13-year-olds had moved out of the parental home. Table 8.2 presents the proportion that ever rented or owned a house by socio-demographic characteristics. The ethnic groups in the study area include Kikuyu (34%), Kamba (17%), Luhya (12%), Luo (17%), and other groups (18%). The data from this study show that Kikuyu and Kamba were more likely to leave the parental home compared to the other groups. Among the adolescents interviewed, 34% had ever owned or rented a house. The proportion ever owned or rented a house in Korogocho was 29% and is 38% in Viwandani. Of the female youths, 24% reported to have ever lived independently, while 43% of males had moved out of their parental home. About 50% of those aged 18–22 years had moved out of their parental home compared to 13% among those aged 14–17 years. About 41% of youths who migrated from rural Kenya to the study areas reported that they had rented or owned a house compared to about 30% of those who were born in the area or came from other parts of Nairobi.

Table 8.2 Percentage distribution of socio-demographic characteristics by residential status

	Has respondent ever owned or rented house?		
	Yes (%)	No (%)	*n*
Study site			
Korogocho	29.1	70.9	1,589
Viwandani	37.9	62.1	1,648
Respondent's sex			
Male	43.1	56.9	1,618
Female	24.0	76.0	1,619
Age group			
14–17	13.2	86.8	1,472
18–22	50.5	49.5	1,765
Where migrant lived before DSA			
Nairobi	29.9	70.1	2,085
Rural Kenya	40.6	59.4	1,106
Involved in income-generating activity (IGA)			
Yes	74.3	25.7	412
No	27.6	72.4	2,779
Wealth index			
Poorest	36.5	63.5	1,253
Poor	34.5	65.5	1,020
Least poor	28.6	71.4	918
Schooling status			
Still in school	15.1	84.9	1,557
Out of school	51.2	48.8	1,634

Of those involved in income-generating activity, 74% reported ever moved out, compared to about 28% of those who were not involved in income-generating activity. Table 8.2 shows that 37% of the adolescents from poorest households moved to independent houses compared to 35% from poor households, and 29% from the least poor households. The table also shows that 51% of those out of school had lived independently as compared to 15% of those still in school.

With regard to our first objective, the exploration of the relations of the home-leaving transition to other transition markers, Table 8.3, presents percentages indicating the inter-relationships among the various markers of transition to adulthood. What is apparent is the clear bi-directional relation between pregnancy status and marital status. The rest of the relationships show that one marker is more an outcome of other markers. Home-leaving is more likely to occur as a result of involvement in income-generating activities (IGA) as opposed to the reverse: 74% of those involved in IGA reported having left their parental home, and 29% of those who left their parental home reported involvement in IGA. A similar relationship is observed between home-leaving and other transition-to-adulthood markers, except engaging in sexual intercourse. The data make clear that the transition of home-leaving is

Table 8.3 Inter-relationships among transition-to-adulthood markers in terms of percentages: considering columns as outcome and rows as exposure

	Ever had sex	Ever been pregnant	Ever given birth	Ever married	Involved in IGA	Leaving home
Ever had sex	–	–	–	–	19.6	51.8
Ever been pregnant	–	–	58.7	72.3	21.1	56.8
Ever given birth	–	–	–	80.4	19.3	55.2
Ever married	–	84.6	55.2	–	22.9	64.5
Involved in IGA	82.8	39.6	21.1	36.7	–	74.3
Leaving home	84.0	40.9	23.4	39.7	28.5	–

Note The missing cells are for those obvious outcomes that would bring the results to 100%

significantly related to other markers of the transition to young adulthood. In that regard, they support the application of the Problem Behavior Theory-framework to illuminating the leaving-home transition.

Accounting for Home-Leaving: Findings from Cross-Sectional, Variable-Centered Analysis

Models were fitted for the overall sample, for younger adolescents (14–17 years), for older adolescents (18–22 years), and for males and females separately. A target sample of 3,237 adolescents formed the analytical sample for this cross-sectional analysis. The actual number reported for the different models is less than 3,237 because of the excluded observations with missing information on some of the predictors. The results of the combined sample show, in Table 8.4, that, as expected, older adolescents (18–22 years) were more likely to leave their parental home compared to the younger adolescents, regardless of sex. Generally, female youths were less likely to leave their parental home compared to male youths. Adolescents who reported having ever married were more likely to move out of their parent's home compared to those who never married, and a similar effect was observed across sex and age. Sexual intercourse-experience was significantly associated with leaving home, regardless of sex and age. Though ever being married or being sexually experienced were associated with a greater likelihood of home-leaving, the association was greater among males and younger youths. Involvement in income-generating activity and being out of school both increased the chance of young adolescents moving into independent housing across sex and age. Residents in Viwandani were more likely to have lived independently compared to Korogocho residents, though this association was not significant for young adolescents. This difference may be due the fact that more residents in Viwandani are employed, thus increasing the likelihood of leaving the parental home because of economic independence. Indeed, Viwandani had a higher proportion of youths who were involved in income

Table 8.4 Association of psychosocial and behavioral protective and risk factor component measure with home-leaving among adolescents

	−1 overall	−2 aged 14–17	−3 aged 18–22	−4 males	−5 females
Aged 18–22 (ref: 14–17)	1.00***			0.94***	1.16***
Females	−1.85***	−2.30***	−1.75***		
Socio-economic status					
Poor	−0.26**	−0.46*	−0.19	−0.16	−0.37*
Least poor	−0.49***	−0.42*	−0.50***	−0.61***	−0.39*
Out of school (ref: still in school)	0.71***	0.57**	0.65***	0.81***	0.57**
Viwandani (ref: Korogocho)	0.30***	0.04	0.41***	0.26*	0.41**
Involved in IGA	0.95***	1.50***	0.89***	0.83***	1.03***
Ever married	1.44***	2.28***	1.33***	2.32***	1.36***
Ever had sexual intercourse	1.16***	1.63***	0.87***	1.30***	0.86***
Controls protection	−0.06	−0.59***	0.09	−0.22*	0.13
Parental support protection	−0.26***	−0.05	−0.32***	−0.36***	−0.19
Pro-social behavior protection	0.27***	0.25	0.27**	0.40***	0.06
Models risk	0.03	0.10	−0.01	0.01	0.05
Vulnerability risk	0.01	0.00	−0.02	−0.09	0.09
Problem-behavior risk	0.03	−0.17	0.09	−0.09	0.33*
Constant	−2.14***	−2.23***	−0.92***	−2.25***	−3.73***
Observations	3,074	1,433	1,641	1,538	1,536

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

generating activities (19%) compared to Korogocho (7%). Migration status was not found to have an influence on leaving the parental home after controlling for other factors. Household socio-economic status had a negative effect on leaving home in that adolescents from wealthier households were less likely to leave their parental home.

After controlling for these characteristics, the model results show that psychosocial and behavioral protective factors were associated with a lower likelihood of leaving home. This association varied with both age and sex. Higher controls protection was associated with a lower likelihood of leaving home for young and male adolescents only, while parental support was associated with a lower likelihood of leaving the parental home for older and male adolescents. Unexpectedly, high prosocial behavior was significantly associated with a higher likelihood of leaving the parental home for male and older adolescents. This result is contrary to what was theoretically expected. Neither models risk nor vulnerability risk was significantly

associated with home-leaving, after controlling for other factors, except for problem-behavior involvement risk which was found to increase the likelihood of home-leaving, as expected, but only among female adolescents. There was no significant interaction between controls protection and any of the risk measures.

The second model considered the relation of overall protection (controls + support + pro-social-behavior involvement) and of overall risk (models + vulnerability + problem-behavior involvement) to home leaving, controlling for socio-demographic characteristics and other transitions. In this model, there was no change in the relation of socio-demographic characteristics and of the other transition-to-adulthood markers. The relation of the measure of overall protection is the same as that shown in the Table 8.4 model, which is based on the individual components of the protection measure: Protection is associated with a lower likelihood of independent living for male and younger youths. The measure of overall risk was significantly associated with home-leaving, but only for older youths. The interaction between the overall protection measure and the overall risk measure was significant—as expected, overall protection moderated, buffered or reduced the association between problem-behavior involvement and home-leaving (Table 8.5).

Table 8.5 Association of overall psychosocial and behavioral protection and risk with home-leaving among adolescents

	−1 overall	−2 aged 14–17	−3 aged 18–22	−4 males	−5 females
Aged 18–22 (ref: 14–17)	0.96***			0.95***	1.03***
Females	−1.85***	−2.26***	−1.76***		
Socio-economic status					
Poor	−0.34***	−0.46*	−0.30**	−0.24	−0.44**
Least poor	−0.54***	−0.43*	−0.56***	−0.66***	−0.43**
Out of school (ref: still in school)	0.68***	0.67***	0.59***	0.75***	0.58***
Viwandani (ref: Korogocho)	0.41***	0.06	0.56***	0.36**	0.50***
Involved in IGA	0.99***	1.46***	0.93***	0.82***	1.10***
Ever married	1.44***	2.23***	1.34***	2.26***	1.38***
Ever had sexual intercourse	1 12***	1.67***	0.78***	1.23***	0.87***
Overall protection measure	−0.27*	−0.56**	−0.16	−0.44**	−0.15
Overall risk measure	0.15	−0.16	0.24*	0.09	0.22
Overall protection measure x overall risk measure interaction	0.43**	−0.07	0.60**	0.63***	−0.07
Constant	−2.02***	−2.21***	−0.79***	−2.10***	−3.66***
Observations	3,191	1,455	1,736	1,589	1,602

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

Accounting for Home-Leaving: Findings from Predicting Home-Leaving Over Time

The target sample for this predictive analysis was 2,150 adolescents who had not moved out at Wave 1, of which 1,780 adolescents had information at the subsequent waves either at Waves 2 or 3. Therefore, the analytical sample for predictive analysis was 1,780, and the actual number used for analysis (reported in Tables 8.6 and 8.7) is less than 1,780 because of observations with missing information on some of the predictors. A predictive analysis of home-leaving for those adolescents who had not yet left home by the first wave of data collection shows that older adolescents were more likely to leave home compared to younger adolescents, while female respondents were less likely to leave regardless of their age. Adolescents who reported ever having been in a marital union were more likely to leave home by the second wave of data collection. Among the psychosocial variables, controls protection conferred a delaying effect on home-leaving: the higher the controls-protection score, the less likely they were to leave home, controlling for demographic factors. Neither the measures of pro-social behavior-involvement protection nor of problem-behavior involvement risk nor of models risk were significant predictors of home-leaving after controlling for other factors. These predictive results for the component measures are presented in Table 8.6. The composite measures of overall protection and risk, shown in Table 8.7, reinforce the importance of the overall protection composite as significantly associated with a reduced likelihood of a home-leaving transition over the subsequent time interval.

Table 8.6 Psychosocial and behavioral protective and risk factors component measures as predictors of home-leaving over time (Wave 1 to Wave 2 or Wave 3)

	(1) overall	(2) aged 14–17	(3) aged 18–22
Aged 18–22 (ref: 14–17)	1.29***		
Females	−1.66***	−2.06***	−1.52***
Ever married	1.68***	2.84***	1.26***
Controls protection	−0.46***	−0.91***	−0.29*
Parental support protection	−0.05	−0.09	−0.00
Pro-social behavior protection	−0.01	0.14	−0.15
Models risk	0.09	0.06	0.05
Vulnerability risk	0.03	0.16	−0.12
Problem-behavior risk	0.04	0.19	−0.03
Constant	−2.58***	−1.25***	−0.02
Observations	1,751	1,018	733

***$p < 0.01$; *$p < 0.1$

Table 8.7 Overall psychosocial and behavioral protection and risk predicting home-leaving over time (Wave 1 to Wave 2 or Wave 3)

	(3) overall	(4) aged 14–17	(5) aged 18–22
Aged 18–22 (ref: 14–17)	1.24***		
Females	−1.62***	−1.88***	−1.52***
Ever married	1.57***	2.60***	1.22***
Composite protection measure	−0.70***	−1.19***	−0.47**
Composite risk measure	0.16	0.41	−0.00
Constant	−2.52***	−1.41***	0.01
Observations	1,781	1,031	750

***$p < 0.01$; **$p < 0.05$

Accounting for Home-Leaving: Findings from Person-Centered Analysis

The person-centered analysis considered two sub-groups of adolescents: those whose transition event was leaving home only, and those who had not experienced any transition-to-adulthood event. Figure 8.2 illustrates the relationship between controls protection, models risk, and an index of involvement in problem behavior. The distribution of the controls protection score was dichotomized to define groups as low (L) and high (H) in protection; the distribution of the models risk score was categorized to define groups as low, medium, and high risk. The problem behavior index was used as a continuous score, with a high score associated with high problem behavior involvement, that is, with high engagement in delinquent behavior and substance use.

Figure 8.2 shows the mean problem behavior involvement score for participants with low protection scores (LP) and high protection scores (HP) in subgroups at low, medium, or high model risk scores, respectively. Results show that among those who have left home (LH), those who had low protection (LP) also had high involvement in problem behavior. In contrast, among those who left home (LH) with high protection (HP), their problem-behavior involvement was low, and it remained low, that is, it did not vary as risk went from low to high. As shown in the figure, among those who made no transition, the role of variation in protection is the same; those with low protection have high problem behavior scores, scores increasing as risk goes from low to high, while those with high protection have low problem behavior scores irrespective of the level of risk.

Discussion

In this chapter, we explored the concept of home-leaving (establishing independent residence) as a transition to adulthood among young people in two informal settlements (slums) in Nairobi, Kenya's capital city. In addition, we examined the

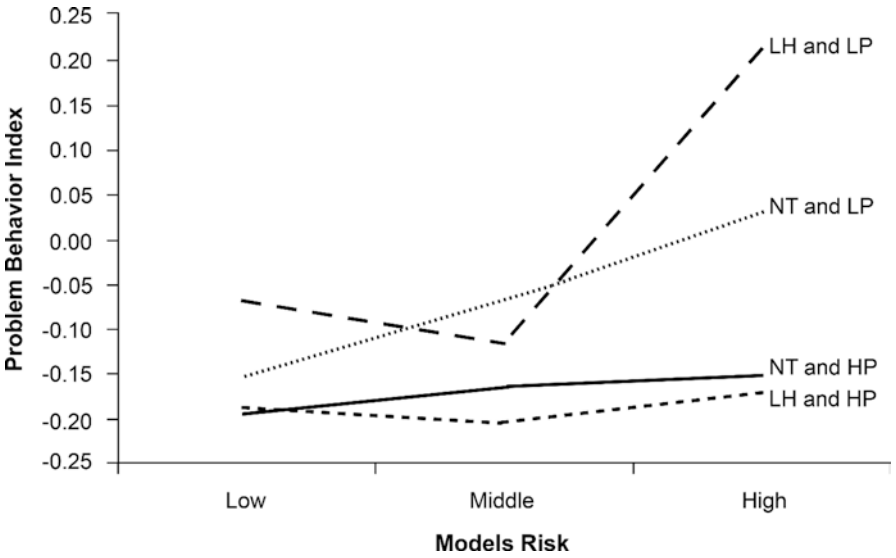

Fig. 8.2 Moderation of models risk by controls protection for sub-groups of those who left the parental home only and those who made no transition (*LP* Low control protection, *HP* High control protection, *LH* Left home, *NT* No transition)

usefulness of an explanatory framework incorporating psychosocial and behavioral risk and protective factors.

Our first objective was to examine whether home-leaving is related to other transition-to-adulthood markers, including first sexual intercourse, marriage, childbearing, involvement in income generating activities. We observed a strong association between home-leaving, marital status, sexual experience, involvement in an income-generating activity, and schooling status in the cross-sectional, variable-centered analysis. As expected, young people who were married were more likely to be living independently. The association with sexual experience can be explained in two ways; sexually-active youth may leave home in anticipation of greater freedom and privacy, given the crowded living space in slum dwellings; youth who are living independently have more chance to engage in sex because of the absence of social controls such as parental monitoring. The bi-directional relationship between involvement in IGA and home-leaving reinforces the role of having an income in the transition to independent residence. Previous studies have documented the role of economic resources in the attainment of independent residence among young people (Avery et al., 1992; Haurin et al., 1993; Whittington & Peters, 1996). As expected, we also observed that young people who were not in school were more likely to be out of their parental homes. As explained below, the opportunity to attend school may be regarded as a non-transferable resource within the parental household which in effect delays home-leaving.

Our second objective was to explore the role of psychosocial protective and risk factors in explaining the occurrence and timing of the home-leaving transition, while accounting for sociodemographic characteristics. With respect to sociodemographic characteristics, we found that females leave home later than males, a finding that is counter to studies conducted in parts of Europe (Bernhardt, Gähler, & Goldscheider, 2005; Mulder, 2000; Rusconi, 2000). Cultural practices that favor early male residential independence while expecting females to leave the parental home upon marriage may underlie this observation. As noted by Kuate-Defo (2005), in most sub-Saharan African societies, girls are granted less autonomy and given greater parental monitoring. Therefore, parents may be less willing to let their daughters move into independent housing as compared to sons. In contrast, as noted earlier, cultural expectations of male independence may also trigger their leaving home earlier than girls. However, females may also be less likely to move out because they lack the financial means to do so.

Although socioeconomic status at Wave 1 was not associated with residential status at subsequent waves, the results of the cross-sectional, variable-centered analyses suggest that in low resource settings, such as urban slums, young people living in better resourced households may delay home-leaving compared to their counterparts living in the most resource-strained households. This is in contrast to some studies conducted in the global North (Aquilino, 1991) where scholars have found the opposite association—higher socioeconomic status is associated with home-leaving. As noted by An, Mertig, and Liu (2003), in wealthier households in resource-constrained settings, access to non-transferable resources within the parental household, such as availability of food or opportunities for schooling, among others, may lead youth in wealthier households to delay home-leaving, while those from poorer households may be forced to move out to look for alternative sources of livelihood.

The risk-protection framework of Problem Behavior Theory employed in this study explained substantial variation in residential status. There were observed differences in the association of the theoretical concepts of risk and protection with residential status, depending on age and sex. Unlike the study by Juang, Silbereisen, and Wiesner (1999) in Germany, we did not observe an association between home-leaving and engagement in problem behavior. However, we observed that the theoretical measure of controls protection moderated or buffered the likelihood that the home-leaving transition will be accompanied by involvement in problem behavior. In other words, these analyses are uniquely important in revealing that there are (at least) two kinds of home-leavers; those whose home-leaving is associated with involvement in problem behavior, and those whose home-leaving does not implicate problem behavior, the difference being due to variation in the magnitude of protection. Protection emerges from this study as a key factor, not only in the likelihood of occurrence of home-leaving, but also in the factors associated with it.

The findings that models risk was not associated with home-leaving among adolescents and that engagement in pro-social activities such as participation in religious, drama, and other groups was associated with a higher likelihood of leaving

home, were unexpected. As postulated by Juang et al. (1999), young people's development is affected not only by proximal factors, such as peer influence, but also by more distal, macro-level factors, including poverty levels. As such, it is plausible that although having peers who engage in risk behavior may increase the likelihood that young people engage in risk behavior and subsequently cause parent-child conflicts, in resource-constrained settings, such as urban slums, the lack of financial resources to support independent living may reduce the likelihood of home-leaving. With respect to the observed association between engagement in prosocial activities and home-leaving, participation in pro-social activities may reflect the young person's level of maturity and readiness for independence, which may be directly associated with timing of home-leaving.

Overall, the cross-sectional and predictive variable-centered analyses, and the cross-sectional, person-centered analyses highlight the association of psychosocial and behavioral factors with leaving home among adolescents in resource-limited settings such as the slums surrounding Nairobi. Therefore, beyond individual sociodemographic characteristics, it is evident that protective factors such as informal social and personal controls regulate and reduce the likelihood of early adolescent transitions, whether involvement in risk behaviors or the likelihood of leaving the parental home.

There are several limitations that must be considered when interpreting the findings of this study. First, the study did not collect information on the main reasons why young people leave home in the study communities. Therefore, further qualitative studies may be helpful in this respect because they may shed light on the variety of actual experiences that lead to home-leaving among youth. Second, although the inclusion of psychosocial variables such as protective and risk factors advances the understanding of the concept of home-leaving, most of these psychosocial variables did not capture parental, peer, or individual attitudes and beliefs about the desirable timing of independent living that might be more directly linked with residential status. Third, parental and peer psychosocial factors were obtained from the perceptions of adolescents themselves; this could introduce bias in the reporting of peer and parental orientations. Attrition may also be a concern for the predictive analysis, though we looked at how the factors at Wave 1 predict home-leaving by either Wave 2 or Wave 3. This reduced the attrition rate from about 60% to about 34%. We checked how sensitive our results might be to the attrition by fitting the model after imputing all missing data with either 0 or 1 for the outcome variable of home-leaving; there was no contradiction to our conclusions when compared to the model without imputation (results not shown). Based on these findings, attrition does not appear associated with the outcome of interest, home-leaving.

Despite these limitations, the study has provided enlarged understanding of home-leaving among youth in informal settlements and underscored the role of the social and economic context in determining home-leaving among young people in resource-poor settings. These finding may have implications in initiatives to ensure positive youth development especially those in poverty as noted by Lloyd (2005). Although the prevalence and timing of home-leaving may differ in more affluent and representative sections of the region, the present account of home-leaving by

psychosocial risk and protective factors, based as it is on theory, should have generality.

Acknowledgments The authors would like to thank Dr. Chi-Chi Undie for her valuable contribution in the initial conceptualization of the paper. We are grateful to the colleagues at APHRC who worked on the project and to the youth in the study communities for participating in this study.

Funding This work uses data from the Transitions To Adulthood study, which was part of the Urbanization, Poverty and Health Dynamics project funded by the Wellcome Trust (Grant Number 078530/Z/05/Z) from 2006 to 2010. Analysis and writing of the manuscript was supported by the general support grants from the William and Flora Hewlett Foundation (Grant Number 2009-4051) and the Rockefeller Foundation (Grant Number 2009 SCG 302).

Appendix

The list of items forming different psychosocial domains

Parental controls protection

How much would you say your parents/guardians really know about the following things about you?
Where you spend time in the evenings on weekdays
Who you spend time with in the evenings on weekdays
Where you spend time on weekends
Who you spend time with on weekends
What you do during your free time
How you spend your money
Whether you have or do homework
What TV programs, videos, or films you watch
Who your friends are
How often does your [PARENT(S)/GUARDIAN(S)] scold or reprimand you when you do something wrong? For example, if you come home late, don't do your chores, watch too much TV

Personal controls protection

How important is it to you [READ STATEMENT]?

To be able to rely on religious teachings when you have a problem?
To believe in God?

To rely on your religious beliefs as a guide for day-to-day living?
To be able to turn to prayer when you're facing a personal problem?

Young women should remain virgins until they marry [response categories: agree, disagree, don't know]
Young men should remain virgins until they marry [response categories: agree, disagree, don't know]

Friends controls protection

If you are currently in school, how important is it to your friends that you do well in school? Would you say [Not too important, important, very important, not in school]?
How do most of your friends feel about someone your age drinking alcohol? Would you say [They strongly disapprove, they disapprove, they approve, they strongly approve, don't really care]?
How do most of your friends feel about someone your age using marijuana or other drugs? Would you say [They strongly disapprove, they disapprove, they approve, they strongly approve, don't really care]?

Parental support protection

How often does your [FATHER/FATHER FIGURE] teach you things you didn't know?
How often do you share your secrets and private feelings with your [FATHER/FATHER FIGURE]?
How often does your [FATHER/FATHER FIGURE] try to help you when you need something?
How often does your [MOTHER/MOTHER FIGURE] teach you things you didn't know?
How often do you share your secrets and private feelings with your [MOTHER/MOTHER FIGURE]?
How often does your [MOTHER/MOTHER FIGURE] try to help you when you need something?

*Pro-social behavior protection (***Do you belong to a [GROUP]?***)*

Religious group
Drama group/Dance group/Choir

Anti-AIDS club
Anti-drugs club
Girl guides/boy scouts
Wildlife society
Self-help group
Other

Models Risk

Siblings

Have any of your brothers or sisters ever had to drop out of school for any reason
Have any of your brothers or sisters ever had premarital sex?
Have any of your brothers or sisters ever smoked or do any currently smoke cigarettes?
Have any of your brothers or sisters ever drunk or do any currently drink alcohol?

Peer models (pressure)

How much peer pressure is there on people your age to have sex? Would you say [None, a little, a fair amount, a lot]?

Vulnerability Risk

How well do you get along with others your age? Would you say very well, pretty well, not too well, or not well at all?
How well do you live up to what other people expect of you? Would you say very well, pretty well, not too well, or not well at all?
What about your ability to do well in school (even if you are not in school currently). Would you say you are very able, pretty able, not too able, or not at all able to do well in school?
How attractive do you think you are? Would you say very attractive, fairly attractive, not too attractive, or not attractive at all?
On the whole, how satisfied are you with yourself? Would you say very satisfied, pretty satisfied, not too satisfied, or not satisfied at all?
How well do you resist peer pressure from the rest of the group? Would you say [Very well, pretty well, not too well, not well at all]?

Problem-Behavior Risk

Delinquency

You stayed away from home for at least one night without your parent's permission
You started a fight with your peers
You took or tried to take something that belonged to someone else, without their knowledge
You carried a knife, gun, or other weapon
You hit or threatened to hit a peer or adult
You delivered or sold drugs (e.g., bhang, miraa, glue)
You delivered or sold alcohol (e.g., chang'aa, busaa, beer)

Substance use

Have you ever smoked a cigarette (not just a few puffs)?
Have you smoked a cigarette in the past 4 months?
During the past month, how many cigarettes have you smoked on an average day?
Have you ever had a drink of beer, wine, chang'aa, kumi kumi, muratina, busaa, etc., more than two or three times in your life? Not just a sip or taste of someone else drink?
During the **past 4 months**, how often did you drink alcohol?
Over the **past 4 months**, how many times did you drink four or more drinks of beer, wine, chang'aa, kumi kumi, muratina or busaa at one time or on the same occasion?
How often have you gotten drunk or very high from drinking alcohol in the last four months?
During the past year, have you used [NAME ITEM] to get high? (pills, bhang, miraa, cocaine, petrol, glue, kuber, other)

References

Aassve, A., Billari, F. C., & Ongaro, F. (2001). The impact of income and employment status on leaving home: Evidence from the Italian ECHP sample. *Labour: Review of Labour Economics and Industrial Relations*, 15(3), 501–529.

African Population and Health Research Center. (2009). *Nairobi urban health & demographic surveillance system: Summary indicators*: Retrieved from http://www.aphrc.org/insidepage/page.php?app=stats_nhdss&pop8=8

Amuyunzu-Nyamongo, M. K., & Magadi, M. A. (2006). Sexual privacy and early sexual debut in Nairobi informal settlements. *Community, Work & Family*, *9*(2), 143–158.

An, L., Mertig, A. G., & Liu, J. G. (2003). Adolescents leaving parental home: Psychosocial correlates and implications for conservation. *Population and Environment*, *24*(5), 415–444.

Aquilino, W. S. (1991). Family structure and home-leaving: A further specification of the relationship. *Journal of Marriage and the Family*, *53*(4), 999–1010.

Avery, R., Goldscheider, F., & Speare Jr., A. (1992). Feathered nest/gilded cage: Parental income and leaving home in the transition to adulthood. *Demography, 29*(3), 375–388.

Benefo, K. D. (2004). Are partner and relationship characteristics associated with condom use in Zambian nonmarital relationships? *International Family Planning Perspectives*, *30*(3), 118–127.

Bernhardt, E., Gähler, M., & Goldscheider, F. (2005). Childhood family structure and routes out of the parental home in Sweden. *Acta Sociologica, 48*(2), 99–115.

Billari, F. C., & Ongaro, F. (1999). Lasciare la famiglia di origine: Quando e perche? [Leaving family of origin: When and why?]. P. De Sandre, A. Pinnelli & A. *Santini, Nuzialità e fecondità in trasformazione: Percorsi e fattori del cambiamento* (pp. 327–346). Bologna, Italy: Il Mulino.

Costa, F. M., Jessor, R., Turbin, M. S., Dong, Q., Zhang, H., & Wang, C. (2005). The role of social contexts in adolescence: Context protection and context risk in the United States and China. *Applied Developmental Science*, *9*(2), 67–85.

De Jong Gierveld, J., Liefbroer, A. C., & Beekink, E. (1991). The effect of parental resources on patterns of leaving home among young adults in the Netherlands. *European Sociological Review*, *7*(1), 55–71.

Dodoo, F. N. A., Zulu, E. M., & Ezeh, A. C. (2007). Urban-rural differences in the socioeconomic deprivation—Sexual behavior link in Kenya. *Social Science & Medicine*, *64*(5), 1019–1031.

Ermisch, J. (1999). Prices, parents, and young people's household formation. *Journal of Urban Economics, 45*(1), 47–71.

Goldscheider, F. K., & Goldscheider, C. (1993). *Leaving home before marriage: Ethnicity, familism, and generational relationships*. Madison, WI: University of Wisconsin Press.

Haurin, D. R., Hendershott, P. H., & Kim, D. (1993). The impact of real rents and wages on household formation. *The Review of Economics and Statistics*, *75*(2), 284–293.

Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health, 12*(8), 597–605.

Jessor, R., Turbin, M. S., Costa, F. M., Dong, Q., Zhang, H., & Wang, C. (2003). Adolescent problem behavior in China and the United States: A cross-national study of psychosocial protective factors. *Journal of Research on Adolescence*, *13*(3), 329–360.

Juang, L. P., Silbereisen, R. K., & Wiesner, M. (1999). Predictors of leaving home in young, adults raised in Germany: A replication of a 1991 study. *Journal of Marriage and the Family*, *61*(2), 505–515.

Koc, I. (2007). The timing of leaving the parental home and its linkages to other life course events in Turkey. *Marriage & Family Review, 42*(1), 29–47.

Kuate-Defo, B. (2005). Multilevel modeling of influences on transitions to adulthood in developing countries with special reference to Cameroon. C. B. Lloyd, J. R. Behrman, N. P. Stromquist & B. Cohen, *The changing transitions to adulthood in developing countries: Selected studies* (pp. 367–423). Washington, DC: National Academies Press.

Laferrère, A. (2005). *Leaving the nest: The interaction of parental income and family environment*: (Working Paper No 2005-01), *Centre de Recherche en Economie et Statistique.* Retrieved from http://EconPapers.repec.org/RePEc:crs:wpaper:2005-01

Lloyd, C. B. (Ed.). (2005). *Growing up global: The changing transitions to adulthood in developing countries*. Washington, DC: National Academies Press.

Mulder, C. H. (2000). *Leaving home in the Netherlands: When and in which housing*: Paper for the workshop 'Leaving home: A European focus', Rostock, Germany, 6–8 September 2000. http://www.demogr.mpg.de/papers/workshops/000906_paper06.pdf

Mulder, C. H., & Clark, W. A. V. (2000). Leaving home and leaving the state: Evidence from the United States. *International Journal of Population Geography*, *6*(6), 423–437.

Rusconi, A. (2000). Paper presented at the 7th Workshop of the European Research Network on Transition in Youth, Antwerp, Belgium.

Whittington, L. A., & Peters, H. E. (1996). Economic incentives for financial and residential independence. *Demography*, *33*(1), 82–97.

Part II
Conceptual and Methodological Issues in Engaging the Social Context

Chapter 9
The Perceived Environment as Social Context

Richard Jessor and Shirley L. Jessor

Achieving an analytically useful conceptualization of the environment of human action and its relation to personality has been one of the most refractory problems in behavioral science. The problem has resulted in polarization of workers within the same discipline and in relatively insuperable barriers between disciplines. In the present paper, we discuss some of the conceptual issues involved and focus on what we consider to be a key notion—*the perceived environment*—in any general resolution of the problem. Data from our current longitudinal research are presented to illustrate the explanatory utility of the perceived environment concept and to demonstrate its amenability to operational specification.

Toward a Concept of the Perceived Environment

The Objective Versus Subjective Approaches

That the concept of environment is problematic rather than obvious or given is evidenced by the arguments over alternative strategies that characterize the behavioral sciences, all of which, in some way, seek to link up environmental influence with personality and with action. The main dialectic has been the opposition between some sort of "objective" approach to specifying the nature of the environment and an approach which relies upon the "subjective" apprehension of the environment by

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Jessor, R., & Jessor, S. L. (1973). The perceived environment in behavioral science: Some conceptual issues and some illustrative data. *American Behavioral Scientist, 16*(6), 801–828.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_9

the actors involved. In sociology, it has been the symbolic interactionists who have emphasized that "man lives in a symbolic environment which mediates the relation of the physical environment to him" (Rose, 1962: x), that social interaction is an "interpretive process" (Wilson, 1970), and that the appropriate strategy for sociological investigation requires that "one would have to take the role of the actor and see the world from his standpoint" (Blumer, 1966: 542).

This general position, that the environment of action is, in the last analysis, *constituted by the actor*, has been nicely caught in W. I. Thomas' (1928: 572) concept of "definition of the situation" and in his widely known apothegm, "If men define situations as real, they are real in their consequences." Thomas did not restrict the role of situational definitions solely to their influence on momentary choices or actions but also included personal development over time: "Not only concrete acts are dependent on the definitions of the situation but gradually a whole life-policy and the personality of the individual himself follow from a series of such definitions" (cited in Ball, 1972: 62). Within this sociological perspective, then, environmental influence translates into what Ball (1972: 62) has termed "existential causality," that is, influence through the meanings of situations "as they are phenomenologically experienced by the actors located within them."

A similar dialectic between those who are concerned with objective characterizations of the environment and those who stress a subjective or phenomenological approach has long existed in psychology (see Jessor, 1956, 1961). That no synthesis has yet emerged is apparent from a relatively recent review of definitions of "the stimulus," the most fundamental term in psychology for dealing with the environment; the review (Gibson, 1960) details *eight* different areas of disagreement about the concept of stimulus, and of central importance is, again, the issue of whether or not a psychological stimulus can be defined "objectively"—that is, without reference to an actor.

While much experimental work in psychology has relied on objective physical definitions of the stimulus, most psychological theorists who address problems of complex, human, socially significant action do employ descriptions of the environment in terms which are meaningful to actors. In fact, for most of them, some concept of *psychological* rather than physicogeographic space is employed as the matrix in which events of interest occur—Kurt Lewin (1935) used the notion of "life space"; for Murray (1938), it is the concept of "press"; Rotter (1954) and Rotter, Chance, and Phares (1972) invokes the "meaningful environment"; and Rogers (1959) relies upon the "phenomenal field." Yet, in sharp contrast to these and continuing the ongoing dialectic in psychology is the recently developed approach of social behavior theory (Bandura, 1969; Mischel, 1968, 1971). The emphasis of social behavior theory is upon the prepotent role of the environment as a determinant of behavior, but systematic concern for definitions of situations or for meanings of environmental parameters is absent.

These contending views, in both sociology and psychology, about objective versus subjective environmental description by no means exhaust the differences that obtain in approaches to conceptualizing the environment. Such differences may derive also from disciplinary concerns; for example, sociologists may be interested in describing a given social context as bureaucratically organized while psychologists may prefer

to focus on the pattern of rewards and punishments that characterize it. A further source of differences in dealing with the environment is the degree to which a theoretical rather than a descriptive or observational language is used. Demographic descriptions, for example, deal with rather easily observed environmental attributes—population density, racial composition, sex ratios, and the like; the same social environment can, of course, be dealt with in more theoretical terms, terms more likely to implicate variation in consequences for personality or action, for example, as an environment of limited access to opportunity.

The Multiplicity of Environments

To attempt to impose order on the problem of the environment in behavioral science, at least two points need to be made. The first of these is that *human action always takes place in multiple and various environments simultaneously.* It is possible, obviously, to describe any context of human development and action in diverse languages—in physicogeographic, biological, social-structural, cultural, or psychological terms; in theoretical or observational, common-language terms within each of the foregoing; and in terms that reflect the actor's perception or interpretation—that is, meaningful terms, or in terms that do not. Recognition of such inherent multiplicity serves to remind us that the idea of an ultimate, univocal environment is a myth of concrete thinking. Instead, the environment must be accepted as a flux continuously and differentially *constituted* depending on the purposes involved—that is, depending on the conceptual concerns of a discipline, the explanatory objective of a behavioral scientist, or the goal-oriented striving of a particular actor.

While this first point can help us to see that action may be linked to many different kinds of environment description—humidity, race, malnutrition, bureaucracy, marginal status, permissiveness, threat, and so on—it does not tell us how these different descriptions relate to each other, nor, most crucially, what accounts for their *differential* correlation with personality development and behavior. Bearing on these issues, then, is the second of our two points.

The Experiential Proximity of Environments

The second point is that *it is both possible and useful to order the multiple and various environments along a dimension of their conceptual proximity to experience, interpretation, psychological significance, or response by an actor.* The poles of this dimension will be referred to as *distal* and *proximal* (see Jessor & Richardson, 1968). Distal environments are those which are relatively more remote from direct experience, are generally described in nonpsychological language, and are, for the most part, without immediate functional significance for the actor. The environments of physics, geography, biology, and institutional sociology are, in these

respects, distal. Even such biologically "close" environments as skin color, physical handicap, or obesity are considered distal in that they do not have univocal functional or psychological implications and may be irrelevant to behavior under certain circumstances or at certain times.

Proximal environments, on the other hand, are environments of perception, experience, or functional stimulation, usually described in psychological language, and referring to variables which are—or can be—directly experienced or responded to—that is, they are environments of interpretation or environments of meaning. Expectations of others, negative evaluations, models for action, social approval, and so on are examples of variables that make up proximal environments; their very description implies the manner of their being experienced and, at least, their potential meaning for an actor. The proximal environments, those which are at the proximal end of the distal-proximal dimension and which are amenable to direct experience of their meaning, will be referred to in this paper by the generic term "the perceived environment."

We have discussed this distal-proximal distinction at some length because we feel it carries at least five important implications for behavioral science work. First, it makes clear that the multiple and various environments of the different disciplines or of different theories are not substitutable equivalents; some are conceptually more remote from experience and, hence, from personality and action than others. The variables of the physical or geographic or even the social-structural environments require complex intervening conceptual linkages before their experiential significance can be arrived at; variables in the perceived environment—e.g., friends' approval—have relatively immediate experiential significance.

Second, it follows from the preceding point that distal variables must inevitably remain crude or gross with relation to personality and action. Precisely because they do not carry univocal significance or meaning, their meaning will vary for different actors at different times and in different contexts. A lower-class environment, for example, may instigate apathy in some and persistent striving in others. As Dahlstrom (1970: 6) has indicated, "little in the way of dependable personality meaning is conveyed by any socioethnic designation per se."

Third, and perhaps most fundamental, *personality development and behavior are logically invariant with or dependent upon the proximal, not the distal, environment.* This is not to say that distal variables—e.g., social class, community structure, or ethnic status—do not influence and relate to development and action; obviously, there is much evidence that they do. But it is to argue that such relations are conceptually indirect and, therefore, only probabilistic and uncertain. Where they do obtain it is because—logically—they are mediated by intervening proximal variables; it is the latter which account for the constancies or invariances in personality or action outcomes. To invoke a previously used example (Jessor & Richardson, 1968), to be Black in the United States may imply a high probability of exposure to a stigmatizing interpersonal environment; but the actor's self-esteem, for example, is logically invariant with or dependent upon the proximal variable of stigmatizing interactions rather than the distal variable of being Black. There should, therefore, be a more constant relation between low self-esteem and exposure to stigmatizing

interactions than obtains between low self-esteem and being Black. The more proximal the environment, in short, the more it is the environment of immediate causality.

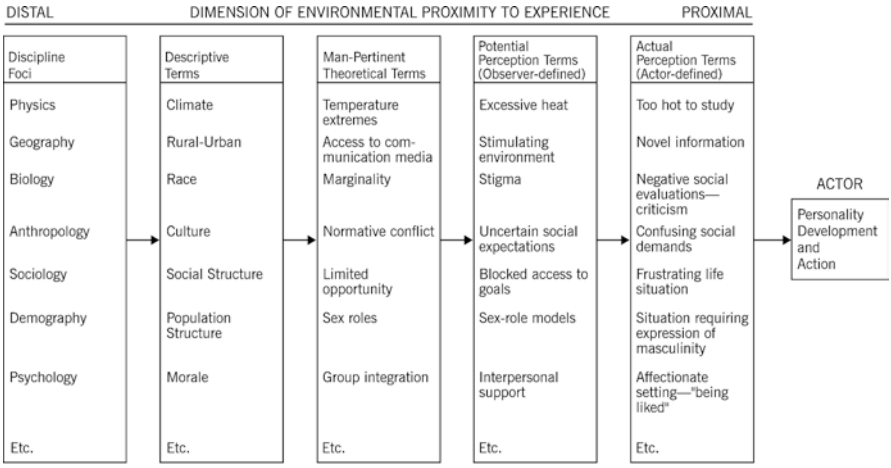
Fourth, proximal environment variables enable a systematic account of variation in personality and behavior under conditions where the distal environment is the same or is held constant. What was previously "error variance" in efforts to relate social structure to personality may well be reduced by decomposing the distal social structural variables into more proximal psychological environmental variables. For example, while it may be possible to demonstrate that there is less achievement striving in lower-class than in middle-class children, such a distal environment variable doesn't account for the lower-class children who do strive or for the middle-class children who do not. Decomposing social class into proximal environments of rewards and models for striving should enable a more comprehensive account of variance. Since the same distal environment can present different proximal environments to different actors, and the same proximal environment can be generated by quite different distal environments, the relation between distal and proximal environments needs always to be considered problematic and dependent on the particular actors involved and on their histories.

Fifth, the order that can be achieved by locating environment concepts from different conceptual systems along a distal-proximal dimension suggests what truly comprehensive explanation of social behavior must ultimately involve. It would involve a general theory of the environment, one which could encompass the totality of variables on the distal-to-proximal dimension, specify a structure of relations among them, and enable a logical traverse along the dimension to the actor's experience and behavior. Explanation always involves theoretically occupying the interstices between relatively separated concepts. In behavioral science, it would involve occupying, with more proximal variables, the explanatory gap between social structure or culture and personality or behavior—an explanatory gap, the bridging of which presently requires reliance upon "action at a distance," to borrow an analogy from Newtonian physics.

A Schema for the Perceived Environment

It may be useful to summarize some of the discussion thus far in the form of a tentative diagram shown in Fig. 9.1, a modification and extension of an earlier schema (see Jessor & Richardson, 1968: 6).

The schema was deliberately constructed to converge on personality development over time and on action at any point in time; the relations among disciplines and environmental terms might be organized quite differently for other purposes. Also, the column headings are meant to refer to general and perhaps overlapping regions rather than discrete points along what is really a difficult-to-partition *continuum* from distal to proximal. With respect to the placement of *theoretical terms* as more proximal than *descriptive* (common-language) *terms,* the assumption that



a. The schema has been filled out to illustrate the progression that is possible from distal to proximal concepts; none of the examples, however, is meant to be univocal or exhaustive.

While our concern in the schema is with the directional implication running from left to right, that is, from environment to personality and behavior, there are, of course, important implications in the opposite direction; there are also myriad other kinds of relations worth examining within and between column variables. The schema is ultimately best seen to be a system.

Fig. 9.1 A schema for relating environment to personality and action[a]

is implicit in the schema is that they are terms invented for the purpose of relating to action; hence, unlike descriptive terms, they should contain specifiable, even though still indirect, implications for it. One example of a structure of such theoretical terms for the sociocultural environment has been presented in Jessor, Graves, Hanson, and Jessor (1968: 78, 132).

Further, the distinction made in the schema between *potential* and *actual perception terms* is a deliberate and necessary one. Potential terms refer to descriptions of a *perceivable* environment made by an *observer* attempting to adopt the perspective of a specific group or a particular actor. Actual terms refer to the terms of actual perception, experience, interpretation, phenomenology, or what Thomas has called definition of the situation, *by an actor.* This potential-actual distinction is similar to Henry Murray's (1938) separation of alpha press (observer-defined environment for an actor) and beta press (actor-defined environment). The latter constitutes the environmental description most proximal to personality and behavior.

Finally, a point crucial to our later discussion should be made about the schema—namely, that the actual perceived environment can be differentiated even further, still relying on the sense of the distal-proximal dimension. *Within the actual perceived environment, some aspects can be considered more proximal than others when specific attributes of the actor's personality or specific actions in his repertoire are considered.* Thus, perceiving negative evaluations of one's academic performance may be more proximal to one's value on achievement than to one's value on social skills or independence; perceiving peer models for marijuana use may be considered more proximal to one's own use of marijuana than, say, to one's church-

going behavior. The main point to stress here is that *even within the proximal, actually-perceived environment,* aspects of it can still be ordered on the distal-proximal dimension depending on the specific person- or behavior-attributes being dealt with.[1]

Properties of the Perceived Environment

Although there has been considerable concern about the perceived or proximal environment, it is surprising how little has been accomplished in the way of developing or specifying its properties. Most of the discourse has been oriented, as has our own thus far, toward conceptually distinguishing it from the distal environment. Nevertheless, it is possible to specify at least four important formal or structural properties of the perceived environment concept each of which, as will be seen subsequently, has implications for measurement and for research. First, the perceived environment can be considered to have *texture or differentiation.* It is composed of quite varied aspects—models for behavior, reinforcements for action, rules, authority structures, and so on. In short, the perceived environment is multifaceted and heterogeneous in content; it therefore is a problematic domain for any investigator to sample from in relation to his theoretical orientation and his specific research purposes. Second, the perceived environment can be treated as having *depth*—that is, having aspects, as we noted earlier—which vary along a distal-proximal dimension. For example, an actor may perceive general support from his friends and their availability to help him in time of need; he may also perceive their support for his own use of marijuana. It is useful to consider the former as more distal from the specific behavior of marijuana use (and thus more likely to be relevant to a *variety* of alternative possible actions) than the latter.

Third, it is worthwhile to consider the perceived environment as having *temporal extension,* a dynamic through time. Perceived environmental attributes may evidence systematic and predictable changes over time or at different stages of life, generating developmental regularities in the content of the perceived environment. It makes sense, then, to conceive of "growth curves" for attributes of the perceived

[1] The schema leaves out any consideration of *the processes by which aspects of the distal environment come to be proximal*—that is, come to be social-psychologically interpretable and to have meaning for actors. What is assumed, of course, is the entire apparatus of social learning, social perception, socialization, or enculturation—whatever processes are involved in endowing distal events, objects, and contexts with significance during human growth and development. Observational modeling, language-mediated learning of rules for appropriate behavior, culturally institutionalized definitions of situations, deliberate socialization and instruction by predecessors, e.g., parents, and nonparental sources of socialization—especially exposure to mass media (see Jessor & Jessor, 1967)—exemplify how it is that actors come to learn what to see. While the result of such common processes is often consensual, culturewide definitions of situations, in the last analysis, however, *all* definitions are logically consequential upon the idiosyncratic experience-history of each actor.

environment in the same way as it does for attributes of personality or ability. The fourth property of the perceived environment is *generality-specificity;* certain aspects of the perceived environment are more pervasive and relatively enduring; others may be rather specific and momentary. Thus, an actor may perceive his environment to be benign and supportive in general, but still define a particular confronting situation to be a threatening one.

These four formal or structural properties of the perceived environment-texture or differentiation, depth, temporal extension, and generality-specificity—represent only a very tentative and partial mapping of the important characteristics of the concept. Nevertheless, they have been able to provide us with useful guidance in our own empirical work. The actual content of the perceived environment will, of course, vary with the theoretical orientation of the behavioral scientist and the experience of his subjects.

One issue remains to be at least acknowledged, since it has haunted all discussions of the concept of perceived environment. The issue is methodological: how can the perceived environment be assessed independently of the perceiver? As Mitchell (1969: 712) has noted, it is possible "to confuse person variance with environment variance" in studies employing a phenomenological perspective. He goes on, however, to acknowledge: "The phenomenological frame of reference is inescapable, and the individual's interaction with the environment in terms of his personalized interpretations of environmental events may be the critical methodological challenge" (Mitchell, 1969: 715). A full methodological discussion is precluded here, but a few comments are warranted. Clearly, different aspects of the perceived environment may be differentially vulnerable to the influence of person variance—perceiving role models for behavior may be less vulnerable than perceiving threat or support; perceiving salient aspects—e.g., clearly codified rules—may be less vulnerable than perceiving subtle aspects—e.g., implicit social expectations. Techniques which can maximize the role of the actor as observer, perceiver, definer, and reporter—that is, as "ethnographer"—and can separate that role from his (subsequent) role as actor or performer will be important to devise and validate. Such techniques will need to exploit the temporal priority of the processes of definition and interpretation over action and response. Where access to such definition is precluded, it will be important to rely on alpha press—that is, on potential perceived environment descriptions which originate with an observer taking the perspective of actor and which are, thereby, independent of definition by a given actor.

No matter how successful we may ultimately be in achieving techniques that treat persons first as ethnographers and then as actors, there will always remain a subtle and ineradicable tie between these roles. Recognition of this may be a most important outcome of our overall discussion of the perceived environment. That discussion has contained two major implications: that the study of behavior is simultaneously the study of experience, and that the study of environment is simultaneously the study of persons. Perhaps instead of being taken as paradoxical, these implications can now be seen as potentially unifying for behavioral science.

Some Illustrative Data on the Perceived Environment

We turn now to data on the perceived environment which have been gathered as part of a large-scale longitudinal study of the socialization of problem behavior in youth. The data will be employed to accomplish three objectives related to the foregoing conceptual analysis:

1. To demonstrate the role of the perceived environment in accounting for variation in behavior;
2. To demonstrate the different roles, within the perceived environment, of relatively distal and relatively proximal variables in accounting for variation in behavior; and
3. To demonstrate the temporal extension or development of the perceived environment during adolescence.

Only a brief description will be given of the study as a whole since it has been reported elsewhere (Jessor, Collins, & Jessor, 1972; Jessor & Jessor, 1973; Jessor, Jessor, & Finney, 1973; Weigel & Jessor, 1973), and since our present concern with the findings is to illustrate aspects of our earlier discussion.

Description of the Larger Project

In 1969, a randomly drawn sample of 2,200 students, stratified by sex and grade, in three junior and three senior high schools in a small western city were contacted by letter and asked to participate in a four-year study of adolescent development. Parents were contacted at the same time and asked for written permission for their child's participation. A total of 949 students agreed to cooperate and became the starting cohort which was followed through 1973 except for students graduating prior to that time and, thereby, automatically leaving the study. By the end of the fourth year of data collection, in the spring of 1972, 483 students were tested (82% of the starting cohort who could have remained in the study, an acceptable retention rate).[2] Of these, 432 had taken *all four* annual questionnaires; this latter group is used for the analyses of data in this paper. These subjects had been in junior high (grades 7, 8, and 9) at the start and were in senior high (grades 10, 11, and 12) at the end. They will be referred to in this paper by their starting grade: the seventh-grade cohort has 75 boys and 96 girls; the eighth-grade cohort has 60 boys and 82 girls; the ninth-grade cohort has 53 boys and 66 girls.

The questionnaire, administered in small group sessions each spring, was approximately fifty pages in length and required about an hour and a half to two

[2] Of the 483 subjects retained, 86% were still in the study schools, 12% were in other schools in or away from the community, and 2% had dropped out of school. Efforts were made to follow-up *all* subjects, including those who left the community or left school, relying on questionnaires administered by mail where necessary.

hours to complete. It contained a large variety of measures which mapped aspects of four major domains: behavior, personality, the perceived environment, and the sociodemographic environment. Most of the measures were psychometrically developed, and many had been construct-validated in earlier work (Jessor et al., 1968). In the behavior domain, assessments were made of drug use, drinking, sex, activism, general deviance such as lying, stealing, and aggression, church involvement, and academic performance. In the personality domain, the variables measured included values and expectations for affection, achievement, and independence, attitudes toward transgression, alienation, social criticism, self-esteem, and religiosity. In the perceived environment, the measures were of expectations, supports, and controls from parents and peers, compatibility between the latter agents, models and approval for various behaviors, friends' values and interests, and the like. The sociodemographic measures referred to parental education, occupation, religious group membership, family structure, residence, and the like. Thus, the questionnaire data from each year permit a self-contained test of a rather comprehensive social-psychological theory of problem behavior. The data from successive years enable us to examine the development of behavior, personality, and the perceived environment over time, and to test predictions about future onset or change in these areas based on data collected prior in time.

The Measures of the Perceived Environment

We have chosen in this paper to examine the perceived environment measures in relation to variation in marijuana use behavior.[3] The measure of marijuana use—the marijuana behavior report (MBR)—is a scale based upon four questions of increasing "difficulty":

1. Have you ever tried marijuana?
2. Have you ever been very high or "stoned" on marijuana to the point where you were pretty sure you had experienced the drug effects?
3. Do you or someone very close to you usually keep a supply of marijuana so that it's available when you want to use it?
4. Do you use marijuana a couple of times a week or more when it's available?

The properties of this scale and its validity are described in Jessor et al. (1973).

The following descriptions of the perceived environment measures are given in sufficient detail to illustrate how the properties of differentiation or texture, depth,

[3] Marijuana use behavior was selected for several reasons: it represents an instance of an important class of behaviors, what we term "problem behaviors"; it relates empirically to other behaviors in this class—e.g., problem drinking or sexual intercourse experience; it is a behavior which can play an important role in status transformation during adolescence; and it also can represent an instrumentality for expressing opposition to adult, conventional society. All of these indicate that marijuana use may be a behavior of central significance for contemporary adolescent development (see Jessor et al., 1973).

and generality-specificity may be operationalized. Within the perceived environment, six measures relatively distal from marijuana use and three measures relatively proximal to it were employed. The measures of the distal portion of the perceived environment are: perceived peer support (PSU)—a two-item Likert-type scale with items such as "Do *your friends* encourage you and show interest in your ideas, your plans, and your feelings?"; perceived parent support (FSU)—two items such as "When you need help with some problems you're having, do *your parents* try to understand and give you the help you need?"; perceived peer controls (PCN)—two items such as "If you were planning to do something *your friends* disapproved of, would they do whatever they could to persuade you not to?"; perceived parent controls (FCN)—"If you act in a way *your parents* disapprove of, are they likely to make things tough for you?"; perceived parent-peer compatibility (COM)—three items such as "With respect to the sort of things you personally think are important in life, would you say that *your parents and your friends* are really pretty much in agreement about these things?"; and perceived influence on self of parents *relative to* friends (PPI)—two items such as "With regard to your present outlook on life—what's important to do and what's important to be—whose views have had a greater impact on you, your friends' or your parents'?" It can be seen that none of these measures specifically implicates marijuana use, and all refer to more general aspects of the perceived environment—they are, therefore, considered *relatively* distal to marijuana use.

Three measures of the perceived environment which are relatively proximal to marijuana use are: friends' approval for drug use (FDAD)—two items such as "How do you think most of your friends would feel about your using marijuana?"; friends' models for drug use (FDMD)—two items such as "About how many of your close friends have tried marijuana?"; and parental approval of drug use (PRAD)—"How do you think your parents would feel about your using marijuana?" Each of these items is considered proximal, since each deals with an aspect of the perceived environment directly implicating marijuana use.

The psychometric properties of the nine scales—internal homogeneity and reliability—are all adequate with the exception of (PCN), which had an unacceptably low Cronbach's alpha. Interrelations among the nine scales are generally low, indicating their relative independence as measures.

The Perceived Environment as a Source of Variance in Behavior

It is possible now to turn to some of the findings that emerge from these measures of the perceived environment.[4] In Table 9.1 are presented Pearson correlations and multiple correlations of the sociodemographic measures and the perceived environment measures with marijuana use in the fourth-year (1972) data. The correlations

[4] We are indebted to Mr. Robert Burton and Mr. John McMorran for their extensive and thoughtful assistance with the analyses of the data.

Table 9.1 Correlations between environment measures and marijuana use (MBR) by starting cohort – fourth year data (1972)

	Correlations with marijuana use[a]		
Measures	Seventh-grade cohort (n = 171)	Eighth-grade cohort (n = 142)	Ninth-grade cohort (n = 119)
Socio-demographic environment			
Father's education	−.05	.04	.10
Father's occupation	−.03	.07	.19[b]
Father's Hollingshead Index	−.05	.05	.16
Father's religious group	.01	−.12	−.05
Mother's education	−.10	.05	.05
Mother's religious group	.04	−.09	−.16
Perceived environment			
Distal			
Peer support	.11	.01	.03
Parent support	−.32[d]	−.23[d]	−.21[b]
Peer control	−.31	−.42[d]	−.42[d]
Parent control	−.07	−.13	−.10
Parent-peer compatibility	−.35[d]	−.27[d]	−.34[d]
Parent versus peer influence	.34[d]	.11	.19[b]
Proximal			
Friends' approval marijuana use	.69[d]	.73[d]	.67[d]
Friends' models marijuana use	.72[d]	.68[d]	.64[d]
Parent approval marijuana use	.33[d]	.34[d]	.36[d]
Combined			
Distal multiple R	.56[d]	.49[d]	.50[d]
Proximal multiple R	.76[d]	.77[d]	.70[d]
Distal and proximal multiple R	.77[d]	.78[d]	.72[d]

[a]Bivariate correlations are Pearson product-moment; multiple correlations are stepwise multiple regressions
[b]$p < .05$
[c]$p < .01$
[d]$p < .001$

are presented separately for the seventh-, eighth-, and ninth-grade cohorts (in 1972, these cohorts were actually in grades 10, 11, and 12, respectively).[5]

There are, in Table 9.1, a number of aspects of interest to our earlier discussion of the perceived environment. To begin with, it is apparent that none of the sociodemographic background measures has a significant relation to marijuana use; of eighteen correlations, only one reaches the .05 level, and the average correlation,

[5]The three cohorts are presented separately in order to enable them to serve as independent replications of obtained relationships. Boys and girls have been combined within each cohort to simplify presentation of results. Examination of the data for the sexes separately shows that, while there are the expected sex differences on certain measures—e.g., girls perceive greater parental support and controls than boys, the sexes are very similar in relations between measures.

whether across cohorts by measure or across measures by cohort, is not too different from zero. Since these measures represent the distal social environment, they would not be expected, from our previous conceptual analysis, to show a substantial relationship with variation in a specific behavior. On the other hand, the complete absence of any relationship is obviously not a necessary characteristic of distal social environment-to-behavior correlations.[6] In any case, what is most interesting is not whether the relation of the sociodemographic measures to marijuana use is near zero, but the striking contrast between the sociodemographic measures and the perceived environment measures in the way they relate to marijuana use.

The measures of the perceived environment shown in Table 9.1 are obviously highly important in accounting for variance in marijuana use behavior. The last line of the body of the table shows the multiple correlations, for each cohort, of the combined distal and proximal perceived environment measures with marijuana use. It can be seen that the multiple *R*s range from .72 to .78; the average multiple *R* of .76 accounts for 58% of the variance in MBR score, a very powerful relationship with a socially significant adolescent behavior.[7] The earlier discussion emphasized that behavior is invariant with the proximal or perceived environment; these findings provide strong support for that position.

The Role of Depth and Texture as Sources of Variance

Because of our interest in the various properties of the perceived environment, it is worth looking more closely at the data in Table 9.1, beyond the extreme contrast we have just seen. First, there is a substantial difference *within the perceived environment* between the distal and proximal measures in their relation to marijuana use. The proximal measures, as expected from the logic of the distal-proximal dimension, relate more strongly to the MBR score than do the distal measures; this can be seen whether one examines the correlation values measure by measure or whether one compares the distal multiple *R*s for each cohort (.56, .49, and .50) with the corresponding proximal multiple *R*s (.76, .77, and .70). It is also supported by the stepwise multiple regressions where all the perceived environment variables are combined—for all three cohorts, it is the proximal variables that enter the regression

[6] It is possible that some degree of relationship would be manifested by better-selected distal socioenvironmental measures than the present ones, for example measures of patterns of family organization. Our sample is restricted in socioeconomic variation, and that also may have attenuated relations with behavior. Finally, it is, of course, possible that our socioenvironmental measures are just poor. Arguing against this, however, is the fact that there is validity data for them with relation to certain personality measures for which there exists a strong rationale. Thus, the correlation of mother's or father's religious group with adolescents' religiosity averages, for all cohorts, about .30 ($p < .001$); and the correlation of father's Hollingshead with adolescent's expectation for academic achievement averages, across cohorts, about .27 ($p < .001$).

[7] The power of the perceived environment measures can be better seen when compared against personality variables. Multiple correlations of sets of personality measures against marijuana use for 1971 data for all boys and all girls are only .42 and .42, respectively.

first. Despite their greater strength and their priority, however, the proximal variables are in all cases followed by at least one distal variable entering the regression equation at a significant level. To sum up, there is evidence in Table 9.1 for the earlier-discussed property of *depth* in the perceived environment; the distal-proximal dimension has shown important empirical consequences, in the direction logically expected, and, at the same time, both proximal and distal variables have been shown to be significant sources of variance.

Second, the property of *differentiation or texture* gains support from Table 9.1. Among the distal perceived environment measures, it apparently makes an important difference whether one is dealing with peer rather than parent support or with peer rather than parent controls. With relation to marijuana use, variation in parental support is more important than in peer support, but variation in peer control is more important than in parent control. Among the proximal measures, friends' approval is far more important a correlate than parents' approval. If the perceived environment were not approached in a way that captured this differentiation, here in terms of social agents, these interesting textural differences would have been obscured.

Developmental Regularities in the Perceived Environment

Because of the longitudinal nature of the research design of the present study, it is possible to examine the data in relation to a third property of the perceived environment—its temporal extension or "growth" through time. This application of the idea of "growth" to the perceived environment is no more metaphorical than when it is applied to personality, as in the growth of independence or the growth in tolerance of transgression, both of which seem to characterize adolescent development. The idea that there may be characteristic, consistent, and systematic changes in the perceived environment during adolescence is an important one that has not yet been pursued in developmental studies as far as we know. It is feasible, with panel data, to plot such changes over time, and this is what we have done for selected variables of the perceived environment.

In Fig. 9.2, we have plotted perceived peer support over the four years, 1969–1972; we have done this by each cohort separately in order to allow us to see whether our three cohorts replicate the observed trend. As can be seen in Fig. 9.2, there is an increase in perceived peer support over the time period, and this increase is significant for each cohort (*t*-tests between means for 1969 and 1972 are significant at $p < .001$ for all cohorts). Figure 9.3 plots an observed decline in perceived parental controls over the same period, again a change which is significant for all cohorts. Turning to proximal variables, Figs. 9.4 and 9.5 show an increase in perceived friends' approval for marijuana use and an increase in perceived friends' models for marijuana use, respectively, over the three-year period (drug variables were not measured in 1969), and all increases are highly significant. Finally, since these growth curves are all theoretically consistent with a predictable increase in marijuana

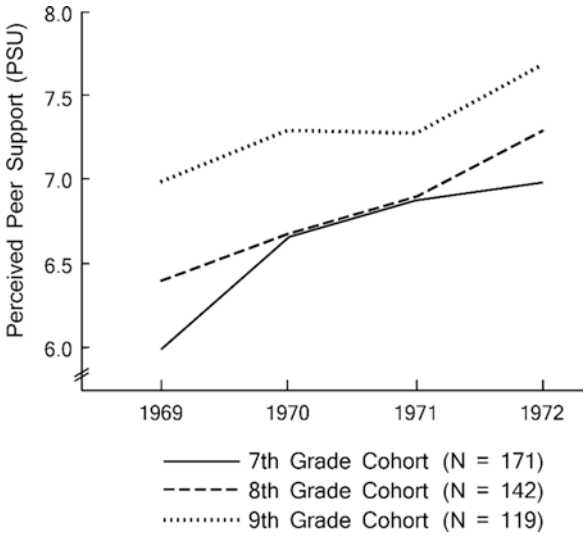


Fig. 9.2 Development of the perceived environment during adolescence

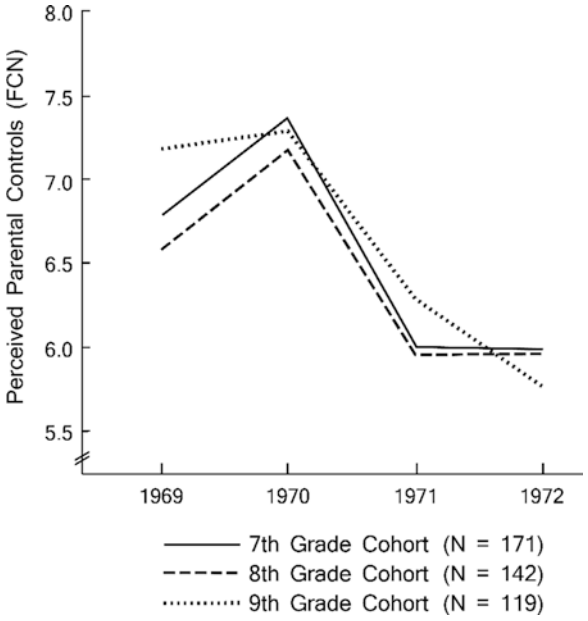


Fig. 9.3 Development of the perceived environment during adolescence

use, we show the actual growth curve of the MBR score in Fig. 9.6. As expected, there is an increase for each cohort which is highly significant ($p < .001$).[8]

[8] In these graphs we do not attend to the fact that they provide evidence for what Baltes (1968) has called "cohort effects"—that is, differences *between* cohorts in the levels they achieve on a variable when chronological age is held constant. While such cohort effects are of interest, our present concern is with the constancy, across cohorts, of developmental trends.

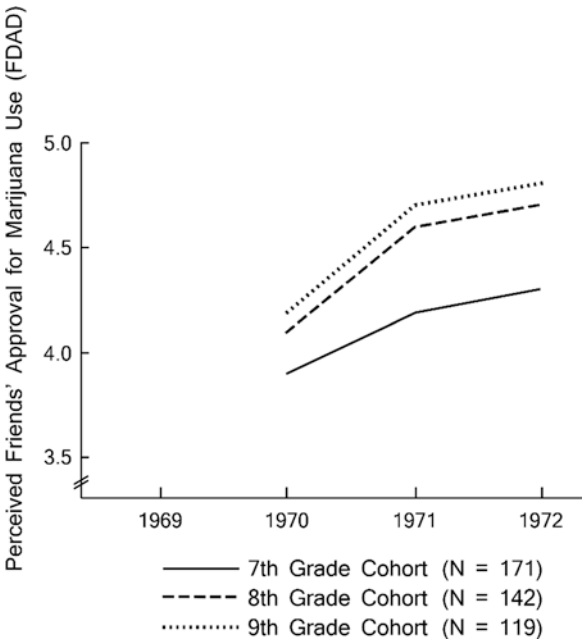


Fig. 9.4 Development of the perceived environment during adolescence

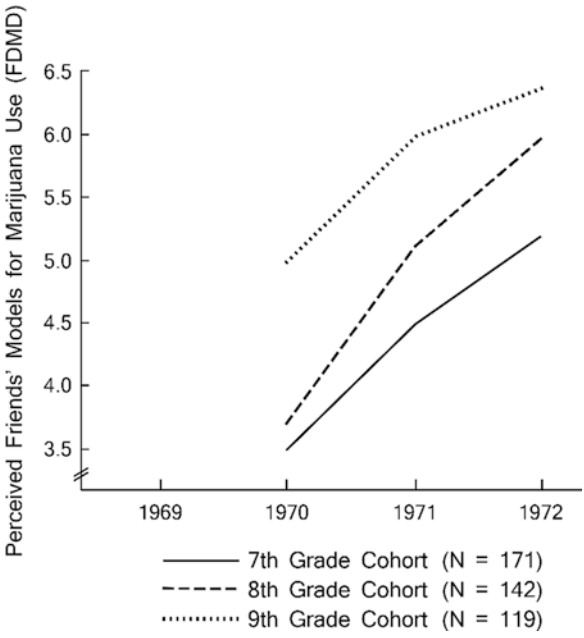


Fig. 9.5 Development of the perceived environment during adolescence

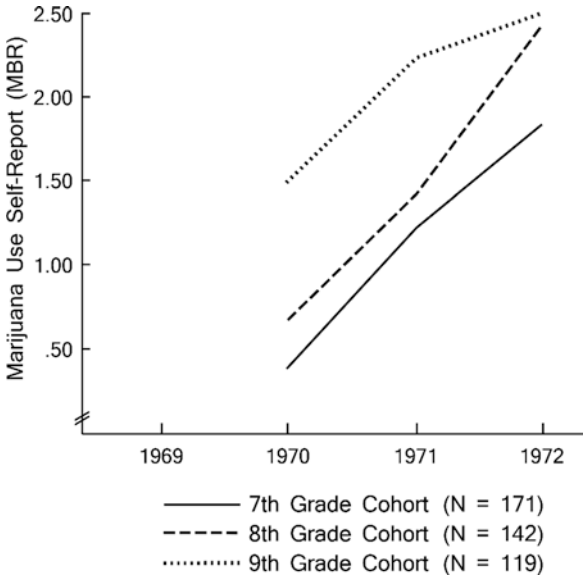


Fig. 9.6 Development of the perceived environment during adolescence

These results are of interest, since longitudinal data have always been scarce. Little of it has focused on adolescence and, especially, on problem behavior, and none, as far as we know, has charted systematic changes in the perceived environment during adolescence. Further, none has shown the consonance of those changes with concurrent changes in problem behavior. Such consonance provides beginning evidence for a *developmental* theory of adolescent problem behavior. To return to our more general concern with the properties of the perceived environment, these curves support the idea of *time extension,* of growth, or of developmental regularities in the perceived environment, at least for our samples.

There is another way of looking at the perceived environment with relation to the developmental trajectory; that is to ask whether the perceived environment plays a differentially important role at different ages or times. The multiple correlations in Table 9.1 were based on 1972 data, when our cohorts were in grades 10, 11, and 12. If we take an earlier period in time—say, 1970—when our cohorts were all two years younger and in grades 8, 9, and 10, we can look at comparable multiple *R*s showing for that year the amount of variance in MBR score accounted for by the same measures of the perceived environment. The multiple *R*s for the seventh-, eighth-, and ninth-grade cohorts in 1970 are, respectively, .41, .40, and .30 for the distal variables; .48, .62, and .69 for the proximal variables; and .55, .65, and .70 for the distal and proximal variables combined. These multiple *R*s are all lower than they are in 1972, possibly suggesting less importance for the role of the perceived environment at a younger age than at an older age. Another interpretation, however, is that age may not be the important difference but that *context* is; it can be seen that the combined distal and proximal multiple *R* for the ninth-grade cohort is the only one that is almost identical for both the 1970 and 1972 data—.70 and .72, respectively. This ninth-

grade cohort, unlike both the others, is the only one that was in *senior* high for both testings—it was in tenth grade in 1970 and in twelfth grade in 1972. It may be that the difference in amount of variance accounted for (.55 versus .77 for the seventh- and .65 versus .78 for the eighth-grade cohorts) reflects the difference between the 1970 junior high context and the 1972 senior high context. Both explanations are of interest, since they alert us to the possibility that the explanatory role of the perceived environment may be rather different at different ages or in different contexts; if such is the case, then other variables, such as personality or social structure, may evidence more or less importance in direct relation to these differences.

Summary

The aim of this chapter has been to contribute to clarification of the relations between environmental, personality, and behavioral variables. It was argued that the diverse concepts of environments could be ordered along a distal-proximal dimension, with those near the proximal end capable of being experienced by an actor, and, hence, constituting the *perceived* environment. Personality development over time and action at any point in time were considered to be invariant with or dependent upon the perceived environment. Explanation of any relations between the distal environment and personality or behavior would seem, therefore, to require mediating proximal or perceived environment variables. Several properties of perceived environments were specified—differentiation or texture, depth, temporal extension, and generality-specificity—and data were introduced which provided some degree of empirical support for them.

While this paper has focused primarily on the perceived environment with relation to behavior, rather than directly on social structure and personality, it is hoped that the implications of our discussion and of our data for the latter concern will be apparent. The chain of explanation in behavioral science is obviously a long one; strengthening any set of linkages should help strengthen the chain as a whole.

Authors' Note This paper is part of a larger, longitudinal research project entitled "The Socialization of Problem Behavior in Youth," supported by NIMH Grant MH-16113, R. Jessor, principal investigator.

References

Ball, D. W. (1972). 'The definition of situation': Some theoretical and methodological consequences of taking W. I. Thomas seriously. *Journal for the Theory of Social Behaviour, 2*(1), 61–82.

Baltes, P. B. (1968). Longitudinal and cross-sectional sequences in the study of age and generation effects. *Human Development, 11*(3), 145–171.

Bandura, A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart and Winston.

Blumer, H. (1966). Sociological implications of the thought of George Herbert Mead. *American Journal of Sociology, 71*(5), 535–544.

Dahlstrom, W. G. (1970). Personality. *Annual Review of Psychology, 21*, 1–48.

Gibson, J. J. (1960). The concept of the stimulus in psychology. *American Psychologist, 15*(11), 694–703.

Jessor, R. (1956). Phenomenological personality theories and the data language of psychology. *Psychological Review, 63*(3), 173–180.

Jessor, R. (1961). Issues in the phenomenological approach to personality. *Journal of Individual Psychology, 17*(1), 27–38.

Jessor, R. (1967, December). *Some issues related to non-parental socialization*. Prepared for National Institute of Child Health and Human Development, Conference on Social Aspects of Socialization, Washington, DC.

Jessor, R., Collins, M. I., & Jessor, S. L. (1972). On becoming a drinker: Social-psychological aspects of an adolescent transition. *Annals of the New York Academy of Sciences, 197*, 199–213.

Jessor, R., Graves, T. D., Hanson, R. C., & Jessor, S. L. (1968). *Society, personality, and deviant behavior: A study of a tri-ethnic community*. New York: Holt, Rinehart and Winston.

Jessor, R., & Jessor, S. L. (1973). Problem drinking in youth: Personality, social, and behavioral antecedents and correlates. In *Proceedings, Second Annual Alcoholism Conference. NIAAA* (pp. 3–23). Washington, DC: U.S. Government Printing Office.

Jessor, R., Jessor, S. L., & Finney, J. (1973). A social psychology of marijuana use: Longitudinal studies of high school and college youth. *Journal of Personality and Social Psychology, 26*(1), 1–15.

Jessor, R., & Richardson, S. (1968). Psychosocial deprivation and personality development. In National Institute of Child Health and Human Development (Ed.), *Perspectives on human deprivation: Biological, psychological, and sociological* (pp. 1–87). Washington, DC: U.S. Dept. of Health, Education and Welfare.

Lewin, K. (1935). *A dynamic theory of personality: Selected papers*. New York: McGraw-Hill.

Mischel, W. (1968). *Personality and assessment*. New York: Wiley.

Mischel, W. (1971). *Introduction to personality*. New York: Holt, Rinehart and Winston.

Mitchell Jr., J. V. (1969). Education's challenge to psychology: The prediction of behavior from person-environment interactions. *Review of Educational Research, 39*(5), 695–721.

Murray, H. A. (1938). *Explorations in personality: A clinical and experimental study of fifty men of college age*. New York: Oxford University Press.

Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships as developed in the client-centered framework. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 3, pp. 184–256). New York: McGraw-Hill.

Rose, A. M. (Ed.). (1962). *Human behavior and social processes: An interactionist approach*. Boston: Houghton Mifflin.

Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.

Rotter, J. B., Chance, J. E., & Phares, E. J. (1972). *Applications of a social learning theory of personality*. New York: Holt, Rinehart and Winston.

Thomas, W. I. (1928). *The child in America: Behavior problems and programs*. New York: Alfred A. Knopf.

Weigel, R. H., & Jessor, R. (1973). Television and adolescent conventionality: An exploratory study. *Public Opinion Quarterly, 37*(1), 76–90.

Wilson, T. P. (1970). Conceptions of interaction and forms of sociological explanation. *American Sociological Review, 35*(4), 697–710.

Chapter 10
The Perceived Environment and the Psychological Situation

Richard Jessor

How to conceptualize the environment of human action continues to be a problematic enterprise in contemporary psychology. The most basic psychological term for the environment—the stimulus—still eludes consensual definition (Gibson, 1960; Jessor, 1956); environmental descriptions borrowed from other disciplines—physics, geography, sociology—appear in psychological research as if their appropriateness were self-evident; and when environmental concepts at very different levels of abstraction are employed in a study, the analysis often fails to consider their causal or logical heterogeneity.

Coming to Terms with Subjectivity

Despite this appearance of intellectual disarray, an evolutionary shift in thinking about the environment can be discerned in the more recent history of psychology and, indeed, of related disciplines. The key dialectic underlying this change seems to have been a recognition of and a coming to terms with the role of subjectivity in science. The "intrusion of subjectivity" (Kessel, 1969) in physical science can be widely documented but, for psychologists raised on the objectivism ostensibly inherent in operational definition, it is perhaps most telling to quote from the last book written by Bridgman (1959), the father of operationism: "Here I shall only reiterate my opinion that a proper appreciation of [first-person report] will alter the

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Jessor, R. (1981). Chapter 19: "The perceived environment in psychological theory and research." In D. Magnusson (Ed.), *Toward a psychology of situations: An interactional perspective* (pp. 297–317). Hillsdale, NJ: L. Erlbaum Associates.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_10

common picture of science as something essentially public into something essentially private [p. 237]."

In sociology, concern for the subjective had long been a preoccupation of the symbolic interactionists (Blumer, 1966; Rose, 1962; Wilson, 1970) who argued that the environment of action is, in the last analysis, *constituted by the actor.* The classical environmental concept in this perspective is "the definition of the situation" (Thomas, 1928), and it yielded the well-known apothegm: "If men define situations as real, they are real in their consequences [p. 572]." Renewed support for this orientation emerges from a recent review of trends in social psychology; the author (Stryker, 1977), a sociologist, singles out the most important trend as: "…the general surge...of phenomenological thinking," and he concludes that "…the subjective has become respectable [p. 157]."

Within psychology, part of the dialectic was the renewal of interest in inner experience as legitimate psychological data (Zener, 1958). But the more fundamental thrust came from a growing awareness of the psychological implications of human experiential capabilities, namely, their potential for having a transformational impact on the environment. Among personality theorists, Kurt Lewin was probably the most explicit and systematic on this point, his views reflecting the important influence of the philosopher, Ernst Cassirer (1953): "No longer in a merely physical universe, man lives in a symbolic universe…Physical reality seems to recede in proportion as man's symbolic activity advances. Instead of dealing with things themselves man is in a sense constantly conversing with himself [p. 43]." In Lewinian field theory (Lewin, 1951b), this perspective led to an insistence on describing the environment *as it is perceived or experienced by the actor:* "…to substitute for that world of the individual the world of the teacher, of the physicist, or of anybody else is to be, not objective, but wrong [p. 62]." Cartwright (1978), in his recent Lewin Memorial Award address, recalls Lewin's premise that behavior cannot be properly explained if one does not understand the way in which individuals view the world in which they live, and he notes that Lewin: "…was, in this sense, a subjectivist [p. 174]."

Concern with the environment from the perspective of the actor, that is, concern with its psychological description or its perceived meaning, was a common thread running through the theoretical formulations of the "classical interactionists" (the phrase is Ekehammar's, 1974; see also Jessor, 1956, 1958, 1961; Jessor & Jessor, 1973). Although rather broadly shared, this phenomenological or subjectivist position remained difficult for psychologists of a behaviorist persuasion to assimilate. It seems to have required the throes of the person-situation controversy over the past decade to bring about a widened consensus in which they could also participate. Contemporary social behavior formulations (Bandura, 1978) now do include such acknowledgments as: "…the environment is partly of a person's own making [p. 345]" and "external influences operate largely through cognitive processes [p. 355]" (see also Mischel, 1973). It is sobering to realize, however, that the resolution of the person-situation controversy in interactionism constitutes little more than a rediscovery of the earlier field-theoretical position of Lewin and others (Murray, 1938; Rogers, 1959; Rotter, 1954). In the concluding paragraphs of an historical review of the various issues in the dispute, Ekehammar (1974) notes that the cognitive and perceptual concepts invoked

by the more recent interactionists: "…have essentially the same meaning as the classical interactionists' psychological environment. Although the terminology is different, the common main idea is that the individual's psychological representation and construction of the environment is emphasized [p. 1044]."

Coming to terms with subjectivity implies acceptance of a fundamentally phenomenological perspective in psychology and agreement on the importance of dealing with the psychological environment. Despite the progress in this direction, it constitutes only a necessary starting point for conceptualizing the environment of human action. Basic issues persist, among them the relation of the psychological environment to other environments in more traditional descriptions, the relationship of the psychological environment to behavior and development, the formal or structural properties of the psychological environment, and finally, its content. Some comment on each of these conceptual issues is in order before we turn to a set of research findings that have an empirical bearing on them as well.

The Multiplicity of Environments

It was emphasized in an earlier discussion (Jessor & Jessor, 1973) that every human action can be seen as taking place in multiple and various environments *simultaneously*. The context of action can always be dealt with as a physical context, a geographic context, a cultural context, a social structural context, a psychological context, and more. This inherent multiplicity of the environment precludes any hope of arriving at some ultimate or ontologically most real environment. Instead, the environment has to be seen as capable of being continuously and differentially *constituted* depending on such factors as the conceptual orientation of a particular discipline, the explanatory objectives of a particular researcher, or the guiding purposes of a particular actor.

In this view, it would seem quite reasonable to try to link human action to many different kinds of environments or contextual attributes—humidity, radiation, urban density, normative conflict, bureaucracy, marginality, overprotection, threat, etc. But it is precisely its multiplicity that makes for the problematic status of the environment in contemporary psychology. What is needed are principles for organizing the multiplicity and diversity of environments in relation to the disciplinary goal of achieving *psychological explanation.*

Environment-Behavior Mediation

Two related principles can be invoked toward that end. The first principle has to do with the fact that *explanation* of any observed linkage between environment and action requires some theoretical structure to mediate the linkage and to make it psychologically understandable if not logically inescapable. In the absence of a

psychologically relevant theoretical network to bridge the explanatory gap, such observed linkages as those of climatic variation with aggression, apartment house dwelling with schizophrenia, low socioeconomic status with apathy, or bureaucracy with conforming behavior, remain merely empirical. The degree to which there exist theoretical structures to account for the causal impact of the various environments on action would be one principle that could be useful in determining which environments to explore. At present, social and cultural environments lend themselves more readily to the specification of a theoretical linkage to action than do physical or geographic or genetic environments.

Experiential Proximity of Environments

The second and more important principle is that the multiple and various environments can be ordered along a dimension of conceptual proximity to experience, to perception, to interpretation, or to psychological response. Some environments are relatively (or even absolutely) remote from direct experience; they are generally described in nonpsychological language and are without specific functional significance for the person. The environments of physics, geography, biology, and institutional sociology are examples that are remote from immediate experience; they would fall, therefore, toward the *distal* end of this dimension. Environments that are closer to being directly perceived or experienced fall toward the *proximal* end of the dimension. These latter employ a psychological or, at least, a psychologically relevant language of description, and they refer to attributes that can be perceived or interpreted or that have rather direct implications for perception and meaning. Along this distal-proximal dimension, *the most proximal environment would be the perceived environment,* the environment of immediate significance for the actor.

The idea that the multiplicity of environments can be ordered in relation to their proximity to perception or experience can be found also in the spatial arrangement of Lewin's topological concepts: The psychological environment is most proximal; next is the boundary zone around the life space; and then there is the further differentiation of the region lying outside the boundary zone into the "foreign hull" and the still more remote "alien factors" (Lewin, 1951a).

Invariance of Behavior with the Perceived Environment

Several implications follow from the nature of the distal-proximal dimension. First, environmental variables that are distal will require complex, theoretical structures to link them with experience and, thereby, with action; whatever linkage they do have to action, it follows necessarily, must be mediated by more proximal environmental variables. Second, proximal variables, precisely because they mediate the linkage of distal variables to action, make it possible to account for variation in behavior where the

distal environment remains constant. Finally, the most important logical implication of the distal-proximal dimension is that *action or behavior is invariant with the proximal or perceived environment* rather than with the distal environment. The search in psychology for invariant relations requires, therefore, a proximal or perceived environment focus (Jessor, 1961; Jessor & Jessor, 1973). The key *empirical* consequence to be derived from these various implications is that correlations between environmental variables and behavior should be greater the more proximal the environment, and they should be greatest for those variables that are in the perceived environment. This is one of the propositions that will be examined in the data to be presented shortly.

The discussion thus far can be made more concrete by consideration of three different kinds of environments that are commonly used in social-psychological studies and that we ourselves have worked with over the past two decades in relation to our own research on deviance and problem behavior. In distal-to-proximal order, they are the demographic environment, the social structural environment, and the perceived environment.

The Demographic Environment

The environment of demography is made up of a variety of *descriptive* (rather than theoretical or analytic) concepts referring to quite obvious or phenotypic attributes that serve to classify persons or locate them in positions in societal space. Age, sex, race, religious membership, rural-urban residence, family composition, education, and occupation are the most frequently used, and they lend themselves readily to epidemiological purposes that are of interest to the discipline and to society at large. It is in regard to their *causal or explanatory contribution*, however, that the distal remoteness of such attributes becomes apparent. Demographic concepts do not convey univocal experiential significance, and none of them carries any necessary theoretical significance that would imply a particular influence on behavior. On both of these grounds, demographic concepts need to be seen as highly distal; at best, they can have only indirect and quite uncertain consequences for variation in action.

Perhaps most invoked in psychological research is the demographic concept of social class or socioeconomic status, a position in the hierarchical organization of society that is usually indexed by level of occupation and amount of education. A forceful claim for the importance of this aspect of demography has been made by Kohn (1976): “In actuality, social class embodies such basic differences in conditions of life that subjective reality is necessarily different for people differentially situated in the social hierarchy [p. 179],” and “...members of different social classes…come to see the world differently… [p. 180].” If this were in fact the case, the distal environment of social class would constitute an extremely useful concept in accounting for variation in behavior. Its utility, as Kohn makes clear, would derive from the implications it would have for the perceived environment, that is, for differences in “subjective reality.” The distal environment of social class has not proved

to be useful in this way, however. Social classes are not (or are no longer) insulated from each other; there is mobility between classes; all classes are exposed to the same homogenizing mass communication media; and there have even been secular changes in the defining criteria of class. Further, the complexity of social life and experience is such that it defies summary by a simple index of years of education or status of occupation. Said otherwise, there is enormous heterogeneity of experience *within* class, perhaps as great as that between classes, at least in some areas. In light of these remarks the distal environment of social class is not an appropriate index or map of the perceived environment, and therefore it should have little necessary consequence for behavior.

To sum up this perspective on the demographic environment, it is too distal from experience to yield strong linkages with behavior; it conveys little in the way of analytic understanding of behavioral variation; and whatever linkage can be established between it and behavior must remain essentially empirical unless there is also an account—and, ideally, an assessment—of its mediation by the perceived environment.

The Social Structural Environment

The second environment to be considered—the environment of social structure—is more proximal to experience and to behavior than is the environment of demography. By virtue of the fact that it is constituted in *theoretical* (rather than descriptive) terms, it does convey particular implications for the perceived environment and, thereby, for behavior. The concepts that are employed in constituting the social structural environment tend to have experience and behavior relevance precisely because they were invented to account for variation in social behavior. They tend to emphasize those properties of the environment that would be expected to shape the perceptual field and the possibilities for action. The distinction being drawn here can be illuminated by a different aspect of Kohn's approach to the work situation. Instead of a demographic concern with the status level of an occupation, Kohn and Schooler (1973) focus on the "structural imperatives" of the job, for example, the actual conditions of work, its substantive complexity, and its routinization, and their findings emphasize: "…the social psychological importance of the structural imperatives of the job that impinge on the man most directly, insistently, and demandingly…[p. 116]." In sum, the social-structural environment is constituted of those attributes of the social context that have a high degree of *potential* significance for experience and behavior.

A major concern of our earlier research in a tri-ethnic community was to elaborate a conceptualization of the social structural (we called it *sociocultural)* environment that would yield a logical account of both interethnic and intraethnic variation in deviant behavior. That environment, defined as a system, is shown in Fig. 10.1 (the personality system and the socialization system that were part of the

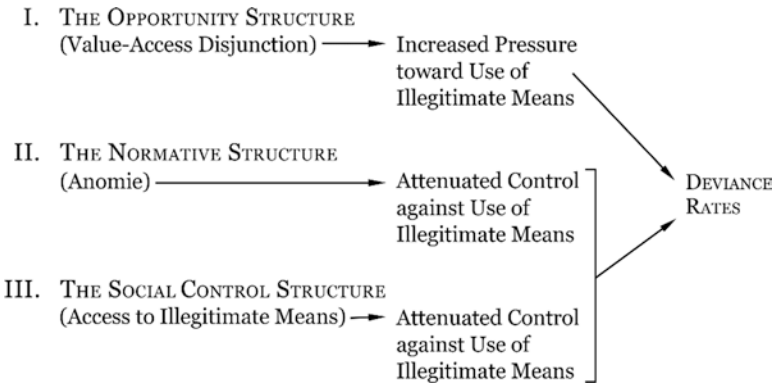

Fig. 10.1 The sociocultural system and deviance rates (Reprinted from Jessor et al., 1968, p. 78)

overall conceptual framework are omitted). Three component environmental structures were designated in the theory—a structure of opportunity, a structure of norms, and a structure of social controls—and the location of a person (or of an ethnic group) in each of these structures specified the likelihood of occurrence of problem behavior (Jessor, Graves, Hanson, & Jessor, 1968). Each structure included variables that had potential significance for perception. For example, the social control structure included three such variables: "exposure to deviance" (the prevalence of models for deviant behavior in the ecology); "absence of sanction networks" (nonparticipation in or exclusion from social interactions, such as those in church groups, that negatively sanction transgression); and "opportunity to engage in deviance" (the availability of time and of access to places and materials [e.g., cars or alcohol] that make certain behaviors possible).

The theory behind this environmental conceptualization is that value-access disjunctions in the opportunity structure tend to instigate deviance, whereas anomie in the normative structure and access to illegitimate means in the social control structure tend, to attenuate controls against deviance; the balance among the three structures is what generates the environmental dynamic for behavior. This effort sought to capture a behavior-relevant dimension of the social structural environment—what might be called *its conduciveness to deviance.* (In this connection, see Sells' concern [1963] that behavior-relevant dimensions of the environment be identified and his employment of one such dimension which he called "conduciveness to academic achievement.")

Although theoretically relevant to deviant behavior, and although referring to properties of the social environment that are potentially amenable to experience, conduciveness to deviance nevertheless remains distal from the perceived environment. As a description of the environment it is in perce*ivable* but still not in perceived terms. Although this approach to the environment was successful for the purposes of the Tri-Ethnic Project and accounted for more of the variance than did

the more obvious demographic attributes such as ethnic group membership or socioeconomic status, it still left considerable variance unaccounted for. This was part of the impetus for our move to assessing the perceived environment in our next major research effort.

The Perceived Environment

The third environment—the one that is the main focus of this chapter—is the perceived environment, the environment that is most proximal to experience along the distal-proximal dimension. The perceived environment refers to the social-psychological constitution of the environment out of the perceptions, definitions, reports, or responses of the actor. To borrow Brunswik's (1943) very apt phrase, it is the environment that is "post-perceptual and pre-behavioral [p. 266]." Reflecting socially organized and shared dimensions of potential meaning as well as personally organized and idiosyncratic dispositions to perceive and to process information, the perceived environment is the one that, logically, is most invariant with or causally closest to action. The notion of "causal closeness" as used here is quite different from physical or biological closeness. For example, a physical-language description of the immediate context in which a person is located, or a description of such biologically close aspects of the person's environment as obesity or skin color, remain causally distal because they do not specify their experiential relevance or the actual significance they have for the person. It is the *meanings* of attributes or the *definitions* of situations that are causally closest because they are most immediately pre-behavioral in a chain of causal linkages.

In the empirical portion of this chapter, we deal with essentially the same environmental dimension that was explored earlier in the Tri-Ethnic Study—its conduciveness to problem behavior—but this time the dimension is treated as an aspect of the perceived environment rather than the social structural environment. Before turning to the research, however, it is useful to elaborate some of the formal or structural properties that emerge from an effort to conceptualize the perceived environment. The task of conceptualizing the perceived environment is, in fact, not very different from what has to be done when conceptualizing personality. Questions to be answered concern its structure, its organization, its enduringness, its development, and its content.

The Property of Depth

The first of the properties of the perceived environment needing mention is its *depth.* When a specific behavior or class of behavior is at issue, some aspects of the perceived environment are "closer" to it than others; they are those aspects

that directly and obviously implicate that behavior. For example, in predicting the use of marijuana from perceived environment variables, the perception that friends use marijuana is considered conceptually closer to the use of marijuana than the perception that friends are generally warm and supportive. The notion of depth always obtains in relation to specific behavior, and variables can be allocated to a closer or a more remote "region" within the perceived environment depending on the immediacy of their import for that behavior. As might be expected, these closer and more remote regions are referred to, respectively, as proximal and distal regions. The very same logic that was applied to the proximal-distal dimension underlying the different kinds of environments is applied to these two regions, but now *within* the perceived environment. Variables in the proximal region of the perceived environment are those with an obvious connection to behavior. They refer to models for it, or approval for it, or sanctions against it, etc., and all of them actually specify the behavior in the definition of the variable itself, for example, "perceived models for marijuana use." Variables in the distal region of the perceived environment are unconnected to any specific behavior. Whereas they clearly have implications for variation in behavior, those implications depend on theory rather than being immediately obvious, for example, "perceived support from friends."

Depth is an important property because it indicates that even the perceived environment is not homogeneously relevant to a specific action. A consideration of the property of depth enables the ordering of perceived variables in relation to their closeness to specific behaviors. It also clarifies why some perceived variables, namely those that are proximal, are more likely to have powerful associations with behavior than others, namely those that are distal. It is worth pointing out, parenthetically, that the association of a distal perceived variable with behavior, although it is usually weaker, may be more *interesting* than the association of a proximal perceived variable precisely because the connection of the former is so much less obvious.

The Property of Texture

A second property, *texture,* has to do with the degree to which the perceived environment as a whole and its distal and proximal regions are differentiated into component variables and attributes. Texture is thus a direct reflection of the degree of theoretical articulation that has been accomplished for the perceived environment. Instead of lending itself only to global or generalized characterization, the perceived environment can be differentiated according to content (e.g., perceived supports and controls), according to social agents (e.g., perceived parental supports or friends controls), according to opportunities to learn behaviors (e.g., perceived models for it), and according to instigations to engage in behaviors (e.g., perceived social approval for such actions). The more texture it has, the more the perceived environment is likely to yield analytic understanding.

The Property of Enduringness

A third property of the perceived environment is its *enduringness.* It is possible to specify the perceived environment in relation to a given place at a particular moment of time—near the end of a party, perhaps, or just as the instructor is calling on a student in class. This is the usual meaning of the concept of the psychological situation, the situation as it exists at a moment in time, and the situation in which the psychological concern is with understanding the actor's very next behavior. It was this momentary perceived environment that Kurt Lewin sought to represent in his diagrams of the psychological situation in hodological space. But it is also possible to consider a more extended, more generalized, more enduring perceived environment, one that has reference to a broader and longer segment of life. Enduringness refers to quite different perceptions of the environment by the same person. Thus, "I have a lot of support in my marriage" is different from "This particular interaction is threatening." The former example illustrates the perception of a relatively enduring aspect of the environment, and it contrasts sharply with the perception of the momentary situation in the latter example. In interviews and questionnaires, it is usually the more enduring perceived environment we are seeking to characterize rather than the immediate situation of the inquiry. W. I. Thomas seemed to be reaching for this kind of property in relation to his notion of definitions of the situation when he stated in Ball (1972): "Not only concrete acts are dependent on the definitions of the situation but gradually a whole life-policy and the personality of the individual himself follow from a series of such definitions [p. 62]."

The Property of Developmental Change

Fourth, it is useful to conceive of the perceived environment as having the property of *developmental change.* Because the perceived environment reflects socially organized dimensions of potential meaning and personally organized dispositions to perceive, and because there are developmental tendencies in both of these sources of influence, the perceived environment can be expected to evidence systematic and predictable changes over time or at different life stages. In the social environment, for example, the operation of the social process of age grading implies systematic changes in demands, expectations, and opportunities as young people grow older. There will also be a predictable increase in the prevalence of friends who are models for certain behaviors as adolescence is reached and passed. It makes sense even to conceive of "growth curves" for attributes of the perceived environment in the same way as it does for attributes of personality or ability. A similar point has been made by Nesselroade and Baltes (1974), who have introduced the concept of "environmental ontogeny [p. 64]" in their work.

The Question of Content

A final concern with the perceived environment would be with its *content*. Although Lewin never really elaborated the content of the psychological environment, a number of the classical interactionists did propose approaches to formulating content as well as actual systems of content. Murray's (1938) notion of beta press provided perceived environment content in direct analogy to the need concepts in his theory. As another example, Rotter (1954, 1955) has suggested describing the reinforcements or goals in situations, as well as the complexity and the novelty of situations. In the final analysis, content would seem to be partly a matter of theory—both theory of the person and theory of the social environment—and partly a matter of the particular problem the theory is being applied to. There is no single mapping of the content of the psychological environment that would make sense given the diversity of the enterprise of psychology.

The Perceived Environment and Problem Behavior

Our own effort to map the perceived environment has been shaped, as indicated earlier, by an interest in the dimension of environmental proneness or conduciveness to problem behavior. It has involved the specification of both a proximal and a distal set of variables within the perceived environment system, all the variables having theoretical implications for problem behavior. The perceived environment system is shown as Box B in Fig. 10.2 (which also presents the larger conceptual structure for our problem-behavior research).

The content of the distal and proximal variables in Box B of Fig. 10.2 continues the theoretical emphases that had been represented in the social structural system in the earlier Tri-Ethnic Study. The present concern with the compatibility between parents and friends in their expectations, and with the relative influence of these two reference groups, continues our earlier interest in normative consensus and in the degree of anomie that may obtain in the social environment. The present concern with generalized supports and controls, and the focus on models and on approval-disapproval for specific behaviors, reflects a continuity with our earlier interest in social controls and in access to illegitimate means in the social environment. However, all the variables shown in Box B of Fig. 10.2 are now derived from the respondent's perception and are based on direct reports or descriptions of those relatively enduring aspects of the perceived environment. (Other aspects of the perceived environment relevant to problem behavior were also assessed, for example, the perception of friends' interests [Finney, 1979], but they are not represented in Fig. 10.2 and will not be discussed further.)

Conduciveness to problem behavior in the perceived environment system was conceptualized as the balance between the perception of social controls against

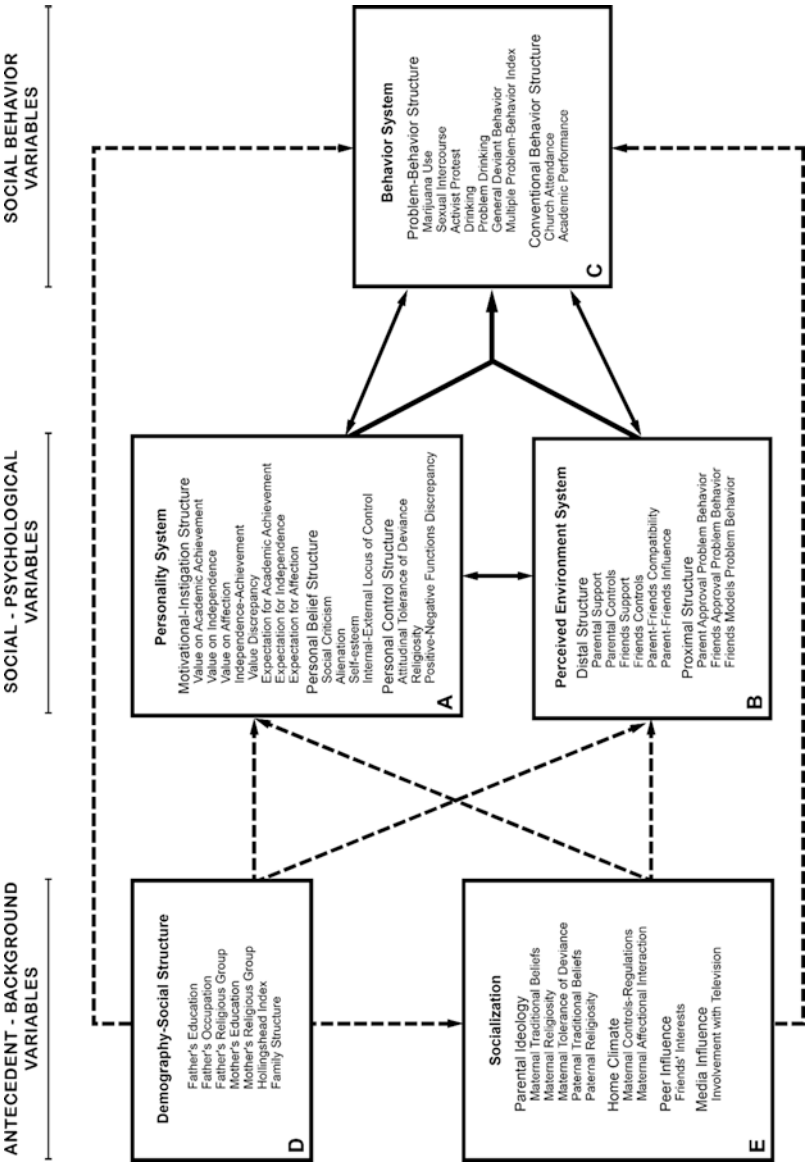

Fig. 10.2 The conceptual structure of Problem Behavior Theory (Reprinted from Jessor & Jessor, 1977, p. 38)

problem behavior, on the one hand, and the perception of models and support for problem behavior on the other. In the distal structure, conduciveness theoretically implies low parental support and controls, low friends controls, low compatibility between parents' and friends' expectations, and low parent influence relative to friends influence. In the proximal structure, conduciveness implies low parental disapproval of specific problem behaviors, and high friends models for and approval of engaging in specific problem behaviors. The more that these separate variables pattern together in a theoretically conducive way, the more likely the occurrence of problem behavior.

The remainder of the chapter is concerned with three major objectives. The first is an empirical appraisal of the explanatory effectiveness of this particular conceptualization of the perceived environment in relation to problem behavior in youth. The second is to demonstrate that the perceived environment, because of its causal closeness to behavior, accounts for a substantially larger portion of the variance in youthful problem behavior than the demographic environment. And the third objective is to show that, within the perceived environment, the proximal variables account for more of the variance in problem behavior than the distal variables. We have the opportunity in these analyses to test some of the logical implications of the preceding discussion.

Measuring the Perceived Environment

Measures of four separate but related behavioral domains will constitute the "dependent" or criterion variables: excessive alcohol use, involvement with marijuana, experience with sexual intercourse, and engagement in protodelinquent actions such as stealing or aggression. Two entirely independent data sets are employed in the analyses, thereby enabling a complete replication of the tests of the major propositions. The first data set is from a 4-year longitudinal study of problem behavior and psychosocial development (Jessor & Jessor, 1977) carried out in a small city in the Rocky Mountain region of the United States. It is referred to in this chapter as the *High School Study.* Questionnaires were administered annually to cohorts who were initially in grades 7, 8, and 9; by the fourth testing in 1972, the cohorts had reached grades 10, 11, and 12. It is the cross-sectional data from this fourth testing of 188 males and 244 females that are considered in this chapter. The questionnaires contained a wide variety of measures of personality, the perceived environment, and behavior, but our focus will be restricted to the measures of the demographic environment, the perceived environment, and the four areas of behavior.

The second data set is from a national sample study carried out by the Research Triangle Institute in the spring of 1974 (Donovan & Jessor, 1978; Rachal, Hubbard, Williams & Tuchfeld, 1976; Rachal et al. 1975). It is referred to in this

chapter as the *Nationwide Sample Study.* Over 13,000 students in grades 7–12 in a stratified random sample of high schools in the 48 contiguous states and the District of Columbia filled out questionnaires that included many of the measures that we had devised earlier for use in the High School Study. Although the High School Study was carried out in a local community and was based on a largely middle-class, Caucasian sample, the Nationwide Sample Study, by contrast, included a wide diversity of socioeconomic status, ethnic status, and geographic location. Replication across such different samples can prove especially compelling.

The measures that were obtained for the demographic environment, for the perceived environment, and for behavior were quite comparable in both the High School Study and the Nationwide Sample Study, although the wording and the number of items in a particular scale (and, hence, the score range) could differ in the two studies. The demographic measures included the conventional indicators of socioeconomic status—*father's education, mother's education, father's occupation,* and the *Hollingshead index of social position*—and a measure of the degree of liberalism-fundamentalism of the parents' *religious group membership.* Measurement of the distal structure of the perceived environment was somewhat more elaborate in the High School Study than in the Nationwide Sample Study. It included four two-item scales to measure: perceived *parental support* (e.g., "Would you say that your parents generally encourage you to do what you are interested in doing and show interest in those things themselves?"); perceived *friends support* (e.g., "Do you feel free to talk to your friends about personal problems when you want to?"); perceived *parental controls* (e.g., "If you act in a way your parents disapprove of, are they likely to make things tough for you?"); and perceived *friends controls* (e.g., "Compared to most other students, how strict would you say your friends are about standards for how to behave?"). In both studies, identical scales were employed for the other two variables in the distal structure: perceived *parents-friends compatibility* (e.g., "With respect to what you should get out of being in school, would you say that your parents and your friends think pretty much the same way about it?"); and relative *parents-friends influence*, (e.g., "If you had a serious decision to make, like whether or not to continue in school, or whether or not to get married, whose opinions would you value most—your parents' or your friends'?").

Measurement of the proximal structure of the perceived environment was behavior specific in relation to the different behaviors. It included three scales in both studies. To illustrate for the drinking area, these were: perceived *parental approval-disapproval for drinking* (e.g., "How do your parents (or your family) feel about people your age drinking?"); perceived *friends approval for drinking* (e.g., "How do most of your friends feel about people your age drinking?"); and perceived *friends models for drinking* (e.g., "Do you have any *close* friends who drink fairly regularly?").

Psychometric properties of the various perceived environment measures were at least adequate as far as Scott's homogeneity ratio and Cronbach's alpha reliability

are concerned. Because of the longitudinal nature of the High School Study, it is possible also to report on the temporal stability of the measures across the annual testings. The average interyear correlations are very satisfactory, falling for the most part at about .40 or better. Further details about the different scales, the number of items in each, and their score range may be found in Jessor and Jessor (1977) for the High School Study and in Donovan and Jessor (1978) for the Nationwide Sample Study.

Measuring Problem Behavior

With respect to the measures of behavior, the measure of frequency of drunkenness was a single item: "During the past year, about how many times have you gotten drunk?" The measure of marijuana involvement was a four-item Guttman scale: "Have you ever tried marijuana?"; "Have you ever been very high or 'stoned' on marijuana to the point where you were pretty sure you had experienced the drug effects?"; "Do you or someone very close to you usually keep a supply of marijuana so that it's available when you want to use it?"; and "Do you use marijuana a couple of times a week or more when it's available?" The coefficient of reproducibility and the coefficient of scalability were, respectively, .96 and .86 in the High School Study and .94 and .68 in the Nationwide Sample Study. Sexual intercourse experience was not assessed in the Nationwide Sample Study; in the High School Study, the index of virgin-nonvirgin status was based on the single question: "Have you ever engaged in sexual intercourse with someone of the opposite sex?" Finally, the measure of general deviant behavior included 26 items in the High School Study and 12 items in the national study. Items asked how often in the past year the respondent had: "broken into a place that is locked just to look around"; "taken as much as $5 or $10 from your parents' wallet or purse when they weren't around"; and "threatened a teacher because you were angry about something at school," etc. Psychometric properties are good in both studies, and temporal stability is excellent in the High School Study where it could be examined.

Linking Environments with Behavior

It is possible now to address the main empirical concerns of the chapter. The strategy we follow is to present Pearson bivariate correlations and multiple correlations of the demographic environment measures and the perceived environment measures with each of the behavioral criteria, by sex, for the two independent studies separately. The data for the High School Study are shown in Table 10.1. Section A of the table consists of the variables of the demographic environment categorized into

Table 10.1 Pearson correlations and multiple correlations of demographic and perceived environment measures with four problem-behavior criterion measures (high school study, year IV [1972] data)

	Times drunk in past year		Marijuana involvement		Deviant behavior in past year		Virgin-nonvirgin status	
Measures	Males[b]	Females[b]	Males[c]	Females[c]	Males[c]	Females[c]	Males[d]	Females[d]
A. Demographic								
Environment								
Socioeconomic status								
Father's education	−.11	.01	.01	.03	−.04	−.01	−.22**	−.14*
Mother's education	−.24**	−.00	.01	−.05	−.06	−.04	−.28***	−.11
Father's occupation	−.06	.01	.02	.11+	−.14+	.06	−.23**	−.07
Hollingshead index[a]	−.09	.01	.01	.08	−.12	.03	−.25**	−.11
Multiple R	.25**	.02	.02	.17	.16	.12	.30***	.15
Religious group								
Father's relig. grp.	.02	.08	−.16*	.02	−.06	−.03	.02	.01
Mother's relig. grp.	.01	.01	−.18*	.02	−.06	−.02	.03	−.04
Multiple R	.02	.10	.18*	.02	.06	.03	.03	.06
Combined demographic								
Multiple R	.26	.10	.19	.17	.19	.13	.30**	.17
B. Perceived								
Environment								
Distal structure								
Parental support	−.18*	−.02	−.31***	−.21**	−.28***	−.13*	−.11	−.19**
Parental controls	−.19*	.02	−.15+	−.07	−.04	−.01	−.17*	−.13*
Friends support	.01	.16*	.00	.13+	−.11	.14*	.04	.06
Friends controls	−.19*	−.06	−.43***	−.35***	−.24**	−.22***	−.18*	−.24***
Parent-friends comp.	−.24**	−.07	−.31***	−.33***	−.25***	−.25***	−.08	−.24***

Parents-friends infl.	.05	.11	.29***	.18**	.16*	.25***	.11	.15*
Multiple R	.36*	.22	.52***	.53***	.34**	.43***	.26*	.39***
Proximal structure								
Parent approval	.11	−.06	.36***	.33***	.08	.09	.16*	.16*
Friends approval	.27**	.15*	.68***	.72***	.32***	.42***	.14+	.23***
Friends models	.23**	.20**	.69***	.69***	.40***	.52***	.45***	.54***
Multiple R	.31***	.24*	.74***	.76***	.41***	.55***	.46***	.55***
Combined perceived								
Multiple R	.44***	.30+	.76***	.78***	.45***	.59***	.47***	.59***
C. Demographic plus								
Perceived environment								
Multiple R	.50**	.32	.77***	.79***	.49***	.59***	.54***	.60***

Note: Level of significance: $+p \leq .10$, $*p \leq .05$, $**p \leq .01$, $***p \leq .001$

[a]The Hollingshead index was deleted from the multiple R that includes its components

[b]Data are based on drinkers only; male $N = 142$, female $N = 177$

[c]Results are based on all respondents: 188 males and 244 males

[d]Results are based on 186 males and 242 females

socioeconomic status variables and religious denomination variables. Multiple correlations for each category and for the combined demographic variables are shown in italics and underlined in Section A. Section B lists the separate variables in the distal structure of the perceived environment and their multiple *R* when combined; it also lists the three variables in the proximal structure and their combined multiple correlation; finally, it shows the multiple *R* for the entire set of variables in the perceived environment. Section C, the last line in Table 10.1, shows the multiple *R* for the demographic and perceived environment variables combined. Each of the variables listed has been correlated with each of the four behavior measures.

The implications of the findings in Table 10.1 can best be developed by following through the correlations for a single behavior measure. The data for marijuana involvement measure in Table 10.1 are discussed because they represent an almost paradigmatic outcome. With the exception of parental religious denomination for males (the more fundamentalist the parental religious denomination, the less involvement with marijuana), none of the other demographic measures shows a relationship with marijuana use, and the multiple correlation of the combined demographic variables is not significant for either sex. By contrast, most of the measures in the distal structure of the perceived environment show a significant relation in the expected direction with variation in marijuana involvement (lesser parental support and controls, greater friends support and lesser friends controls, less parent-friends compatibility, and greater friends-relative-to-parents influence), and their multiple correlation accounts for slightly over 25% of the criterion measure variance for both sexes. Finally, when we turn to the proximal structure variables, all measures are significant, and friends approval and friends models reach substantial magnitude. The multiple correlation for the combined proximal structure is .74 for males and .76 for females; it accounts for more than twice the variation in marijuana involvement that the distal structure does. When the variables in both structures are combined, the perceived environment as a whole accounts for about 60% of the variance in this drug-use criterion. And as seen in the last line in Section C of the table, there is no real increment achieved by adding the demographic variables.

With some variation in both the patterning of the results and the magnitude of the correlations, the findings for the other three criterion measures in Table 10.1 are consistent with those for the marijuana measure. With respect to the measure of times drunk in the past year, the distal variables of the perceived environment are considerably weaker, especially for the females, and the overall multiple *R* is only modest; and with respect to the measure of sexual experience, there is a real departure from the general pattern in the significant relations of the socioeconomic variables for the males. On the other hand, the findings for the measure of deviant behavior in the past year are very similar in pattern to those for marijuana use. In general, these data from the High School Study do provide support for the three empirical objectives that were specified earlier. They make clear that the measures of the perceived environment provide a significant and at times substantial explana-

tion of variation in problem behavior; they sustain the expectation that the perceived environment, being more proximal, will account for more of the variance than the distal demographic environment does; and they confirm the greater explanatory contribution, *within* the perceived environment, of the proximal variables over the distal variables. What was noteworthy was the fact that the demographic environment made almost no contribution to an account of the variation in youthful problem behavior.

Although these findings tend already to be replicated across the two sexes, we have a rather unique opportunity to examine their replication in an entirely different sample with a much larger *N* and a much wider degree of variation in demographic characteristics. The data from the Nationwide Sample Study are presented in Table 10.2.

Table 10.2 provides even more compelling empirical support for our environmental expectations. In regard to all three of the behavioral criterion measures, the patterning of the findings is clear and consistent for both sexes. The demographic environment accounts for almost none of the variation in problem behavior (although the correlations often do reach significance, it should be kept in mind that, with the sample sizes involved, a correlation of .04 can be significant for each sex and yet account for much less that even 1% of the variance). The distal structure of the perceived environment does better, but it still accounts for less than 10% of the variance even when its variables are combined; and the proximal structure does best, accounting for between about a quarter and a half of the variance across the three different behavior measures. This consistency of the overall pattern is not attenuated by departures of the sort encountered in the High School Study, and it is even clearer here that no increment is gained from independent variance when the demographic measures are added to the perceived environment measures—see the last line in Table 10.2.

Conclusion

Taken together, the results of the two independent studies are quite persuasive in their coherence and their import. With respect to delineating proneness or conduciveness to deviance in the perceived environment, the variables derived from Problem Behavior Theory have been shown to be effective. Generalized support and controls from parents and friends, and the relations perceived between these two most salient reference groups for youth, tend to be linked to problem behavior in a modest but significant way. As distal aspects of the perceived environment, they are variables that suggest something about the operation of the social system in which a young person is embedded and, more particularly, about whether that system is still parent oriented or whether it reflects the developmental move

Table 10.2 Pearson correlations and multiple correlations of demographic and perceived environment measures with three problem-behavior criterion measures (Nationwide Sample Study, [1974] Data)

	Times drunk in past year		Marijuana involvement		Deviant behavior in past year	
Measures	Males[a]	Females[a]	Males[b]	Females[b]	Males[b]	Females[b]
A. Demographic						
Environment						
Socioeconomic status						
Father's education	−.05*	.01	.02	.06***	−.06***	−.01
Mother's education	−.06***	.02	−.00	.05***	−.08***	.01
Father's occupation	−.02	.02	.05***	.05***	−.03+	−.00
Multiple R	.06**	.02	.05***	.07***	.08***	.01
Religious group						
Father's relig. Grp.	.01	−.04*	−.04**	−.05***	−.03*	−.06***
Mother's relig. Grp.	−.01	−.03+	−.06***	−.05***	−.03*	−.05***
Multiple R	.04+	.04+	.06***	.06***	.03+	.06***
Combined demographic						
Multiple R	.08**	.04	.08***	.08***	.09***	.06***
B. Perceived						
Environment						
Distal structure						
Parent-friends comp.	−.16***	−.17***	−.19***	−.20***	−.26***	−.29***
Parents-friends infl.	.17***	.21***	.24***	.24***	.26***	.33***
Multiple R	.22***	.24***	.28***	.28***	.34***	.39***
Proximal structure						
Parent approval	.10***	.10***	–	–	–	–
Friends approval	.31***	.29***	.59***	.60***	.38***	.48***
Friends models	.48***	.49***	.72***	.71***	.43***	.52***
Multiple R	.49***	.50***	.74***	.73***	.45***	.55***
Combined perceived						
Multiple R	.51***	.52***	.75***	.73***	.50***	.60***
C. Demographic plus						
Perceived environment						
Multiple R	.52***	.52***	.75***	.74***	.51***	.61***

Note: Level of significance of correlations, two-tailed test: $+p \leq .10$, $*p \leq .05$, $**p \leq .01$, $***p \leq .001$

[a]Data are based on drinkers only; male *N*s range from 3100 to 3700, female *N*s range from 3000 to 3700 for the different correlations

[b]Results are based on all respondents with valid data; degrees of freedom for the correlation range from 4300 to 4900 for the males and from 4700 to 5620 for the females

toward a peer orientation. In regard to the proximal aspects, the strongest to emerge are the models and reinforcements for problem behavior perceived among one's friends, variables that have consistently substantial associations with behavior. As a whole, the variables in the perceived environment seem capable of accounting for between 25 and 50% of the variance depending on the behavior at issue. In light of this outcome, and especially its stability for both sexes in two such diverse studies, it is not unreasonable to claim some support for the particular conceptualization of environmental conduciveness to problem behavior that has been advanced.

As a problematic concept, the environment is amenable to a variety of levels of analysis and alternative conceptual foci. We have argued that distal environments such as demography are too remote to be useful as explanations in social-psychological research. Social structural environments do have explanatory interest insofar as they involve concepts that shape and map the conditions and interactions that persons can experience. But it is the perceived environment, as our data have shown, that is most likely to yield "…the thing that psychology has always been really after throughout its history" (Brunswik, 1943, p. 266)—invariant relations between environment and action.

Acknowledgment Preparation of this chapter was supported by Grant No. AA03745-01, R. Jessor, principal investigator. Support for the data collection was provided by Grant No. AA-00232 and Contract No. ADM 281-75-0028.1 am grateful to Dr. John Donovan for his contribution in carrying out the analyses of the data.

References

Ball, D. W. (1972). 'The definition of situation': Some theoretical and methodological consequences of taking W. I. Thomas seriously. *Journal for the Theory of Social Behaviour, 2*(1), 61–82.

Bandura, A. (1978). The self system in reciprocal determinism. *American Psychologist, 33*(4), 344–358.

Blumer, H. (1966). Sociological implications of the thought of George Herbert Mead. *American Journal of Sociology, 71*(5), 535–544.

Bridgman, P. W. (1959). *The way things are*. Cambridge, MA: Harvard University Press.

Brunswik, E. (1943). Organismic achievement and environmental probability. *Psychological Review, 50*, 255–272.

Cartwright, D. (1978). Theory and practice. *Journal of Social Issues, 34*(4), 168–180.

Cassirer, E. (1953). *An essay on man*. Garden City, NY: Doubleday. (Original publication in 1944).

Donovan, J. E., & Jessor, R. (1978). Adolescent problem drinking: Psychosocial correlates in a national sample study. *Journal of Studies on Alcohol, 39*(9), 1506–1524.

Ekehammar, B. (1974). Interactionism in personality from a historical perspective. *Psychological Bulletin, 81*(12), 1026–1048.

Finney, J. W. (1979). Friends' interests: A cluster-analytic study of college student peer environments, personality, and behavior. *Journal of Youth and Adolescence, 8*(3), 299–315.

Gibson, J. J. (1960). The concept of the stimulus in psychology. *American Psychologist, 15*(11), 694–703.
Jessor, R. (1956). Phenomenological personality theories and the data language of psychology. *Psychological Review, 63*(3), 173–180.
Jessor, R. (1958). The problem of reductionism in psychology. *Psychological Review, 65*(3), 170–178.
Jessor, R. (1961). Issues in the phenomenological approach to personality. *Journal of Individual Psychology, 17*(1), 27–38.
Jessor, R., & Jessor, S. L. (1973). The perceived environment in behavioral science: Some conceptual issues and some illustrative data. *American Behavioral Scientist, 16*(6), 801–828.
Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic.
Jessor, R., Graves, T. D., Hanson, R. C., & Jessor, S. L. (1968). *Society, personality, and deviant behavior: A study of a tri-ethnic community*. New York: Holt, Rinehart and Winston. (Reprinted by Krieger Publishing Co., 645 New York Avenue, Huntington, N.Y., 1975.)
Kessel, F. S. (1969). The philosophy of science as proclaimed and science as practiced: "Identity" or "dualism"? *American Psychologist, 24*(11), 999–1005.
Kohn, M. L. (1976). The interaction of social class and other factors in the etiology of schizophrenia. *American Journal of Psychiatry, 133*(2), 177–180.
Kohn, M. L., & Schooler, C. (1973). Occupational experience and psychological functioning: An assessment of reciprocal effects. *American Sociological Review, 38*(1), 97–118.
Lewin, K. (1951a). Defining the "field at a given time". In D. P. Cartwright (Ed.), *Field theory in social science: Selected theoretical papers by Kurt Lewin*. New York: Harper.
Lewin, K. (1951b). *Field theory in social science: Selected theoretical papers*. New York: Harper & Row.
Mischel, W. (1973). Toward a cognitive social learning reconceptualization of personality. *Psychological Review, 80*(4), 252–283.
Murray, H. A. (1938). *Explorations in personality: A clinical and experimental study of fifty men of college age*. New York: Oxford University Press.
Nesselroade, J. R., & Baltes, P. B. (1974). Adolescent personality development and historical change, 1970-1972. *Monographs of the Society for Research in Child Development, 39*(1., serial no. 154), 1–80.
Rachal, J. V., Williams, J. R., Brehm, M. L., Cavanaugh, B., Moore, R. P., & Eckerman, W. C. (1975). *A national study of adolescent drinking behavior, attitudes, and correlates*.: (NTIS Report No. PB-246-002, pp. 1-159). Springfield, VA: National Technical Information Service.
Rachal, J. V., Hubbard, R. L., Williams, J. R., & Tuchfeld, B. S. (1976). Drinking levels and problem drinking among junior and senior high school students. *Journal of Studies on Alcohol, 37*(11), 1751–1761.
Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships as developed in the client-centered framework. In S. Koch (Ed.), *Psychology: A study of a science (Vol. 3)* (pp. 184–256). New York: McGraw-Hill.
Rose, A. M. (Ed.). (1962). *Human behavior and social processes: An interactionist approach*. Boston: Houghton Mifflin.
Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.
Rotter, J. B. (1955). The role of the psychological situation in determining the direction of human behavior. In M. R. Jones (Ed.), *Nebraska symposium on motivation* (pp. 245–268). Lincoln, TX: University of Nebraska Press.
Sells, S. B. (1963). An interactionist looks at the environment. *American Psychologist, 18*(11), 696–702.
Stryker, S. (1977). Developments in "two social psychologies": Toward an appreciation of mutual relevance. *Sociometry, 40*(2), 145–160.

Thomas, W. I. (1928). *The child in America: Behavior problems and programs*. New York: Alfred A. Knopf.

Wilson, T. P. (1970). Conceptions of interaction and forms of sociological explanation. *American Sociological Review, 35*(4), 697–710.

Zener, K. (1958). The significance of experience of the individual for the science of psychology. In H. Feigl, M. Scriven, & G. Maxwell (Eds.), *Minnesota studies in the philosophy of science. Volume II, concepts, theories, and the mind-body problem*. Minneapolis, MN: University of Minnesota Press.

Chapter 11
Engaging Subjectivity in Understanding Individual Differences

Richard Jessor

It is clear that an increasing number of theories of personality find it useful, if not necessary, to employ some construct referring to the *psychological* situation—e.g., life space (Lewin, 1935), phenomenal field (Rogers, 1951; Snygg & Combs, 1949), or meaningful environment (Rotter, 1954). Such theories do not attempt to relate behavior to the physical or geographic environment. Instead, they attempt to make predictions by reference to the environment as it is perceptually, cognitively, or functionally responded to by an organism or class of organisms. In view of the generally recognized importance of such theoretical efforts, on the one hand, and in view of certain questions that have been raised about the methodological status of these efforts, on the other, it would seem opportune to examine the issues involved in some detail.

The most frequently cited challenges to phenomenological[1] orientations in personality theory have questioned the degree to which such orientations may be considered to be truly physicalistic, and the degree to which they may be considered to be predictive rather than postdictive systems. These issues are, of course, not unrelated to each other. Lewin's system, perhaps because of the explicitness with which it is presented, has served most often as the prototype of phenomenological theories when these issues have been discussed. Brunswik (1943), for example, describes Lewin's life space as postperceptual and prebehavioral, and doubts whether Lewin's

[1] The term *phenomenological* and its variants are used in this paper to refer to theories which employ some construct referring to the psychological situation, e.g., life space, behavioral environment, etc. The present usage divests the term of certain historical connotations, such as holism or introspectionism, which have accrued to it.

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Jessor, R. (1956). Phenomenological personality theories and the data language of psychology. *Psychological Review, 63*(3), 173–180.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_11

predictions can, in a strict sense of the word, be tested. Spence (1944) has stressed the failure of such field theories as Lewin's to provide us with laws that will enable control and manipulation of the behavior-determining psychological field. His analysis has gone further to emphasize the distinction between the types of laws that are achieved by phenomenological theories versus those attained by systems which do refer behavior to the physico-geographic environment. The former laws are called R-R laws, and are considered to relate one set of responses to another set of responses obtained earlier from the subject or the experimenter. The latter laws are referred to as S-R laws, and are considered to relate responses to independently measured physical and social environmental variables.

The aims of this paper are threefold: to support the position that phenomenological theories of personality are compatible with the general scientific requirements of physicalism and predictiveness, to demonstrate that a fundamental methodological distinction between these theories and nonphenomenological theories is difficult to maintain, and, finally, to suggest that a crucial issue intrinsic to a discussion of the problems mentioned above—and one rarely raised in that connection—is the nature of the psychological data language traditionally favored by S-R and by R-R theories.

The Problem of the Psychological Environment

The essential characteristic of all constructs which refer to a psychological environment is that their nature and properties are response-inferred. It is unfortunate that some usages of such response inferences have been of the sort as to couple them closely in time to the behavior that is being predicted. This has given the impression of a very limited kind of predictiveness, if not, in actuality, a kind of postdiction. It has also raised the related question of the *independence* of the two sets of responses. Since the problem of prediction and the problem of independence of variables are both closely bound up with the problem of the definition of the stimulus, the latter will be reviewed at some length. In this way a clearer picture of the methodological status of the psychological-environment construct should emerge. It may be noted, parenthetically, that Lewin's theory, as an example of phenomenological theories, *is* considered by Spence (1944) to achieve laws between independent variables; the emphasis of his remarks is on the point that the variables are all response variables.

The term *stimulus* in psychology implies, by definition, a relatedness to responses rather than independence of them. It is impossible to isolate, point to, or describe aspects of the environment as stimuli except insofar as they have some determinable relationship to the responses of some organism. To conceive, therefore, of stimulus variables as independent of response variables in general appears to be unwarranted. This point has been raised in connection with other problems by both Brown (1953) and Bakan (1953). Bakan has noted that variables are simply sets of categories, and *"categories are the result of someone's delineation, abstraction, and identification"* (1953, p. 47). In this sense there are no stimulus variables which are not response-inferred or defined, *including the variables of physics and sociology*. The organism

which is the reference point for the process of definition in physics is, of course, the experimenter. It follows from these considerations that all stimuli are response-defined at some time by some organism. The issue becomes that of *whose* response definitions, under what conditions.

There are two other ways in which the meaning of the term *independence* may be considered.

1. A distinction may be attempted between the responses of the subjects and those of the experimenter, that is to say, the stimulus definition by the experimenter may be considered independent of the responses of his subjects. Davis (1953) has presented this position in its extreme in his recent call for a more physical psychology. Davis states: "For a 'stimulus' (external event) to qualify under the proposed canon, it would have to be something which an experimenter could ascertain without there being any organism for it to work on" (1953, p. 10). This statement is worth examining closely. In view of our previous discussion it may be noted that Davis concedes, at least, that the stimulus is defined by the response of the experimenter, i.e., "something which the experimenter could ascertain." More appropriate to the present point, however, is the fact that the word "stimulus" is placed in quotes by Davis. Obviously, this evidences recognition that external events may be considered stimuli *only* when some relationship is demonstrable between the presence or occurrence of the event and some behavior or response of an organism.

If this view were not held, in actuality, by psychologists, the result would be the investigation and manipulation of an infinite array of physically discriminable variables (discriminated by the experimenter), some of which may have effects on organism—e.g., a loud noise—and some of which may not—e.g., a sound of a frequency too high to be directly perceived by human subjects. Even the traditional S-R theorists manipulate variables which are defined by the responses of their rats rather than by themselves alone. The empirical law of effect is a concept which illustrates how classes of noxious stimuli and incentives are defined by the approach or avoidance behavior of populations of rats. To summarize this point, it is possible for experimenters to discriminate or identify variables independently of the responses of their subjects, but these variables may be considered *as stimuli* only when they are functionally related to, i.e., defined by, the responses of their subjects.

2. The second sense in which the independence of the stimulus may be considered is in terms of its independence from a given or particular response. Stated otherwise, the issue is whether the stimulus may be identified *before* the particular response occurs. This is a crucial issue, since it involves the entire process of prediction and control. Most of the phenomenological systems have often been content to identify the stimulus only *after* the given response has occurred and, more seriously, have not adequately provided or described techniques or procedures for enabling the experimenter to *predict* behavior by knowledge of the nature of the stimulus in advance of the occurrence of the particular response. Spence (1944) is correct in his criticism of such phenomenological approaches for not telling us what to do to an individual in order to manipulate, change, or

control his behavior. This criticism, however, applies to phenomenologcial systems such as those of Lewin, Snygg and Combs, and Rogers, *not* because they utilize response-inferred constructs but rather *because they have traditionally and uniformly rejected a historical approach to the problem of prediction*. It is only an ahistorical phenomenology which has limited predictiveness, or is essentially postdictive. A historically oriented phenomenology (e.g., Rotter, 1954) enables the experimenter to predict behavior by providing a basis for advance knowledge of the stimulus.

Let us examine this latter point in greater detail. The phenomenologists have maintained that behavior is a function of the psychological situation (Lewin, 1935), the stimulus functions (Kantor, 1924), or the meanings of stimuli (Rotter, 1954), etc. The problem for them is to know, in advance of the given response, how the subject will constitute the stimulus situation, i.e., what meaning it will have for him. Since the meaning of a stimulus, or the precise way in which a variable functions as a stimulus, is inferred from the responses of the subject, it follows that, for the prediction of a given response in a particular situation, *the stimuli must be inferred from previous responses of the subject*, or similar subjects, in similar or systematically related situations.

This is precisely the way in which S-R behavior theorists proceed to define their stimuli in advance of the behavior of their rats. The way in which it is predicted that a pellet of food in a **T** maze will be an incentive stimulus for a hungry rat, and will result in approach and eating behavior, is simply by having observed that this rat, or other similarly hungry rats, *previously* approached and ate the food pellet.

For a similar approach to the problems of prediction in personality, it is possible to mention several well-known procedures which enable specification of the stimulus situation independent of and prior to a given response.

1. *Verbal report, by either the subject or the experimenter.* Spence has pointed out that "…the phenomenological approach has its advantages, particularly in the complex field of social behavior of the human adult. It is obviously much easier to gain some notion as to the relevant variables determining such complex behavior by asking the individual to verbalize than it is to employ the procedure of trying to hypothesize them from knowledge of past history" (Spence, 1944, p. 57). Unique to human beings is their ability to verbalize their perceptions of situations or the meanings that they have for them. This information, in spite of its well-known limitations, is exceedingly valuable to the personality theorist interested in predicting the subject's subsequent behavior in those situations. And as Brunswik (1952) has pointed out, it is possible to utilize verbal reports without falling back upon introspectionism.

   Psychological tests may be considered as a specific example of this general procedure. Test data are essentially self reports or verbalized perceptions of stimulus situations. They are highly useful in attaining knowledge of the meaning or perception of future or subsequent real-life situations by the subject, to the extent that the test situation is similar to or systematically coordinated to the criterion or predicted situation.

2. *Observation of the responses of the general culture group to which a given subject belongs*. It is possible to define a stimulus situation for a given subject on the basis of previous responses by the culture group to which the subject belongs. Obviously, the accuracy or the applicability of such a culture-group definition for a given subject depends upon his relatedness to that group, or the similarity of his past experiences to those of the group members. Snygg and Combs (1949), for example, point out that people who share common roles in a common culture develop common characters in their phenomenal fields and consequently in their behavior. In short, similar social learning will result in similar perceptions of environments.

   It will be seen that the broader the reference group, the less will be the likelihood that its definition of the situation will be useful or accurate for a *given* individual. If one were interested in the meaning of a classroom quiz situation for a particular college sophomore who is also a fraternity member, the responses of the reference group of college sophomore fraternity members might be more applicable than those of college students as a whole, which in turn might be more accurate (that is, predictive) than those of the middle class as a whole, etc.
3. *The clinical method*. This leads to the third procedure, which assists us in coordinating idiographic and nomothetic approaches. In the preceding paragraph the use of culture-group definitions of situations was advocated. Since such definitions will apply only *more or less* to given subjects, they are useful for predictions about differences between *groups* of individuals, but will be unsatisfactory where specific individual prediction of behavior is desired. In the latter case it becomes necessary to reduce the reference points to the unique past experiences of the particular subject. By intensive study of the subject's previous responses in various situations, the personality theorist is able to establish the meaning or potential perception of a situation for a specific subject, and hence to predict subsequent behavior. This procedure, of course, is the clinical method, and the present description of it emphasizes its continuity with nomothetic procedures. More concrete elaboration of the implication of these three general procedures for defining situations will be made shortly.

The preceding discussion has stressed the point that all stimuli are response-defined at some time by either the subject or the experimenter. In view of this homogeneity, it seems unwarranted to establish a. fundamental logical or methodological distinction between S-R and R-R theories. Viewed in this light, the use of constructs referring to a psychological environment would seem to require no special justification. The discussion to this point has also delineated at least the potential compatibility of phenomenological theories with the necessary demand for predictive adequacy.

The Need for a Psychological Data Language

Granting the argument to this point does not at all lead to the conclusion that S-R and R-R theories do not differ in some significant way. The question to be asked is, Wherein is there a difference between these types of theories? The answer seems to

lie in the data language that is favored to describe the situation or environment in which behavior takes place.

There is common agreement among various theorists that psychology thus far has neglected the development of an adequate descriptive terminology for the environment. While personality theorists have been interested for a long time in categorizing the behavioral or internal states of human subjects, they have paid far less heed to developing categories for describing different kinds of situations. Such attempts as have been made are suggestive, but remain limited in usage to particular theoretical orientations, and no widely accepted or universal descriptive terminology for the environment exists at present. It seems to the present author that one difference between the S-R theories and the phenomenological or R-R theories is that the former have heavily employed the data language of physics (despite the reliance on such terms as *cue* and *goal),* whereas the latter have tended toward a more psychological data language. The reliance by the former on physical terms seems to be one of the factors which has contributed importantly to the *appearance* of independent stimulus definition that was discussed above.

Undeniably effective use has been made by S-R theory of the language of physics. Such a data language has the tremendous advantage of being one in which, for historical reasons, maximum reliability or interobserver agreement can be attained, and which involves concepts for which accurate measures have been developed. Nevertheless, reliability alone is insufficient qualification for any language system. What is required is that it be adequate for the purposes and problems of a given science or level of description. Since the real world is neutral with respect to language systems, there is no a priori reason, beyond degree of reliability, for the use of the data language of physics by another science such as psychology. The remainder of this paper will attempt to point out possible reasons why the language of physics has proved unsatisfactory for personality theory, or for psychologists dealing with complex human social behavior, and proposes the development of a psychological data language.

It may forestall misunderstanding to state at this point that our quarrel is not with methodological physicalism, i.e., the insistence on objectivity via denotative reduction or observational reliability, Rather, the critique is aimed at the incorporation into psychology of the *language* of physics. The latter procedure is part of what Brunswik has designated as thematic physicalism, "…the uncritical emulation of the…aims and problem content of physics by other disciplines" (1952, p, 14).

Methodological physicalism in no way implies that the various branches of science must use the same language of description, more specifically the language of physics. Carnap (1949) indicates recognition of the necessity for terms other than physical ones in his distinction between physics and biology. He notes, with respect to the latter science, that "The terms which are used in this field in addition to logico-mathematical and physical terms may be called . . . *biological terms"* (1949, p. 412), Such terms, as well as psychological terms to describe situations, must, of course, be reducible to observable thing-predicates, i.e., to terms which designate properties which can be determined by direct observation. It is in this sense that Carnap discusses the unity of the language of science, while recognizing the absence

of unity of scientific laws. It is congruent with such a position to call for laws which are clearly psychological, i.e., statements of relations between *psychological* terms.

The problem of a data language other than a purely physical one is much more acute for the phenomenological theories dealing with humans than for the S-R. theories which have dealt largely with lower organisms. (*a*) The situations in which human social behavior takes place are far more complex than the typical rat-learning situation. For the latter it has been adequate thus far to employ the language of physics, since the manipulated stimulus variables are often simple physical dimensions such as amount of illumination, intensity of electric shock, etc., and since highly restricted and controlled situations are characteristically employed in such research. We do not imply that S-R approaches have utilized only the language of physics; we are maintaining that a large number of terms from that discipline are employed, and that when extension to complex human social situations is undertaken, such terms will prove inadequate, and more appropriate language will have to be invented. How to describe the situation where a college student is asking a coed for a date is an example; description in terms of the amount of illumination, atmospheric pressure, etc., will contribute little to a predictive analysis of such a complex situation. The Hawthorne studies (Roethlisberger, 1944) provide an excellent example of how a physical description of the stimulus situation in terms of changes in illumination was inadequate to account for the direction of changes in worker productivity. (*b*) Relatively greater variability of the human response repertoire would seem to be another reason for failure of the language of physics in personality theory. A wide variety of potential responses implies a multiplicity of potential definitions of the same situation by different subjects. (*c*) The presence in humans of language and memory, which allow for the symbolization of variables not physically present in the situation though instigated by the present situation, would seem to be a further complicating factor.

It is proposed that one of the immediately pressing tasks for psychology to undertake is the development of an adequate psychological data language to describe the environment. This is a language whose terms have reference to the nature (behavior) of some organism or class of organisms, since the existence and nature of stimuli depend upon the characteristics, needs, habits, expectancies, intelligence, etc., of organisms. It represents a different abstraction from and organization of the basic referential level, or level of observable thing-predicates, than does the data language of physics. A simple example is the term *goal,* which presupposes a directed or striving organism. The same situation, as described physically, would be described differently in psychological terms for different organisms or classes of organisms. Some tentative beginnings in this direction are referred to below.

Rotter (1954) has proposed that situations be described by their cultural meanings in terms of the characteristic reinforcements or goals which are likely to occur in those situations. Since no situation always provides just one kind of a goal, situations may be characterized as mixed, or may be described in terms of the dominant or usual or most frequent goals likely to occur. Situations may also be described as ambiguous or unfamiliar where the expectancies for the occurrence of any particular goal are low. Thus, for prediction at the level of personality, situations may be

described as love and affection situations, the college quiz may be characterized as an academic recognition situation, etc. Rotter goes on to state:

> In this sense people, too, may be thought of as situations; it makes good sense to speak of authority figure situations, heterosexual situations, and so forth when these terms imply that a particular kind of reinforcement is likely to occur. (1954, p. 202).

Murray (1938) has presented a set of terms belonging to the category of Press, which describes the environment or stimulus situation according to the kind of effect—facilitating or obstructing—that it is exerting or could exert upon the organism. Lewin's (1935) terms, such as valence, barrier, etc., are also of this sort.

Chein (1954), too, has suggested a geo-behavioral language, i.e., a set of concepts to describe the real world looked at from a point of view that is concerned with understanding behavior.

With these examples in mind, the question arises as to the reliability or intercommunicability of such descriptions. But this would seem to be the *only* question which legitimately may be raised, despite any feelings of discomfort over these psychological terms. That intersubjectivity of such descriptions can be achieved may be illustrated from a host of psychological research. Mention here may be made of a series of researches (Rotter, 1954) carried out in relation to Rotter's social learning theory, in which characterizations of experimental situations in terms of the potential goals they involve for college students have led to predictions of behavior which have consistently received empirical support.

The development of a psychological language of description might well be enhanced by following the suggestion of McClelland (Bruner, 1951, p. 145) that a phenomenological census be carried out to discover what things and attributes in the environment people look for and attend to in guiding their behavior. Fruitful concepts may also be derived from sociology and anthropology, which disciplines have concentrated heavily upon descriptions, with respect to human behavior, of social or cultural situations. Such descriptive terms will, of course, vary in their relevance for different culture groups and especially for different individuals.

It is the increased and explicit utilization of a psychological data language which enables a *rapprochement* between S-R and R-R or phenomenological theories of personality. Although it may be maintained that all psychological laws are fundamentally R-R laws, nevertheless it does make better sense to speak of S-R laws as the goal of psychology when the definition of S is made in *psychological* terms, and the issue of independence of S is restricted to independence from a particular response in a given situation.

References

Bakan, D. (1953). Learning and the scientific enterprise. *Psychological Review, 60*(1), 45–49.

Brown, D. R. (1953). Stimulus-similarity and the anchoring of subjective scales. *American Journal of Psychology, 66*(2), 199–214.

Bruner, J. S. (1951). Personality dynamics and the process of perceiving. In R. R. Blake & G. V. Ramsey (Eds.), *Perception: An approach to personality* (pp. 121–147). New York: Ronald Press.

Brunswik, E. (1943). Organismic achievement and environmental probability. *Psychological Review, 50*, 255–272.
Brunswik, E. (1952). *The conceptual framework of psychology*, *International encyclopedia of unified science* (Vol. 1, p. 10). Chicago: University of Chicago Press.
Carnap, R. (1949). Logical foundations of the unity of science. In H. Feigl & W. Sellars (Eds.), *Readings in philosophical analysis* (pp. 408–423). New York: Appleton-Century-Crofts.
Chein, I. (1954). The environment as a determinant of behavior. *Journal of Social Psychology, 39*(1), 115–127.
Davis, R. C. (1953). Physical psychology. *Psychological Review, 60*(1), 7–14.
Kantor, J. R. (1924). *Principles of psychology* (Vol. 1). New York: A.A. Knopf.
Lewin, K. (1935). *A dynamic theory of personality: Selected papers*. New York: McGraw-Hill.
Murray, H. A. (1938). *Explorations in personality: A clinical and experimental study of fifty men of college age*. New York: Oxford University Press.
Roethlisberger, F. J. (1944). *Management and morale*. Cambridge, MA: Harvard University Press.
Rogers, C. R. (1951). *Client-centered therapy: Its current practice, implications, and theory*. Boston: Houghton Mifflin.
Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.
Snygg, D., & Combs, A. W. (1949). *Individual behavior: A new frame of reference for psychology*. New York: Harper.
Spence, K. W. (1944). The nature of theory construction in contemporary psychology. *Psychological Review, 51*, 47–68.

Chapter 12
Explaining Behavior and Development in the Language of Psychology

Richard Jessor

The recent upsurge of interest in physiological determinants and physical models of behavior has raised or reopened certain fundamental questions about the logical status of psychology as an autonomous discipline among the sciences. Some of the discussions may fairly be summarized as implying that physiological or physical concepts are in some sense more basic than those of psychology and that, therefore, causal explanation of behavior will ultimately be expressed in those terms. The controversy over the nature of the hypothetical construct (HC) in psychological explanation is a current example. Krech (1950) has insisted that HCs must have neurophysiological reference or locus, and that psychologists should be content to define such things as needs, tensions, or cognitive structures as neural events. While this particular view has been criticized (Bergmann, 1953; Kessen & Kimble, 1952), and there is much agreement that neurophysiological content is irrelevant in HCs (Rozeboom, 1956), the more general orientation—that fundamental explanation will be reductive—continues to be influential.

Psychologists are not alone in being concerned about this problem. Anthropologists such as Kroeber and White have felt called upon to defend the autonomy of their discipline against those who have tried to explain culture in terms of the concepts of psychology or even biology. (White caustically comments that some anthropologists "have sold their culturological birthright for a mess of psychiatric pottage" [1949, p. xix]). In turn, prominent biologists such as Needham, Haldane, Woodger, and Bertalanffy have argued that their own discipline cannot be considered simply an application of chemistry and physics.

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Jessor, R. (1958). The problem of reductionism in psychology. *Psychological Review, 65*(3), 170–178.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_12

Obviously, an inherent attraction of reductive explanation is its implications for possible ways of unifying the separate scientific disciplines. Since the unity of science is an ultimate aim of many scientific workers, the reductive point of view is not likely to be abandoned in the absence of reasonable alternative approaches to that goal. A commitment to reductionism, either because of its implications for the unity of science, or because of the belief that it represents more fundamental explanation, undoubtedly influences the strategy of work of many scientists.[1] For this reason alone it would seem worthwhile to assess the doctrine in some detail.

Some considerations of the reductionism problem have tended to dismiss it. One basis for dismissal is the assertion that the answer to the problem is entirely empirical in nature, depending on the course of future developments of science about which speculation is admittedly dangerous. This view seems unwarranted; while the ultimate relations among the sciences will be an empirical outcome, at any given point in time, the relations among the sciences are legitimate and important questions for logical analysis. Another basis for dismissal, especially where the disciplines involved are psychology and physiology, is the adoption of the reductionistic view as a logical or as in-principle certainty. The soundness of this view, also, is open to question, as will be shown. The purpose of this paper, then, is to examine the problem of reductionism and to try to make a small beginning in separating issues which are logical in character from those which are empirical. In the course of our analysis, it will be contended that there are certain logical barriers to any present-day physiological reductionism.

The Doctrine of Reductionism

The essence of reductionism would seem to include four related general propositions. (*a*) The several disciplines or sciences may be considered as hierarchically ordered from, e.g., physics at the base through chemistry, biology, and psychology, to the social and historical disciplines at the top.[2] (*b*) The second essential aspect of reductionism is the proposition that the terms or concepts and the relations or laws of one discipline may fully and without loss of meaning be translated into or deduced from those of another discipline. (*c*) Such deduction or derivability

[1] Sound empirical work, of course, requires no defense, whether motivated by reductionistic aims or not. Nothing said in this paper should be interpreted as depreciating the value of empirical or theoretical efforts to bridge the gap between disciplines.

[2] Finer discriminations can, of course, easily be made by including the well-known "border" disciplines such as biochemistry or social psychology**.** But the fact that there is no sharp break between the sciences, and that it is frequently difficult to tell where one leaves off and the other begins, need not, in itself, challenge the autonomous existence of the several disciplines. What may be implied by ordering them in a hierarchy from lower to higher will be discussed shortly; for the moment it is only important to consider that this is one of the notions essential to the doctrine of reductionism.

proceeds only in one direction, from lower to higher[3] levels in the hierarchical ordering, and hence the term "reductionism"; terms and laws of the higher discipline are "reduced" to those of a lower one. Thus, in our earlier example, the psychological term "cognitive structure" is considered translatable into—deducible from—terms belonging to neurophysiology. (*d*) The final aspect is the implicit or explicit proposition that the lower the level of terms employed to explain a given phenomenon, the more causal or fundamental or basic the explanation. This is really only a corollary of the first point if certain assumptions about the nature of the hierarchical ordering are made. These four propositions together would seem to constitute the essential meaning of reductionism as a general doctrine. An adherent of that point of view may not, of course, subscribe to all of its aspects.

The primary focus of this paper is upon the issues attending the reduction of psychology to physiology, and our evaluation of the doctrine will for the most part be oriented toward that specific context. Within that context, the following comments are illustrative of the position which supports the doctrine. "Logically and in principle, physiological reduction is a certainty. Every bit of behavior and everything that can, like conscious contents, be defined in terms of behavior has its physiological correlate" (Bergmann, 1953, p. 442); "Relative to the 'molar' (or macro-) account given by behavioristic psychology, the neurophysiological account is a micro-description of the very same events and processes" (Feigl, 1953, p. 623); and finally, "…molar behavioristics is in theory completely reducible to underlying neurophysiological principles…. A completely deterministic neurophysiology must of necessity permit derivation of all molar behavioral laws" (Rozeboom 1956, pp. 261–262). An obvious corollary of these statements is the logical reducibility of physiological principles in turn to those of chemistry and ultimately of physics.

Any challenge to these kinds of statements and their implications can be seen to require both logical and empirical arguments. We shall try to show where each kind is appropriate.

To begin with, to speak of reducing one discipline to another requires that the terms or concepts of the one be distinguishable from those of the other. This is not an easy requirement. Woodger (1952) calls it an interesting methodological question to inquire how one knows what belongs to the language of neurology and what belongs to that of psychology. Similarly, in commenting on the new terms which will accrue as science develops, Hempel (1951) notes that it is by no means certain that each of these terms will be readily classifiable as physical or nonphysical. What

[3] Terms in this paper referring to "position" in the hierarchy of the sciences, e.g., higher-lower, upward-downward, top-bottom, are by no means to imply any valuative judgment. The meaning of position in the hierarchy has been variously specified, for example, as referring to levels of abstraction or levels of integration, or as referring to the order of historical evolution within the universe of the subject matter of the sciences, or even to the order of historical emergence of the sciences themselves (White, 1949). As pointed out later, the concept of levels of science is not an analytically clear one (cf. Kroeber, 1952). For present purposes it is sufficient to take note of the existence in scientific discourse of such a hierarchical concept, and to recognize the traditional general ordering which places the physical sciences at the base, the biological sciences in the middle, and the social sciences at the top of the hierarchy.

seems to be a necessary preliminary for our examination of physiological reductionism is some general criterion for separating or identifying the terms of psychology and physiology. If this is accomplished by defining psychology in a certain way, it should make apparent some logical barriers to the possibility of a physiological reduction.

A Functional Definition of Psychology

Admittedly, the definition of any scientific discipline *is* somewhat arbitrary; despite this, it is certainly possible to obtain adequate agreement on criteria for segregating one discipline from another or for grossly circumscribing the domain of a particular science. Among psychologists there is considerable agreement that the scope and subject matter of concern is the behavior of whole, human[4] organisms. The difficulty with such a general statement is that the term "behavior" is not without ambiguity; psychologists have been notoriously neglectful in providing a systematic definition of a response. This laxness has, it is felt, obscured the conceptual boundary between psychology and physiology. The present discussion of behavior as a psychological concept follows the implicit orientation of all functional behavior theories, and more specifically, the approaches of Kantor (1942), Brunswik (1939, 1952, 1955), and Tolman (1949).

The central point of these approaches is that behavior, *qua* psychological, refers to an organism-environment *interaction* or *relationship*. Tolman (1949) specifically states that the complete identification of any behavior-act requires reference to its relation to particular goal-objects and the intervening means-objects with which it has commerce. Kantor's interbehaviorism makes essentially the same point. In considering the question of where to establish the boundaries of a behavior, Bentley (1941) similarly concludes that behavior must be recognized as a transdermal process or event whose description must immediately and functionally include the environmental and situational settings. Within this framework, then, behavior viewed psychologically is interactional or relational in nature; its specification or identification at the referential level requires the specification of a particular context and a set of relationships thereto. Our definition of psychology, therefore, excludes the study of organisms or physical environments per se, and behavior may not be referred to either alone. The laws of behavior of a discipline so defined refer to the dynamics of organism-environment functional interaction. The terms or concepts of those laws describe what may be called an interaction or behavior space.

This definition of psychology was undertaken as a means of providing a criterion for deciding whether a behavior term, or a law involving such a term, properly belongs to psychology or physiology. Our criterion requires of psychological terms that they have immediate reference to a functionally defined environment or con-

[4] The writer assumes that the study of animal behavior by psychologists is merely propaedeutic to a science of human behavior.

text. Before drawing the implications of these considerations for reductionism, a further comment on this kind of definition may be in order. Some objection may be raised to the relational or transdermal character of the definition in that there is provided no palpable locus for a psychologically defined behavior. Those who raise such a query seem to be operating within what Woodger (1956) picturesquely describes as a "finger and thumb" philosophy of metaphysics, i.e., the notion that a thing is real or exists only if it can in principle be picked up between the finger and thumb. Interactions or relations, though not simple physical objects, are nevertheless real and concrete and can be precisely specified by the conditions and course of their occurrence.

Incomplete Derivability of Terms

It may now be asserted that the reference of psychology, as defined, is profoundly different from that of physiology. The terms and laws of the latter refer to intraorganismic or intradermal processes, or, at most, relations between an organism or its parts and the space defined by physics. They refer, in short, to the functioning of anatomical structures or processes described by body parameters. To state one of the major contentions of this paper, the absence in contemporary physiology of any systematic terms for describing the functional environment or context of behavior would seem to preclude, *on logical grounds alone*, any complete reduction of psychology to physiology. These necessary and sufficient conditions for the terms of psychology cannot be described in physiological (or physical) terms alone. This "incompleteness" of the lower discipline's language, in being able to specify only the physiological correlates but not the environmental correlates of a behavior or response, constitutes the logical impediment. This point obviously requires elaboration and further support.

Let us take as an example an occurrence described in common-sense, nonsystematic language—the wave of an arm as two persons pass each other—and compare the systematic descriptions of it by the two disciplines being discussed. The systematic language of the physiologist enables him to rely on only body parameters or physical terms. He may thus speak of arm-displacement, changes in muscle-tension, metabolic rate, blood-volume distribution, and neural reactivity. In none of these terms is it systematically possible to take cognizance of the social context. On the other hand, the psychologist may describe the event as waving a greeting to a friend, or even, since micromediation is generally of little interest to him, and equifinality generally taken for granted[5] simply as greeting a friend. If psychological laws refer to interactions between organisms and functionally defined environments, only these latter descriptions of events can logically lead to the achievement of such laws. A discipline such as physiology, lacking such contextual

[5] That is, the same psychological event may be served by (partly constituted of) an almost infinite variety of different physiological events.

terms, cannot therefore be considered *logically* equivalent; hence its adequacy cannot be guaranteed, even in principle, as a complete reduction base for psychology.

One of the strongest empirical sources of support for some of these considerations may be found in the research analyses of Campbell (1954, 1956) and Smedslund (1953, 1955) evoked by the recent controversy over "what is learned." As mentioned earlier, the term "response" has been conceptually neglected; this neglect seems, in turn, to be related to the inadequate attention given to the environment or context of behavior by many psychological theorists (Jessor, 1956 in this connection). Brunswik (1939, 1952, 1955), however, is one of those who has called attention to the problem in his emphasis upon distal achievement in the adjustment of an organism to its ecology. Beginning with this orientation, and appraising a variety of learning experiments, especially those dealing with transposition, both Campbell and Smedslund conclude that the learned response must be defined in environmental terms in order successfully to accommodate—predict—the actual research findings. Campbell states that "…the learned response is to be essentially defined in terms of a shift in the organism-environment relationship rather than a motor response defined in terms of organism or body parameters alone" (1956, p. 105).

Scrutiny of the literature on reductionism has showed only meager if any attention to the specific issue raised in this paper. Two writers may be cited whose remarks, made in other contexts, are pertinent to the logical soundness of our contention. In his Tarner lectures (1952), Woodger stresses the role of environment as a determinant at various biological levels from zygote to whole human organism. He rejects the body-mind dualism in favor of speaking about persons and developing a person-language. The notion of person requires, for its very definition, environmental specification, and the latter, he observes, requires words belonging to sociology. To treat persons otherwise, i.e., in terms of body parameters, loses sight of this fact: "But this is the only way in which we can treat them so long as we confine ourselves to the physical sciences, since these sciences do not provide a vocabulary for speaking about them in any other way" (1952, p. 261). Hempel has discussed the problem in relation to the possible derivability of all the laws of empirical science from those of physics (a logical corollary of physiological reductionism). Affirming that not all the terms of empirical science are definable by means of the vocabulary of physics, he asserts that "…a law containing, say, certain biological terms cannot, in general, be logically derived from a set of physical laws, which contain no biological terms at all…" (1951, pp. 320–321).[6] Both of these writers seem in support of our point of view that there are logical barriers to any thorough-going physiological reductionism. The barriers reside in the absence of terms in the "lower" discipline which would enable the logical derivability of descriptions of the functional context of behavior and, thereby, the derivation of the laws of psychology.

[6] To achieve such a derivation requires some law connecting the biological concepts with the physical concepts. "But those connecting laws are not purely physical in character" (Hempel, 1951, p. 321). And they have the character of *empirical* laws.

At least two kinds of questions can be raised about our analysis and are worth consideration at this point. The first of these is the possibility of overcoming the logical problem we have raised simply by incorporating into physiology the category of terms we have suggested that it lacks. This is frequently what is implied by the phrase "in principle" in assertions about the possibility of reductionism. But as Sellars (1956) has pointed out in another connection, this makes the entire problem an empty truism in that it involves a "tacit redefinition" of physiological theory to encompass psychology. Such a redefinition is a statement about the *future* state of the sciences involved, and it therefore transfers the discussion from logical to empirical grounds. That is, the question of whether a future physiology will be able to encompass psychology depends entirely upon the nature and direction of ongoing empirical development of *both* disciplines. It is to be noted here, too, that the meaning of reduction is always and only relative to a given state of the disciplines concerned. To suggest adding terms to physiology in order to make psychology deducible from it implies the "elevation" or "expansion" of physiology just as much as it implies reduction of psychology, (In connection with these issues, see the Meehl-Sellars discussion of the logic of emergentism, 1956.) Finally, it seems unlikely that scientific theory develops or advances by simple accretion of the terms of other theories. We will return to this point shortly, in considering reductionism and the unity of science.

The second kind of question which may be raised is implicit in the earlier quote from Bergmann. He bases his affirmation of the logical certainly of physiological reductionism on the proposition that "…everything that can be defined in terms of behavior has its physiological correlate" (1953, p. 442). The essential point of this position would be that the environmental reference of behavior upon which we based our definition must, if effective, be represented within the organism in its physiology or, especially, neurophysiology. This is, in a sense, a proximal approach to behavior rather than a distal one. Certain arguments may be brought to bear against this position, such as the absence of strict one-to-one proximal-distal correlation—e.g., in perception—and the theoretical significance of vicarious functioning or equifinality. The major reply which may be made, however, is that the "recovery" of actual behavioral phenomena from physiological correlates requires the conceptual coordination of these correlates to environmental contexts. Thus the issue raised originally reappears, the necessity for terms to represent or describe the context of behavior. That such coordination can or will be accomplished in the future is an empirical rather than a logical problem, and therefore not a logical certainty.

Our discussion of reductionism up to this point has concerned itself largely with the logical problems inherent in the second and third essential aspects of the doctrine as outlined at the start of this paper. Proper attention to the first and fourth aspects would extend the paper beyond practical space limitations. Instead, we shall simply sketch some of the issue requiring attention.

The first aspect has to do with the hierarchical ordering of the several scientific disciplines. Despite the widespread acceptance of the hierarchy notion—witness the frequent reference to "levels" of science, the employment of terms like "basic" to contrast disciplines, and the characterization of certain disciplines as "emergent"

from others—it is not an analytically clear concept. Kroeber (1952) remarks on the absence of any adequate attempt to examine systematically what the levels constitute or mean in terms of a theory of knowledge. Most of the discussions of what is meant by levels resolve into two positions which are generally considered to exclude one another. One point of view conceives the levels of science to be a matter of methodology only, i.e., to refer to the kinds of procedures employed by the various sciences, the size of their units of analysis, etc. The other point of view considers the levels to refer to substantive differences in the events or phenomena dealt with by the various disciplines. Psychologists will be familiar with this contrast from the Littman-Rosen (1950) analysis of the molar-molecular problem. A third possibility is that these two positions are correlated rather than mutually exclusive, namely, that substantively different events require particularly appropriate methodological procedures for useful analysis.

Each of these three views has certain implications for the doctrine of reductionism. For example, the methodological position would seem to favor the doctrine, since it assumes the events or phenomena to be the same and only the descriptions of them to be different. If only the descriptions differ, e.g., in size of unit, it should be logically possible to reduce the larger units to their smaller constituents. On the other hand, to assert a substantive difference between levels would seem to be unfavorable to reductionism. The events or phenomena of higher levels are considered different from—not the same ones as—those of the lower levels, and therein lies the difficulty in reducing descriptions of one kind of event to those of another kind. No vitalistic or dualistic considerations need be involved in speaking of events as different; certainly organic events may in general be separated from inorganic ones, for example. Feigl's double-language theory (1953) of the mind-body problem espouses the methodological position in insisting that the factual reference of the mentalistic, behavioristic and neurophysiological languages or levels of description is identical, i.e., involves the very same events and processes. Others concerned with the problem seem to adopt the substantive position; thus White (1949) speaks of culture as a distinct class of events, a distinct order of phenomena. Woodger tentatively concludes that "…perhaps, in spite of superficial appearances, person-acts and behaviour [defined in physical or physiological terms], are not quite the same things…" (1952, p. 284). The position taken by the present writer in differentiating psychological from physiological terms may be seen as compatible with the substantive view. What may account for substantive differences, whether the substantive vs. methodological distinction itself is useful or defensible, the issues involved in emergentism, and any fuller analysis of the implications of the hierarchy of sciences for reductionism must be deferred for discussion elsewhere.

The final aspect of the reductionism doctrine has to do with the idea that causal explanation is advanced by the employment of terms of a lower-level discipline. In psychology, this notion identifies causal explanation with neurophysiological reference. The key reason for this approach would seem to be the belief in the higher levels as simply derivable from, or applications of, terms and laws of lower disciplines. Once this idea is abandoned, causal explanation could just

as logically proceed upward to sociological and anthropological concepts. Knowledge of causality is probably best divorced from the hierarchy of sciences notion and considered instead to vary with the scope of the network in which any concept is embedded.

We have tried to examine some of the logical and empirical problems related to the doctrine of physiological reductionism. Some of the considerations have led us to doubt that psychology can be reduced to physiology, though certainly many of the questions are of an empirical sort. Nothing thus far asserted in any way denies the possibility or the desirability of the unification of the sciences, the synthesis of psychology and physiology. What is questioned is that such synthesis must proceed by reduction, by one discipline devouring or incorporating the other. All of the sciences are developing, and their influence upon each other does not only proceed upward from physics. Bertalanffy (1951, 1952), for example, sees certain biological developments, such as the notions of open systems, requiring extensions of the conceptual system of physics. Unity of science for him refers only to the structural isomorphy of laws in the different fields of science, the approach of General Systems Theory. Psychologists can also see the conceptual system of physiology as influenced by the data and concepts of psychology (Hebb, 1949). Thus, unification of the sciences may proceed from above as well as from below. The continued autonomous development of each of the sciences will at least serve to specify the properties required of any synthetic unifying scheme. This is probably part of what Brunswik had in mind when he wrote: "Insistence on reduction as a universal goal of science can only result in blighted spots on the landmap of scientific enterprise" (1955, p. 237).

Summary

This paper has had as its aim the instigation of renewed attention to the doctrine of reductionism, especially in terms of its implications for the relationship of physiology and psychology. Despite the empirical character of the ultimate answer, it is asserted that the questions involved in the doctrine may properly be the concern of a logical analysis. After briefly sketching four propositions which constitute essential notions of reductionism, the argument focused upon the logical possibility of a complete translatability or derivability of the concepts and laws of psychology from those of physiology. The central contention was that the latter, lacking terms to describe the behavioral environment, was logically inadequate as a base for a thoroughgoing reduction of the former. The remainder of the paper commented upon the relationship of the doctrine to the idea of a hierarchical ordering of the sciences and to the possibility of achieving a unification of science.

Note The author was a Social Science Research Council postdoctoral fellow at the University of California during the time in which this paper was prepared.

References

Bentley, A. F. (1941). The behavioral superfice. *Psychological Review, 48*, 39–59.

Bergmann, G. (1953). Theoretical psychology. *Annual Review of Psychology, 4*, 435–458.

von Bertalanffy, L. (1951). Problems of general systems theory. *Human Biology, 23*(4), 302–312.

von Bertalanffy, L. (1952). *Problems of life*. New York: Wiley.

Brunswik, E. (1939). The conceptual focus of some psychological systems. *Journal of Unified Science, 8*, 36–49.

Brunswik, E. (1952). *The conceptual framework of psychology*, *International encyclopedia of unified science* (Vol. 1). Chicago: University of Chicago Press. (no. 10.)

Brunswik, E. (1955). In defense of probabilistic functionalism: A reply. *Psychological Review, 62*(3), 236–242.

Campbell, D. T. (1954). Operational delineation of "what is learned" via the transposition experiment. *Psychological Review, 61*(3), 167–174.

Campbell, D. T. (1956). Adaptive behavior from random response. *Behavioral Science, 1*(2), 105–110.

Feigl, H. (1953). The mind-body problem in the development of logical empiricism. In H. Feigl & M. Brodbeck (Eds.), *Readings in the philosophy of science* (pp. 612–626). New York: Appleton-Century-Crofts.

Hebb, D. O. (1949). *The organisation of behavior*. New York: Wiley.

Hempel, C. G. (1951). General systems theory and the unity of science. *Human Biology, 23*(4), 313–322.

Jessor, R. (1956). Phenomenological personality theories and the data language of psychology. *Psychological Review, 63*(3), 173–180.

Kantor, J. R. (1942). Preface to interbehavioral psychology. *Psychological Record, 5*, 173–193.

Kessen, W., & Kimble, G. A. (1952). "Dynamic systems" and theory construction. *Psychological Review, 59*(4), 263–267.

Krech, D. (1950). Dynamic systems, psychological fields, and hypothetical constructs. *Psychological Review, 57*(5), 283–290.

Kroeber, A. L. (1952). *The nature of culture*. Chicago: University of Chicago Press.

Littman, R. A., & Rosen, E. (1950). Molar and molecular. *Psychological Review, 57*(1), 58–65.

Meehl, P. E., & Sellars, W. (1956). The concept of emergence. In H. Feigl & M. Scriven (Eds.), *The foundations of science and the concepts of psychology and psychoanalysis* (pp. 239–252). Minneapolis, MN: University of Minnesota Press.

Rozeboom, W. W. (1956). Mediation variables in scientific theory. *Psychological Review, 63*(4), 249–264.

Sellars, W. (1956). Empiricism and the philosophy of mind. In H. Feigl & M. Scriven (Eds.), *The foundations of science and the concepts of psychology and psychoanalysis* (pp. 253–329). Minneapolis, MN: University of Minnesota Press.

Smedslund, J. (1953). The problem of "What is learned?". *Psychological Review, 60*(3), 157–158.

Smedslund, J. (1955). *Multiple-probability learning: An inquiry into the origins of perception*. Oslo, NO: Akademisk Forlag.

Tolman, E. C. (1949). *Purposive behavior in animals and men*. Berkeley, CA: University of California Press.

White, L. A. (1949). *The science of culture: A study of man and civilization*. New York: Farrar, Straus.

Woodger, J. H. (1952). *Biology and language: An introduction to the methodology of the biological sciences including medicine*. Cambridge, UK: Cambridge University Press.

Woodger, J. H. (1956). *Physics, psychology, and medicine: A methodological essay*. Cambridge, UK: Cambridge University Press.

Chapter 13
The Perceived Environment in Personality Variation

Richard Jessor

In the psychology of personality, and in psychology as a whole, the work of recent years has made clear a fact of far-reaching significance—that behaviorism and its canons of scientific procedure have failed in what must be considered the primary task of psychology, the scientific reconstruction of the human person as we know him in ordinary life.

The grounds on which this conclusion is based can be gleaned piecemeal from a careful reading of the literature of the past 5 years. There is, for example, the dissatisfaction with simplistic models and the consequent transformation of ideas from biological to psychological in the realm of motivation (White, 1959). There is also the reconstruction which has taken place in the philosophy of science, in the liberalization of the operationism dogma and the shift from a verifiability criterion of meaning to the more permissive and fertile notion of confirmability (Feigl, 1959). But nowhere does the warrant for this conclusion emerge as clearly and compellingly as in the 36 essays in Study I (the first three volumes) of Sigmund Koch's *Psychology: A Study of a Science*. In a remarkably penetrating epilogue, Koch, noting the "growing stress—both internal and extrinsic—against behaviorist epistemology" (Koch, 1959, p. 768), concludes that "*the results of Study I set up a vast attrition against virtually all elements of the Age of Theory code*" (Koch, 1959, p. 783). Koch goes further to emphasize the resulting theoretical openness of the contemporary psychological scene:

> For the first time in its history, psychology seems ready—or almost ready—to assess its goals and instrumentalities with primary reference to its own indigenous problems…. The

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Jessor, R. (1961). Issues in the phenomenological approach to personality. *Journal of Individual Psychology, 17*(1), 27–38. (©1961, renewed 1989).

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_13

> more adventurous ranges of our illimitable subject matter, so effectively repressed or bypassed during recent decades, are no longer proscribed (Koch, 1959, p. 783).

This theoretical openness I take as both a welcome and a challenge to a phenomenological psychology. The welcome resides in the fact that the liberalization of behaviorist epistemology has occurred in precisely those directions espoused over the years by phenomenologically-oriented workers in personality or in psychology at large; that is "it is the S-R theorists who have moved and the man-preoccupied systematists who have (relatively) stood still" (Koch, 1959, pp. 762–763). The challenge lies in the fact that opposition to behaviorism and dwelling on its shortcomings are no longer sufficient to vindicate phenomenology. There exists, instead, a requirement that phenomenologically-oriented theories develop concepts and techniques adequate to the furtherance of their program. Systematic attention must be given, for example, to the solution of methodological problems involved in coping with experiential and behavioral data within a single framework.

With this general perspective in mind, I want to examine some of the main issues in subject matter, orientation, and method involved in phenomenological approaches to the study of man. Consideration of these issues will, hopefully, provide more detailed elaboration of the current psychological scene and, thereby, increased justification for a phenomenological orientation.[1]

Experience as Subject Matter in Psychology

The refusal or reluctance to treat experience as legitimate data for systematic analysis has recognizably been a main contributor to the attenuated image of man which has been inherited from recent decades of psychological formulations. Asch (1959) speaks of the man of social psychology as a "quite dwarflike creature," and Allport (1955), continuing his long struggle on this point, refers to the current image of man as a "caricature." What is communicated in these characterizations is a restless discontent with recent views of man, dissatisfaction with the impoverishment reflected by the omission of the relatively unique characteristics of human functioning: the rich diversity of thought and feeling, the awareness of being and the awareness of other beings and of *their* awareness of being, the wide-arching concern with the future, the effort after meaning, especially in relatedness with others, and the quest for accomplishment in life.

[1] It will forestall misunderstanding if the author acknowledges that his discussion of both the phenomenological and the behaviorist orientations will rely only upon certain modal or traditional characteristics of these approaches. Careful consideration of any specific theorist or any particular work within either approach would, of course, require lengthy qualification. The central concern here is with the historically-evident differences between the approaches in definition of variables, delimitation of data, and empirical strategy. The affirmation of a phenomenological orientation in this paper encompasses only those issues discussed.

A major focus on experience *as data* is one of the main differentia of the phenomenological orientation, which recognizes man as an experiencing being and concentrates, in contrast to behaviorism, on this subject-matter domain as a major problem for analysis and systematization.

Agreement with this position, more explicitly now than previously, may be found in statements of quite varied theorists. Thus Köhler refers to "our subject matter which (to a high degree) is human experience" (1959, p. 733); Rogers calls the task of research "the persistent, disciplined effort to make sense and order out of the phenomena of subjective experience" (1959, p. 188); and Murray affirms his interest in "direct expressions of and reports of interior experiences…as indications of occurrences that are intrinsically important" (1959, p. 10). Murray stresses the need for treating experience as a *dependent* variable—something to be predicted—rather than simply as an intervening variable in the prediction of some non-experiential occurrence.

Experience and the Problem of Objectivity

The positivistic demand for objectivity was interpreted as automatically excluding experiential data, since, unlike overt behavior or other external physical events, it was not, by definition, amenable to intersubjective direct observation. That this position may have been based on less than satisfactory logic is now becoming clearer. As Perkins (1953) has noted, the positivistic approach has not provided a careful analysis of intersubjectivity. The rejection of experience as suitable data for science was predicated on the fact that experience is private. Yet the concept of intersubjectivity—agreement between observers of some public event—depends *entirely* upon experience, the experience of the observers. There seems to be no way to skirt the role of experience, even in the intersubjective agreement process.

It seems that the positivistic concern for objectivity led to a confusion between publicity and reliability, the latter being contingent upon *procedures for arriving at agreement* rather than upon the nature of the data. Experience can be shown to be a reliable and repeatable consequence of certain manipulations of the environment, and hence can be studied objectively when the term has this broader meaning. Looked at in this way—conceiving of experience as part of a network of lawfully related facts—it is no longer incompatible with contemporary views of objectivity.

As Feigl notes, mental states "are no longer inaccessible to confirmation, i.e., to indirect verification" (1959, p. 124). Feigl goes further in undoing the restrictions of early positivism with an open-armed welcome to all that was previously anathema to the objectivity requirement: "The reintroduction of introspectionism, the new concern with the phenomenal field, the clinical attention to subjective experience, the studies in social perception, etc. seem to me to indicate…an advance along the spiral ... of the evolution of the scientific outlook" (1959, p. 123).

Reductionism and the Problem of Objectivity

The early construal of objectivity with its stress on direct verification and direct and unambiguous linkage between concepts and empirical referents led, in addition to the banishment of experience, I believe, to a three-pronged flight into reductionism[2] in an effort to maintain methodological objectivity. The three forms of reductionism were: (*a*) behavioral—the employment of arbitrary (physical) micro-units of stimuli and responses, unlikely to enable *meaningful* constitution by the human organism; (*b*) physiological—employment of units logically remote from experiential significance for the human organism; and (*c*) phylogenetic—the use of lower organisms for whom language is, of course, unavailable.

The reduction strategy of psychological research was purchased at the cost of theoretical significance and representativeness to everyday life. The possibility that there was "no road back" from premature reductionism to the reconstitution of human behavior seems to have been of little concern until recently.

Two points are important here. (*a*) The reduction of any phenomenon into analytic units is part of the fabric of science. If reduction is to be successful, i.e., to enable reconstitution of the properties of the molar phenomenon, such properties should play a role in determining the nature of the reductive units. The importance of reduction "from above" has been emphasized frequently. Woodger (1952) stresses the significance of beginning the analysis of anything with big units, in order that nothing important is omitted.

In the physical sciences, Hawkins points out that there is a question whether atomic theory or statistical mechanics would have been developed to their present levels without the guidance offered them by already developed bodies of phenomenological theory in chemistry and thermodynamics. "The essential point in both cases is that 'fundamental' theory is fruitful only as its application is guided by profound study, in their own right, of the phenomena which occur at levels of higher complexity" (Hawkins, 1945, p. 226).

(*b*) The relatively uncritical assumption of generality of animal findings to human behavior in the behaviorist search for objectivity is indeed startling when placed side by side with empirical studies showing the limitations of generality even of findings derived from humans themselves. But here too, changes are occurring which give full measure to the uniqueness of man, especially his possession of language, and the importance of studying him directly—again a part of the phenomenological orientation. The comparative psychologist Beach goes so far as to say: "These various considerations lead me to wonder whether it might not be desirable to explicitly restrict the concept of psychology solely to the study of human behavior" (Beach, 1960, p. 1).

[2] The problem of reductionism has been discussed in greater detail elsewhere (Jessor, 1958).

Meaning in the Definition of Variables

In a paper written some years ago (Jessor, 1956) it was argued that the rapprochement of S-R psychology with phenomenological approaches might pivot around the definition of the stimulus *in psychological or meaningful terms*, since all stimuli were basically response-defined. The traditional reliance by S-R theory on physical definitions of stimuli was said to lend a spurious objectivity which could be maintained only at the cost of confinement to research with lower organisms or molecular processes. If this point were now generalized to include *response* variables as well, we would then be in agreement with some crucial generalizations in Koch's summary of Study I.

First, there is noted the unanimous emphasis of all the personality and social psychologists on *psychological* definition of major systematic independent and dependent variables—involving specification of their inferred *meaning* for the organism. Second, even in S-R psychology, we find Guthrie asserting that stimuli must "have meaning for the responding organism" and denying "that the psychological description of behavior can be made in physical terms" (Guthrie, 1959, pp. 165–166). Finally, we may quote Koch:

> If stimuli and responses are acknowledged to depend for their identification on the perceptual sensitivities of human observers, then the demand for something tantamount to a language of pointer readings…must be given up.... If, further, the requirement is asserted that S be specified in a way which includes its inferred meaning for the organism, then *any* basis for a difference in epistemological status between an S-R language and what has been called 'subjectivistic' language is eliminated (Koch, 1959, pp. 768–769)

The emphasis of the foregoing remarks is on the reference to *meaning* in the definition of variables. In so far as this obtains, to that extent has experience—not as a datum but as a frame of reference—become a central concern of psychological formulations.

Invariance and the Level of Psychological Analysis

The concern with experience, with meaning, or with definition of variables by reference to central states, would seem to have bearing on an issue of the most fundamental importance to a science of human nature—the search for high-order regularities or invariances. In oversimplified terms, the question is at what level, or between what kinds of conceptual end-terms, may *psychological* laws be most strategically sought?

As already pointed out, scrutiny of the properties of molar human behavior has been limited, and, instead, a strategy has, in large part, been taken over, by many workers, from essentially extrinsic sources—the natural sciences. That strategy has involved a search for invariance between *physical* descriptions of independent

(stimulus) and dependent (response) variables, and cross-cutting this classification, between proximal stimulus and proximal response variables. The conceptual focus, then, has been upon *specifics* of input and output. Seeking invariances in human behavior at a higher level of complexity than has generally characterized this behaviorist strategy is now supportable on several grounds.

Perhaps most fundamental from an empirical point of view is the evidence for vicarious functioning[3]—the mutual substitutability of mediating processes—as a characteristic of organismic functioning, especially at higher levels of complexity. This substitutability may occur on both the input and the output side of the behavior process. Tolman, for example, in the final systematic statement of his career, asserts that: "What (the organism) learns is, in short, a *performance* and each such performance can usually be carried out by a number of different motor skills" (Tolman, 1959, p. 133). On the stimulus side exactly parallel considerations can be seen to obtain as, for example, in the concept of *task* presented by Ryan (1958) in a recent discussion of motivation. The notion of task, like the notion of performance, is not identifiable with any particular physical description of events, and can be mediated by a large variety of stimulus events. To the extent that vicarious functioning is a property of higher organismic functioning, as it clearly seems to be, to that extent is the search for invariance through the traditional emphasis upon peripheral and proximal definition unlikely to succeed.

This position has been maintained primarily by Brunswik (1955) in his emphasis upon—to use his own words—the study of distal function and its grand strategy, or the study of achievement and of its macromediation. Brunswik was well aware of the relation between an emphasis upon distal function and the role of psychological field concepts, concepts which imply a phenomenological orientation. In discussing the encapsulation of Lewin's system into the life space with relative neglect of peripheral or proximal input and output, Brunswik poignantly remarks: "Encapsulation into the central layer…may be the least harmful of all the limitations which possibly could be imposed upon psychology. It may actually mean concentration upon the most essential phase in the entire process of life and of its ramifications. It may be the thing psychology has always been really after throughout its history" (Brunswik, 1943, p. 266). Heider, calling attention to this same issue, suggests that: "Only by referring (peripheral inputs and outputs) to the central layer can one obtain laws related to each other in a wider system. In themselves they…cannot be expected to have stability and invariance" (Heider, 1959, p. 111).

These considerations would seem to promise little for efforts after behavioral laws at molecular or micromediational levels, the levels of concentration of the behaviorist strategy of the past. On the contrary, invariance would seem most likely to obtain at the level of the "grand strategy" of the organism, a level of distal functioning. To cope effectively with distal functioning, input and output have to be defined with reference to an organism, and this type of definition is congruent with the postulation of central concepts such as life space, or meaningful environment.

[3] The author is indebted to Kenneth R. Hammond for providing insight into the significance of the concept of vicarious functioning (cf. Hammond, 1955).

Another way of looking at this problem leads similarly to the conclusion that psychological invariance most likely resides in or derives from the psychological field. In concentrating on micromediational processes, the scientist is faced with a large number of specifically differing items of input and output, each of which has a low probability of occurrence as compared with the probability of occurrence of the constitutive *class* to which the item might belong. The possibility of establishing laws on the basis of stimulus classes and response classes is thus greater than by seeking for regularities between specific items. The nature of the classes returns us to our concern for person-defined variables, i.e., one approach to constituting the classes in a way which has psychological import is to define them on the basis of similarity of *meaning* of the items for the person or persons concerned. Feigl (1959) has raised this general argument in considering the possibilities of predicting particular versus gross features of behavioral events, and Roby (1959), in a recent paper, alludes to this general problem in discussing the necessity for indifference or fungibility of most qualitative properties of events if general laws of behavior are to be achieved.

In general then, phenomenological concepts would seem to bear some relation to the nature of a successful strategy of law-finding in psychology.

The Conceptual Status of the Individual

Phenomenologically-oriented approaches have traditionally laid great stress upon the individual, his uniqueness, and the importance of constructing an adequate account of him as an individual. The idiographic emphasis, while not, as far as I can see, a logically necessary consequence of the phenomenological orientation, stems largely from tradition and the strong clinical commitments of many of the adherents of that approach. They hold that study of the individual should be the *starting point* of the long process of building a science of psychology if that science is ultimately to be capable of accounting for individual behavior.

In contrast, behavioristically-oriented approaches have given remarkably little attention to the study of individuals and have considered that the individual should enter the long science-building process *only at its terminus.* The individual is expected then to be reconstituted at the intersection of a set of established relations among variables. There are several problems of methodology centering on this issue, the ultimate solution of which is admittedly not fully clear.

Kurt Lewin frequently described his efforts as an attempt to build a set of concepts which could lead to general laws of "exceptionless validity" and permit, *at the same time*, the construction of an individual case. Unique events—persons—are thereby considered lawful events and possible of derivation from the system of such concepts. This general view is not, on its face, different from the view held by the nomothetists. One difference, in practice however, is that *in the generation of his concepts*, Lewin had frequent recourse to individual study, and relied upon such study as an important *discovery context.*

There are serious problems with the whole strategy of attempting to constitute individuals from general laws, as these are sought in much of current research. I refer to the widely-used methodology of arriving at generalizations, and hypothesizing behavioral mechanisms, on the basis of studies of *group averages.* The usual approach is to build generalizations and even to establish parameter values on the basis of significant mean differences between averaged data from experimental groups. But it has been pointed out frequently that such an approach may not yield explanatory principles appropriate to the behavior of any *individual* organism. For example, Cotton notes that Hull's equations involved parameter values characteristic of a population of similarly-treated, comparable animals, "but not necessarily characteristic of every (or perhaps any) animal in the population" (Cotton, 1955, p. 312). Estes (1960), in an experimental tour de force, shows how the very foundation-principle of learning, the associative process, has probably been misconstrued as an incremental rather than an all-or-none process by virtue of reliance upon group-average learning data rather than individual learning data.

Regarding the construction of *individual* laws of behavior and of their generality, what seems required is to consider the individual, as Rosenzweig has suggested, "as a world of events constituting a population, subject to both statistical analysis and dynamic conceptualization" (1951, p. 213). To this individual universe of events Rosenzweig has given the term "idioverse." Conceived in this manner, there seems no in-principle objection to studying individuals for the purpose of establishing individual laws. Said otherwise, there is no intrinsic implication that study of an individual can only be for applied interests.

The basic question, then, is what is the *generality across persons* of the established functional relation, irrespective of whether it is initially derived from study of an individual or from study of a group. The basic answer must be sought empirically. To dismiss individual study as *a priori* incapable of generality is unwarranted.

The Role of Naturalistic Observation

Field theory and Gestalt psychology have been characterized as, in part, a revolt "against the prevailing tendency to prejudge the nature of psychological phenomena by imposing *a priori* dicta concerning the properties they must have" (Cartwright, 1959, p. 11). This statement pinpoints a major characteristic of the phenomenological position in psychology, a commitment to generating the terms of a language of description and analysis by direct observation of indigenous psychological phenomena—the phenomena of everyday experience and action of human organisms in social settings over time. Although observation probably never can proceed without some prior ordering categories, there is a difference of some importance in the source and nature of these prior conceptions, in the tentativeness with which they are held, and in the readiness to modify or discard them in light of continuing observation. There is an increasing refrain in contemporary psychology to the effect that further progress is contingent upon significant observational analyses of behavior

under natural conditions. One writer, for example, concludes that: "Careful observation, recording, and measurement of naturally occurring events and of 'experiments of nature' will for a long time to come be the most important *source* of the significant problems of psychology" (Cartwright, 1959, p. 81).

The aversion to naturalistic observation seems to be waning. The gradual dropping of the extrinsically-derived variables of physics, which may violate the natural topography of psychological phenomena, is one important sign. Perhaps the comment of Guthrie best illustrates the point: "Practically all research results in prediction, but if it is merely the prediction of how rats will behave under certain complicated conditions found only in a number of psychological laboratories, we have not furthered knowledge or science" (Guthrie, 1959, p. 173).

If this, and the preceding sections of this paper, suggest that failure to make substantial progress toward the reconstruction of human nature may be partly attributed to reliance upon inappropriate concepts, then it may not be presumptuous to suggest that the current "attitude of deduction" be at least partly replaced by an "attitude of discovery" of appropriate variables.

The "attitude of discovery" would have to focus upon experience, and upon behavior and environment—but the latter two in what Murray refers to as "man-pertinent" terms. The success of the ethologists is encouraging to those who have been disillusioned with the ambiguities of clinical or anthropological observation.

A commitment to naturalistic observation of human activity does not, of course, mean that psychology has to surrender its status as an experimental science. Rather it suggests that the variables utilized in experimental inquiry emerge from or be referred to observations of naturally occurring behavior, in a continuing effort to remain in contact with the empirical world. It suggests too, that the designs of experiments give more attention to representing the natural context of human behavior—a context of linguistic symbols and social interaction.

Concluding Remarks

The foregoing represents an effort to consider seven issues relevant to the phenomenological orientation in personality and psychology. They are not to be considered independent of each other by any means. None of the issues is seen as fully resolved, and all are seen as requiring further philosophical and psychological analyses. A critique of the phenomenological orientation—for example, of its frequent concentration upon inner feelings at the expense of adequate conceptualization of the environment (cf. Dailey 1960)—has been omitted as being beyond the scope of the present paper.

The various implications for research suggested by the logic of these considerations can be touched upon only briefly, (*a*) There seems to be need for development of a more adequate methodology of observation if the latter is to play a central role in furthering the phenomenological program and avoid the pitfalls of sheer subjectivism. The efforts of Barker and Wright (1954) seem to be a useful begin-

ning. (*b*) Experiments are needed which allow the natural characteristics of behavior to emerge. In general, the important point here is the avoidance of unnecessarily restricted experimental paradigms—restricted in time-span; restricted in the possibility for choice among alternative responses, including the manifestation of creativity; or restricted in scope of the field and, therefore, of the number of variables allowed to vary in the situation. (*c*) There is need for large-scale, long-term research which investigates significant categories of behavior within the full context of the social forces from which it emerges. We can only agree with Murray that "no theoretical system constructed on the psychological level will be adequate until it has been embraced by and intermeshed with a cultural-sociological system" (Murray, 1959, p. 45). The events in which the personality theorist is usually interested are extended in social time and are part of a web of interpersonal actions. The very perimeters or boundaries of these macroevents or proceedings can only be defined or articulated by reference to the social context.

One point of this paper is that the current psychological scene provides both a welcome and a challenge. In these merely programmatic comments about research, and in the theoretical gaps left in the body of the paper, lies part of the challenge. Slaying the behaviorist dragon is no longer sufficient to gain the laurels of phenomenological knighthood. Only hard work will do.

Note An abbreviated version of this paper was read at the symposium on "Phenomenological Conceptions of Personality" at the annual meeting of the American Psychological Association, Chicago, Illinois, September 2, 1960.

Preliminary work on the paper was done while the author held a faculty fellowship from the University of Colorado Council on Research and Creative Work. Completion of the paper was supported by NIMH Grant No. 3M-9156. I am indebted to my colleagues Walter Emmerich, Kenneth Hammond, Shephard Liverant, Julian Rotter, and Forrest Williams for their cogent criticisms of an earlier draft of the paper.

References

Allport, G. W. (1955). *Becoming: Basic considerations for a psychology of personality*. New Haven, CT: Yale University Press.

Asch, S. E. (1959). A perspective on social psychology. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 3, pp. 363–383). New York: McGraw-Hill.

Barker, R. G., & Wright, H. F. (1954). *Midwest and its children: The psychological ecology of an American town*. Evanston, Ill: Row, Peterson.

Beach, F. A. (1960). Experimental investigations of species-specific behavior. *American Psychologist, 15*(1), 1–18.

Brunswik, E. (1943). Organismic achievement and environmental probability. *Psychological Review, 50*, 255–272.

Brunswik, E. (1955). Representative design and probabilistic theory in a functional psychology. *Psychological Review, 62*(3), 193–217.

Cartwright, D. (1959). Lewinian theory as a contemporary systematic framework. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 2, pp. 7–91). New York: McGraw-Hill.

Cotton, J. W. (1955). On making predictions from Hull's theory. *Psychological Review, 62*(4), 303–314.
Dailey, C. A. (1960). Natural history and phenomenology. *Journal of Individual Psychology, 16*(1), 36–44.
Estes, W. K. (1960). Learning theory and the new "mental chemistry". *Psychological Review, 67*(4), 207–223.
Feigl, H. (1959). Philosophical embarrassments of psychology. *American Psychologist, 14*(3), 115–128.
Guthrie, E. R. (1959). Association by contiguity. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 2, pp. 158–195). New York: McGraw-Hill.
Hammond, K. R. (1955). Probabilistic functioning and the clinical method. *Psychological Review, 62*(4), 255–262.
Hawkins, D. (1945). Review of the book theory of games and economic behavior, by John von Neumann and Oskar Morgenstern. *Philosophy of Science, 12*(3), 221–227.
Heider, F. (1959). On Lewin's method and theory. In *On perception, event structure, and psychological environment: Selected papers*. *Psychological issues*, v. 1, no. 3 (pp. 108–109).
Jessor, R. (1956). Phenomenological personality theories and the data language of psychology. *Psychological Review, 63*(3), 173–180.
Jessor, R. (1958). The problem of reductionism in psychology. *Psychological Review, 65*(3), 170–178.
Koch, S. (1959). Epilogue. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 3, pp. 729–788). New York: McGraw-Hill.
Köhler, W. (1959). Gestalt psychology today. *American Psychologist, 14*(12), 727–734.
Murray, H. A. (1959). Preparations for the scaffold of a comprehensive system. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 3, pp. 7–54). New York: McGraw-Hill.
Perkins, M. (1953). Intersubjectivity and Gestalt psychology. *Philosophy and Phenomenological Research, 13*(4), 437–451.
Roby, T. B. (1959). An opinion on the construction of behavior theory. *American Psychologist, 14*(3), 129–134.
Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships as developed in the client-centered framework. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 3, pp. 184–256). New York: McGraw-Hill.
Rosenzweig, S. (1951). Idiodynamics in personality theory with special reference to projective methods. *Psychological Review, 58*(3), 213–223.
Ryan, T. A. (1958). Drives, tasks, and the initiation of behavior. *American Journal of Psychology, 71*(1), 74–93.
Tolman, E. C. (1959). Principles of purposive behavior. In S. Koch (Ed.), *Psychology: A study of a science* (Vol. 2, pp. 92–157). New York: McGraw-Hill.
White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*(5), 297–333.
Woodger, J. H. (1952). *Biology and language: An introduction to the methodology of the biological sciences including medicine*. Cambridge, UK: Cambridge University Press.

Chapter 14
Continuity in Psychosocial Change from Adolescence to Young Adulthood

Richard Jessor

A fundamental challenge for conceptualizations of psychological development has been to make provision for both continuity and change (Bloom, 1964). Although often posed as an irreconcilable antinomy requiring theorists to cast their lot on one side or the other, continuity and change are best seen as two aspects of a single dialectical process. In that process—whether called psychosocial development, personal growth, or individual maturation—the occurrence of even major transformations of individuality do not preclude conservation of the past; the latter can readily be seen, for example, in the timing of the transformation, in its contours and scope, and in its meaning for the person. In short, even when psychosocial change is pervasive and radical, it tends to be neither adventitious nor arbitrary but, rather, consequential—a predictable and systematic outcome of what has gone before.

In emphasizing the stability of change, our intent in this chapter is to illuminate the continuities that accompany, underlie, or account for change. The perspective adopted is one that recognizes and makes room for sharp directional shifts and novel emergents in development while seeking also to trace the psychosocial threads that are being raveled out through time.

Although change is ineluctable, most psychological research has been framed in a way that precludes not only its analysis but, more important, its very observation. Even in the developmental literature, the study of change has remained elusive, a casualty of the commitment to cross-sectional design and of the traditional fore-

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Jessor, R. (1983). Chapter 18: "The stability of change: Psychosocial development from adolescence to young adulthood." In D. Magnusson & V. L. Allen (Eds.), *Human development: An interactional perspective* (pp. 321–341). New York: Academic Press.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_14

shortening required by the laboratory experiment. Happily, there has been a reemergence of interest in naturalistic observation of life-span development and an increased reliance upon longitudinal or panel designs. These trends promise to restore the study of change—especially longer-term change over significant portions of the life trajectory—to a central place in psychosocial research.

This chapter, a report from a longitudinal study that has followed cohorts of adolescents and youths over a 12-year time period well into young adulthood, has several aims. The first is to add to the store of empirical knowledge about the magnitude and direction of psychosocial change among youth during the decade of the 1970s. Toward this end, we have plotted developmental curves for a number of personality, perceived environment, and behavior attributes; they provide descriptive information about the "natural" course of growth and change among our participants. The second aim is to show that, while such change is significant and pervasive, it is also systematic and predictable, that is, stable. Toward this end, three types of analyses are presented: stability coefficients across a 6- or 7-year time interval for the measures of a set of psychosocial attributes; prediction, across that same time interval, of *differential* change on the basis of an antecedent psychosocial profile; and prediction of variation in the timing of a major developmental transition, becoming a nonvirgin, from prior personality, perceived environment, and behavioral characteristics.

A third aim of the chapter is more general, namely, to show the usefulness of the dimension of *psychosocial conventionality-unconventionality* in accounting for the course of psychosocial development—at least for this portion of the life span, among our particular samples, over this historical period. And the final aim is also a general one, to demonstrate the value of considering *both* person and environment characteristics in any attempt to gain a grasp on the developmental process.

A Prospective Study of Problem Behavior and Psychosocial Development

An overview of the larger, longitudinal study will be helpful as context for the later analyses (for more detail, see Jessor & Jessor, 1984). The research has been carried out in two separate phases, each of them longitudinal. The first phase has already been reported in a number of papers and in a recent book (Jessor & Jessor, 1977). It involved cohorts of seventh-, eighth-, and ninth-grade students, both male and female, who were followed across four annual testings from 1969 to 1972; it also involved male and female cohorts drawn from the freshman class in the college of arts and sciences of a major university who were followed for four successive years from 1970 to 1973.

In its initial phase, the research was concerned with the early and late years of adolescence and with the life tasks and transitions that mark its course. The central focus was on problem behavior, for example, marijuana involvement, excessive alcohol use, precocious sexual activity, and delinquent-type behavior, and on the

role such behavior plays in the normal process of psychosocial growth and development. A major aim of the research was to test the usefulness of an explanatory framework—Problem Behavior Theory—that relies upon both personality and environmental concepts in accounting for variation in problem behavior in youth.

After the initial longitudinal phase was completed, 1972 for the junior high school cohorts and 1973 for the college cohorts, there was a hiatus in the research during which there was no contact with any of the participants. In 1979, the second phase of the research, the Young Adult Follow-Up Study, began. Contact with all of the participants was renewed after extensive efforts to locate their whereabouts. The seventh-, eighth-, and ninth-graders ($N = 432$) had reached the ages of 23, 24, and 25, and the college youth ($N = 205$) had reached the age of 28. Of the 634 former participants available from the initial phase (three had died in the interim), fully 596 resumed participation in the research, a follow-up retention rate of 94%. That percentage is all the more noteworthy given the total absence of contact in the intervening 6 or 7 years and the fact that renewed participation meant filling out a 65-page questionnaire that required an average time of 2.5 hr and, for many, took as long as 5 hr to complete.

Another wave of data was collected in 1981, thereby providing two data points within young adulthood to connect with the four data points yielded by the initial adolescence/early youth phase. Retention between the 1981 and the 1979 waves was 96%. Thus, the overall retention rate across all six data points and across the 12-year time span is 90%. Since much of it is still to be analyzed, the 1981 data will not be dealt with in this chapter.

In its follow-up phase, the research continued its concern with problem behaviors, including their personality and environmental correlates, and with psychosocial development in general. But it also began an exploration of several new areas reflecting the life tasks of young adulthood: marriage or entering into committed relationships, childrearing, work and career, leisure interests, stable friendship networks, etc. Although each phase of the research can be seen as a separate, self-contained, longitudinal study of a stage of the life trajectory, it is when the two phases are taken together that they make possible the exploration of developmental issues of the sort this paper is concerned with. These include tracing the linkages or continuities *between* life stages, here between adolescence/youth and young adulthood; examining the predictability of young adult outcomes from antecedent information gathered in adolescence; and identifying possible adolescent "risk factors" that can signal the likelihood of problems in behavior and adjustment later on in life.

Psychosocial Change from Adolescence to Young Adulthood

The developmental span covered by the research design, from the youngest cohort aged 13 in 1969 to the oldest cohort aged 30 in 1981, is a substantial one, including nearly all of the second and third decades of life. More important, it is an age range in which personal psychosocial growth and change are known to be rapid and

pervasive. In addition, it is a period within which the environmental contexts of daily life shift markedly, especially in relation to school, home, and parental involvement. Thus, the younger cohorts had moved from junior high school to senior high school during the initial phase, and most of those participants were beyond their school years and out into the world of work by the time of the second phase (ages 23–25). The freshman cohort had moved through college or had dropped out during the initial phase, and those participants were for the most part beyond further education and much involved with family roles and careers by the second phase. Finally, the historical period of the research, 1969–1981, was one by the end of which major societal change was apparent, including the damping of youthful protest, the broad accommodation to new patterns of sexual relationships and drug use, and the increased preoccupation of young people with economic well-being and societal acceptance. Given the nature of these three different arenas of change—personal, environmental, and historical—it would be reasonable to expect that change could be a predominant characteristic of the psychosocial trajectories plotted across the data points between 1969 and 1979.

In the trajectories presented here, the effort has been made to select a set that would map all three systems of Problem Behavior Theory: personality, the perceived environment, and behavior. The first six Figures deal with value on achievement, value on independence, social criticism, alienation, tolerance of deviance, and religiosity; all are from the personality system. The next two Figures deal with perceived friends' approval of drug use and perceived friends models for drug use; both are from the proximal structure of the perceived environment system. Of the next two Figures, and last of this group, the one plotting deviant behavior is from the problem-behavior structure, and the one plotting church attendance is from the conventional-behavior structure of the behavior system. Each Figure includes the curves for the high school sample and for the college sample with the sexes combined. (In general, we have found that developmental change for each sex is essentially parallel to that for the other sex within both the high school and college samples).

Although the trajectories bear detailed consideration, especially in regard to the measures involved, the number of items in each measure, and the degree to which the measures are identical or may differ somewhat at the different points of time, our purpose here will be served by taking note of the most obvious trends and by remarking on their implications within the framework of Problem Behavior Theory. The key concern, of course, is with the extent and direction of developmental change between adolescence/early youth, on the one hand, and young adulthood on the other, that is, between the 1972/1973 and the 1979 data points. Over that time period, the high school cohorts went from ages 16, 17, and 18 to ages 23, 24, and 25, and the college sample went from age 22 to age 28.

With respect to the personality system measures, there was an increase in value on achievement, a decrease in value on independence, a decrease in social criticism, a decrease in alienation, an increase in intolerance of deviance, and a decrease (high school sample) or no change (college sample) in religiosity. Wherever change occurred across the 1972/1973 versus 1979 data points it was significant at the .001

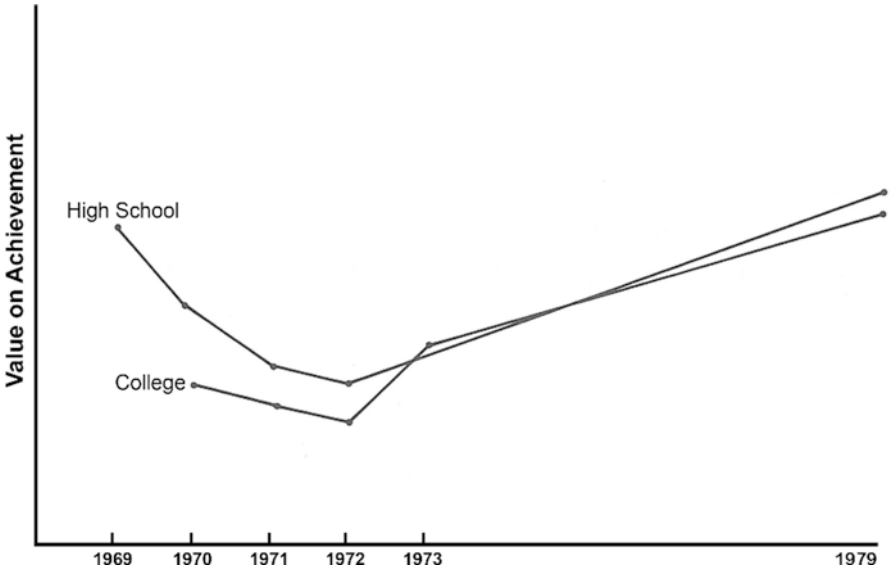

Fig. 14.1 Change in value on achievement over time

Fig. 14.2 Change in value on independence over time

Fig. 14.3 Change in socially critical attitude over time

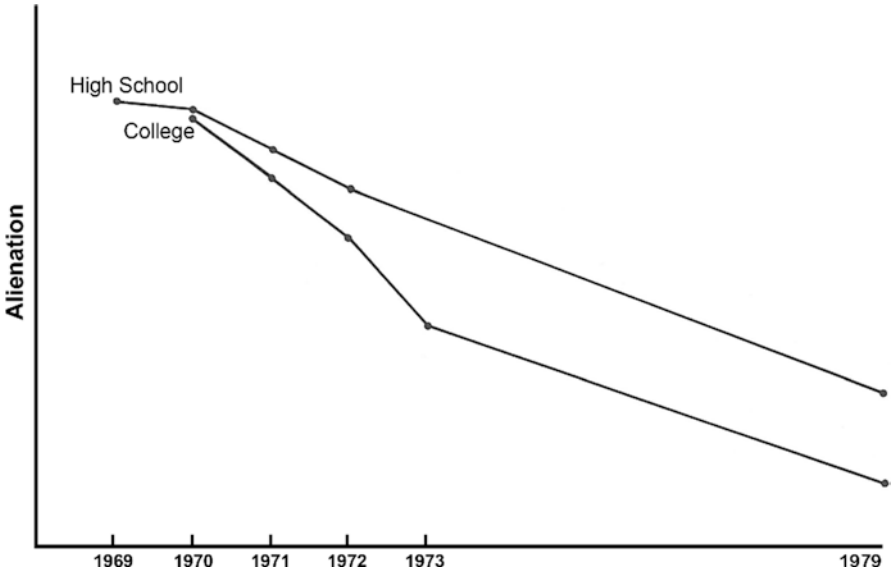

Fig. 14.4 Change in alienation over time

Fig. 14.5 Change in intolerant attitude toward deviance over time

level for both the high school and college samples, the only exception being religiosity. More important, every one of the significant changes is in the direction of conformity proneness according to Problem Behavior Theory (again excepting religiosity for the high school sample). That is to say, the course of personality development across the developmental and historical interval examined is theoretically away from involvement in problem behavior and toward commitment to conventional behavior.

Most important, and in some cases striking, is that this developmental trend between 1972/1973 and 1979 is an actual *reversal* on several measures of the prior developmental trend that obtained between 1969 and 1972 for the high school and between 1970 and 1973 for the college samples. Thus, value on achievement, which was declining in the initial phase of the research, has shown an increase in the second phase; value on independence, which was increasing in the earlier phase, has now declined; and *in*tolerance of deviance, which was previously declining, has now increased beyond even its earliest and formerly highest level. Those earlier directions of change were all theoretically deviance-prone; it is that direction that has actually been reversed with development into young adulthood. The decline of social criticism and the continuing decline in alienation, although not clear reversals, buttress this evident shift toward conventionality. It is only the continuing decline in religiosity for the high school sample that is discrepant from this overall pattern of personality change (for the college youth, religiosity levels off rather than declining).

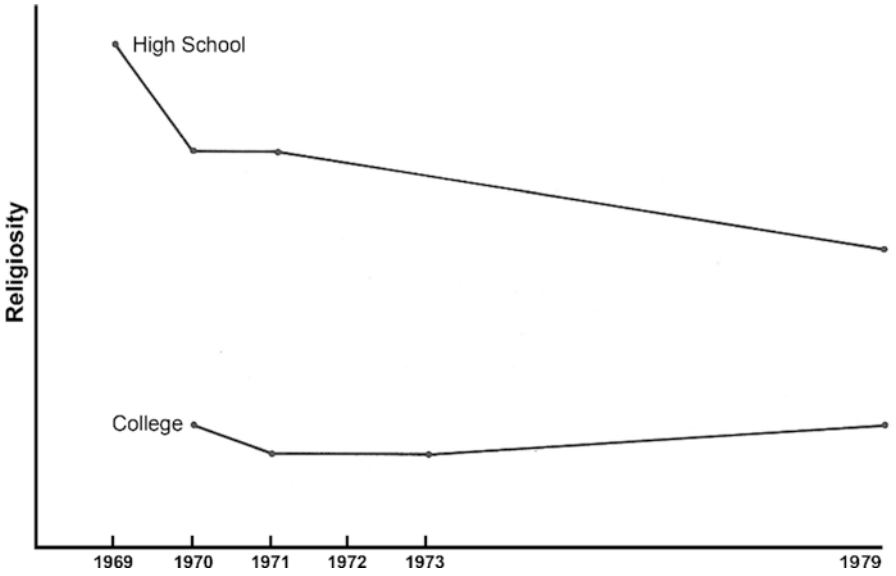

Fig. 14.6 Change in socially critical attitude over time

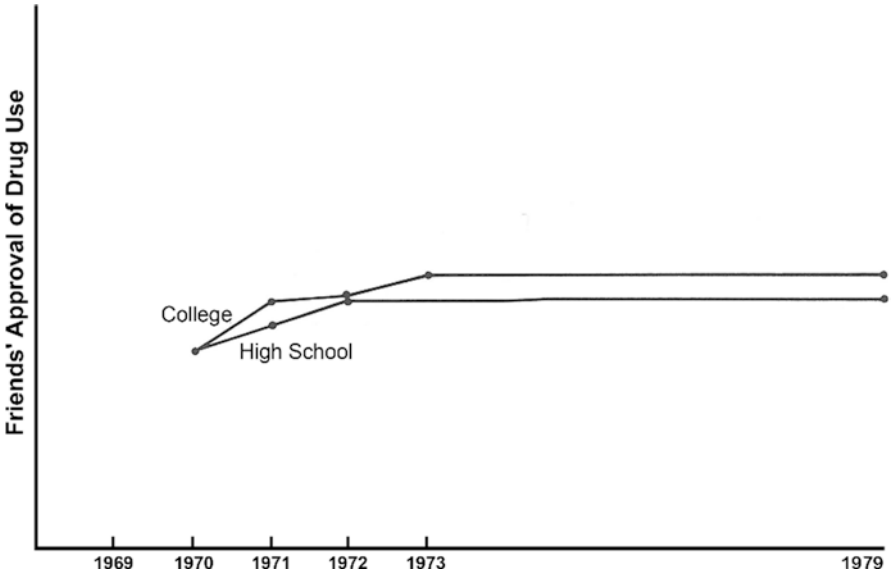

Fig. 14.7 Change in friends' approval of drug use over time

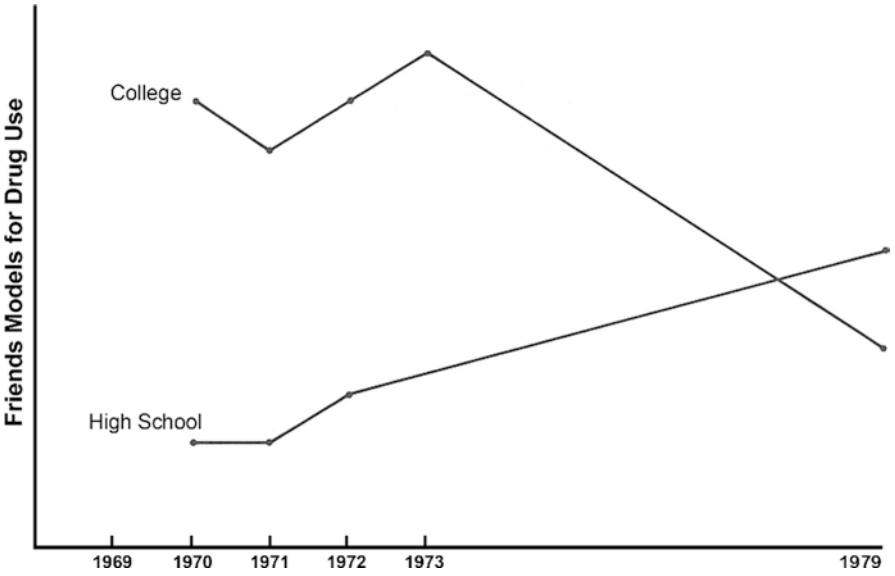

Fig. 14.8 Change in friends models for drug use over time

Turning to the two measures of the proximal structure of the perceived environment, we can see that perceived friends' approval of drug use has leveled off in the 1972/1973–1979 interval after consistently increasing in the prior period, and perceived friends models for drug use has decreased significantly for the college sample while continuing its increase for the high school youth. The very different trends for the two samples on this latter measure is unusual in our data; what it may reflect is a major difference in the extent of social environment shift that takes place after the college years in comparison to that after the high school years. In any event, it is only for the high school sample and only on that measure that deviance proneness can be said, theoretically, to be increasing. For the college sample, the trend on this perceived environment measure is again a reversal of the preceding trend, a phenomenon seen earlier on several of the personality measures, and the change is in the conformity-prone direction.

Change on the measure of self-reported deviant behavior shows exactly the developmental character that would be theoretically consonant with the main changes already noted for the personality and perceived environment variables. There is a significant decline in deviance between adolescence/youth and young adulthood for both samples and, especially for the high school sample, a reversal of the trend seen in the previous period. On church attendance, there is a slight nonsignificant increase for the college youth and a continuing decline (paralleling their decline on religiosity) for the high school sample.

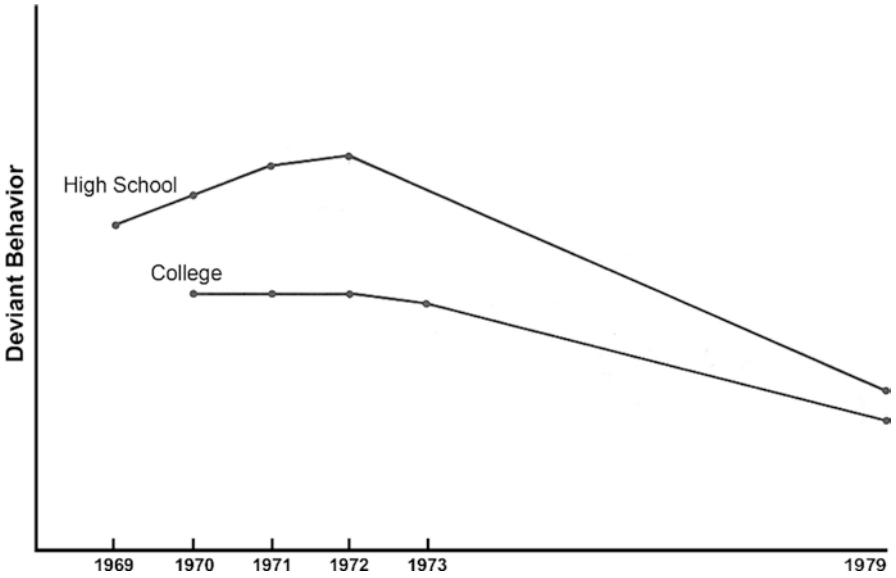

Fig. 14.9 Change in deviant behavior over time

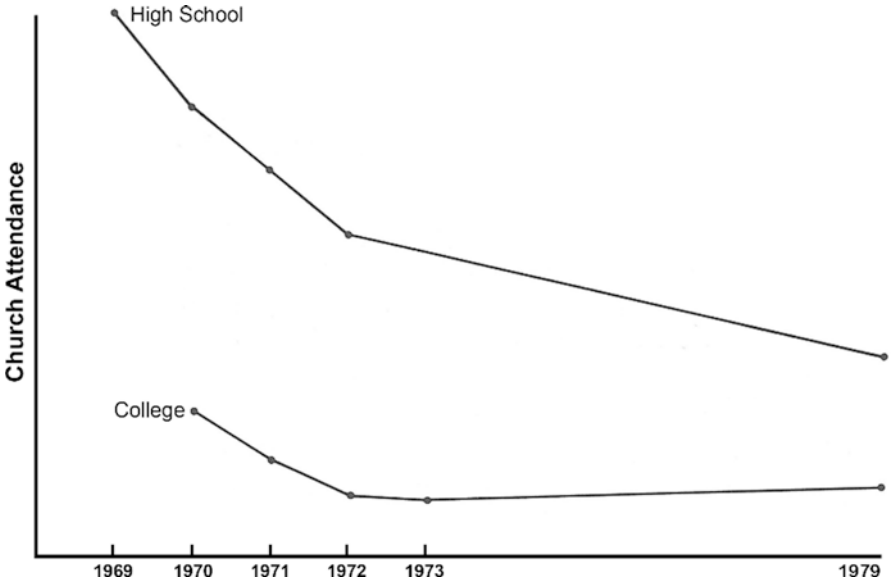

Fig. 14.10 Change in church attendance over time

It is clear, in summary, that significant psychosocial change has taken place between adolescence and young adulthood. Although change was not unexpected, given the life stages being dealt with and the period in history during which the data were collected, these descriptive findings add significantly to our empirical knowledge about development, at least in these cohorts. What is especially intriguing about the data is that *the main direction of change is toward greater conventionality* and away from problem-behavior proneness. This reversal of the main direction of change that was shown on these very same measures during adolescence suggests a rather strong contrast between adolescence as a deviance-prone life stage and young adulthood as a conformity-prone stage of life for these cohorts. What is also intriguing is the theoretical consonance that is evident in the developmental changes occurring in each of the three theoretical systems: personality, the perceived environment, and behavior.

Although this empirical documentation of psychosocial change over time shows it to be significant and pervasive, it is not possible to determine whether such change is an invariant function of development, a reflection of the particular historical period involved, or an interaction between cohort and development. The key purpose of documenting these group changes, beyond their intrinsic interest, is to permit the analyses of continuity and stability that follow.

The Temporal Stability of Changing Psychosocial Attributes

The degree to which there is continuity or stability in change can be observed through several different windows. The first of these involves a traditional perspective on the question of stability, the reliance upon correlations between measures of the same variable taken at two different times, that is, stability correlations. Such correlations can yield evidence that, even in the context of such overall group change as was shown earlier, the amount and direction of individual change over time are neither arbitrary nor unsystematic. They indicate the degree to which the *relative* position of individual participants on a particular measure remains invariant over time despite the change in the mean for the group as a whole. Thus, they represent one kind of stability that can be identified during the process of change, namely, the stability of individual differences. Related inquiries have been presented by Dusek and Flaherty (1981) and, for preadolescents, by Backteman and Magnusson (1981).

Stability coefficients for a set of the psychosocial variables included in Problem Behavior Theory are presented in Table 14.1. These data are relatively unique: They cover rather different birth cohorts, the high school and college samples; they involve a rather long time interval; they focus on the little-studied developmental period between adolescence and young adulthood; and they include measures of personality and of the perceived environment as well as of behavior.

The data in Table 14.1 are raw correlations between the 1972 or 1973 measure and the 1979 measure of each variable. Such correlations are obviously attenuated

Table 14.1 Stability coefficients between the 1972/1973 and the 1979 psychosocial measures in both high school and college samples—young adult follow-up study

	High school sample				College sample			
Measure	Males ($N = 172$)		Females ($N = 231$)		Males ($N = 86$)		Females ($N = 106$)	
Personality system								
Value on achievement	.08	(.12)[a]	.10*	(.15)	.37****	(.54)	.31****	(.53)
Value on independence	.22***	(.59)	.23****	(.74)	.09	(.25)	.10	(.33)
Value for affection	.25****	(.42)	.22****	(.36)	.35****	(.45)	.24***	(.37)
Expectation for achievement	.24****	(.32)	.12**	(.15)	.21**	(.36)	.15*	(.22)
Expectation for independence	.22****	(.43)	.10*	(.29)	.06	(.19)	.21**	(.93)
Expectation for affection	.29****	(.46)	.22****	(.32)	.34****	(.51)	.27***	(.41)
Self-esteem	.46****	(.66)	.42****	(.60)	.59****	(.80)	.46****	(.65)
Internal-external control-political	.32****	(.68)	.25****	(.46)	.30***	(.44)	.34****	(.64)
Internal-external control-general	.15**	(.38)	.02	(.05)	.26***	(.55)	.37****	(.70)
Social criticism	.24****	(.47)	.29****	(.52)	.52****	(.72)	.46****	(.63)
Alienation	.37****	(.57)	.42****	(.62)	.50****	(.70)	.42****	(.58)
Tolerance of deviance	.33****	(.41)	.37****	(.47)	.42****	(.57)	.52****	(.66)
Religiosity	.53****	(.61)	.45****	(.51)	.65****	(.80)	.73****	(.89)
Sex-role attitude	—[b]		—[b]		.60****	(.77)	.36****	(.46)
Perceived environment system								
Relative parent versus peer influence	.12*	(.17)	.23****	(.32)	.31***	(.44)	.30****	(.45)
Parental approval of drug use	.20***		.27****		.43****		.32****	
Friends' approval of drug use	.27****		.21****		.35****		.54****	
Friends models for drug use	.28****		.20****		.44****		.42****	
Behavior system								
Deviant behavior/ past year	.30****	(.47)	.29****	(.45)	.33****	(.67)	.20**	(.35)
Church attendance/ past year	.40****		.42****		.60****		.33****	

*$p \leq .10$
**$p \leq .05$
***$p \leq .01$
****$p \leq .001$

[a]Correlations in parentheses have been corrected for attenuation for those measures that are multiple-item scales for which the reliability can be ascertained

[b]The sex-role measure was not available in 1972 for the high school sample

by the unreliability of the measures and are therefore conservative estimates of stability over time. Correcting for attenuation yields the correlations shown in parentheses for the multi-item scales whose internal reliability can be determined.

The overriding impression to be gained from the data in Table 14.1 is that there is considerable stability across time for nearly all of the measures drawn from Problem Behavior Theory. In nearly all cases, the correlations are statistically significant, and, in a number of instances, they are substantial in magnitude. When it is kept in mind that the time interval involved—6 or 7 years—is a very long one, that this portion of the life trajectory is considered to be one of major growth and transformation, that the environmental context of life during this period is itself likely to have changed markedly, and that the general social and historical background has also shifted, the stability represented by these correlations is even more impressive. In relation to the psychosocial change that was demonstrated at the group level in the preceding section, it is clear from these correlations that there is nevertheless considerable consistency and stability within that process of change. The position of individual participants relative to the distribution of scores tends to be conserved under change over time. Thus, while the general direction of psychosocial change has been toward greater conventionality, those who were initially least conventional remain less conventional as young adults and those who were initially most conventional remain more conventional relative to the rest of the participants.

There are, in addition to this key conclusion about stability, several other aspects of the data in Table 14.1 that are worth noting. First, the magnitude of the stability coefficients tends to be somewhat higher for the college sample than for the high school sample, suggesting, perhaps, that there is greater stability across a later portion of the developmental trajectory than across an earlier portion (see Schuerger, Tait, & Tavernelli, 1982, for similar findings with other personality questionnaires). This finding would, of course, be consonant with most theories of individual development. Such an inference needs to be held tentatively since the two samples in the present study were drawn from quite different populations and differ on other attributes besides age. Second, stability seems greater for the major attitudinal-type variables than for the others, for example, self-esteem, social criticism, alienation, tolerance of deviance, religiosity, and sex-role orientation. Although this may be an artifact of their generally greater length and reliability as scales, it may also imply that consistency is greater for more generalized cognitive orientations. Third, it is of interest to note that in the two cases where we have direct parallels between a personality measure and a behavior measure—between religiosity and church attendance as one example, and between tolerance of deviance and deviant behavior as another—there is greater temporal stability for the *personality* measure than there is for the behavior measure. Finally, it is worth emphasizing that there is significant stability on measures from all three systems of Problem Behavior Theory: personality, the perceived environment, and behavior. In short, these coefficients, taken together, would seem to suggest the stability of *individuality* across a significant segment of the life span.

The Prediction of Differential Psychosocial Change

There is yet another window that provides a quite different vantage point from which to view the stability of change. Given that psychosocial change has been demonstrated for our samples as a whole over the 1972/1973–1979 time interval, and given that the individuals in those samples have maintained their relative positions to a significant degree, the question that remains is whether there has been *differential* change during that interval and, if so, whether it is systematically linked to antecedent characteristics. Insofar as a pattern of prior characteristics can be shown to be related to variation in the amount, magnitude, or rate of developmental change, there is another evidential basis for the stability of change.

Awareness of the overall shift in our longitudinal data from deviance-proneness in adolescence to conformity-proneness in young adulthood, and awareness of the popular characterizations of youth at the end of the 1970s as having become much more conventional than before, led us to ask whether the shift toward conventionality was a generalized phenomenon, or whether there are segments of youth among whom the shift is greater or more pronounced than it is in other segments. What about those adolescents or youth, for example, who were the least conventional, the most radical: Have they, at least, held on to that position, or have they, too, gotten caught up in the pendulum swing toward conventionality?

The approach we took to answering that question was to devise an Index of Conventionality to summarize the personality and perceived environment profile for each participant at the end of the initial phase of the research, 1972 for the high school sample and 1973 for the college sample. By trichotomizing that antecedent index, it was possible to establish three 1972/1973 groups in each sample: a group that was highly conventional (High); a group that was medium in conventionality (Medium); and a group that was low in conventionality, that is, our most unconventional participants (Low). It then became possible to plot the trajectories of psychosocial change between 1972/1973 and 1979 for the High, the Medium, and the Low groups separately. Different developmental trajectories for the three groups would implicate the role played by the antecedent pattern of conventionality and thus would provide support for the predictability, consistency, or stability of differential change.

Before turning to those trajectories, it is necessary to say something more about the Index of Conventionality. The index includes four measures from the personality system (social criticism, sex-role attitude [available for the college sample only], religiosity, and tolerance of deviance) and four measures from the perceived environment system (friends models for drugs, friends' approval of drugs, friends models for religion, and perceived friends' strictness). Initially, a separate, four-item Personality Conventionality Index and a separate, four-item Environmental Conventionality Index were developed. Exploration of the relation of these two indexes to a number of criterion measures showed them to have very similar patterns, and the correlation between the two indexes was better than .5 in both samples for both sexes. It seemed preferable, therefore, to combine the eight measures into

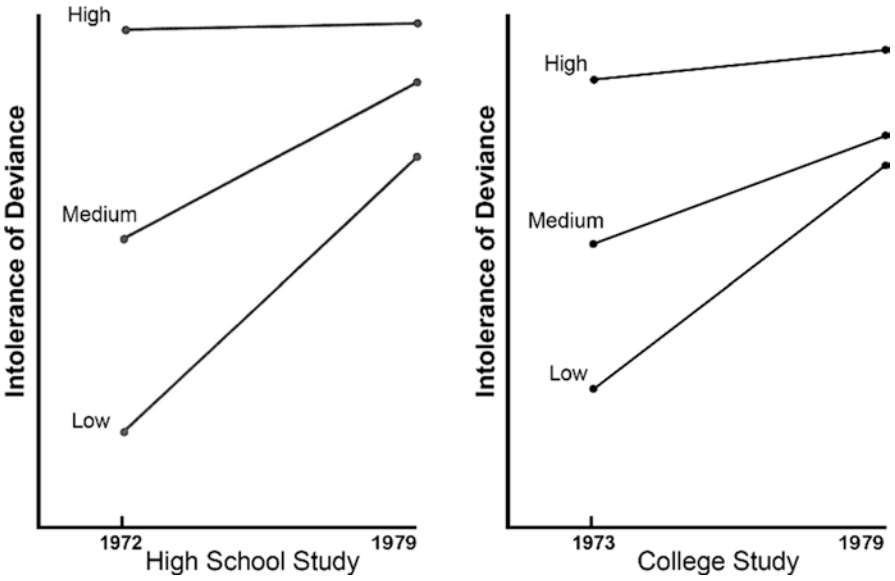

Fig. 14.11 Differential change in intolerant attitude toward deviance over time

a single Index of Conventionality that would map both the personality and the perceived environment domains and yield a broader, more comprehensive, and more reliable appraisal of conventionality at the end of the initial phase of the research. The Index thus represents the joint influence of personality and perceived environment aspects of conventionality, that is, the degree to which both personal dispositions and contextual supports and opportunities constitute a coherent constellation promoting conformity-proneness or controlling against deviance-proneness.

Although constructed as an index rather than a scale, the Index of Conventionality has very good psychometric properties, with alpha reliability of .74 and .76 and a nearly optimal homogeneity ratio of .29 and .29 for the high school sample and the college sample, respectively, sexes combined. There is also abundant support for the construct validity of the combined Index of Conventionality in relation to a large number of the 1972/1973 cross-sectional criterion measures and the 1979 longitudinal criterion measures.

It is possible now to turn to an examination of the relation between antecedent conventionality, as classified by the Index, and variation in the course of subsequent psychosocial development. The developmental trajectories for the High, Medium, and Low conventionality groups on the measure of attitudinal tolerance of deviance are presented for the high school and college samples separately in Fig. 14.11.

The findings apparent in Fig. 14.11 are interesting and provide clear evidence of *differential* developmental change linked to variation in antecedent person-environment conventionality. Considering the trajectories for the high school sample first, we can see that the High conventionality group was most intolerant of

deviance in 1972 (as expected, since that measure is actually a component of the index) and it has remained very intolerant to 1979; there is *no* significant developmental change for this group on this measure. By contrast, the Low conventionality group which was least *in*tolerant of deviance in 1972 *has* changed significantly by 1979, *in the direction of greater intolerance*. The same direction of significant change is true also for the Medium conventionality group. Although all three groups have retained their relative position in the distribution—as we would have expected from what was learned from the stability coefficients—the Low and Medium groups have both changed significantly and have converged on the High group, which has remained static. Exactly the same pattern can be seen for the three conventionality groups in the college sample, providing, thereby, an independent replication of this important finding. Thus, the data in Fig. 14.11 offer evidence for another kind of stability of change: Differential developmental change has been shown to be a function of variation in the pattern of its psychosocial precursors.

Equally interesting in Fig. 14.11 is the content of the findings. It is apparent that there is a *return* to conventionality by those youth who in 1972/1973 were the least conventional or the most radical. Rather than holding on to their unconventionality into young adulthood, they show a course of development toward the position of the High conventional group as an asymptote, and the slopes of their curves are the steepest of the three groups in each sample. It is important to emphasize what the curves in Fig. 14.11 do *not* show. They do not show a convergence of both extreme groups—the High group and the Low group—toward the Medium group, an outcome that might have raised the possible interpretation of regression toward the mean.

Further evidence for a "return to conventionality" is apparent in Fig. 14.12 for the measure of social criticism. In the high school sample, all three conventionality groups show a significant developmental decline on this measure, but again the rate of decline is greatest for the Low conventionality group, and all three groups have converged by 1979 in a similar position of low social criticism. In the college sample, the High conventional group does not show significant developmental change, but the other two groups, in converging upon it by 1979, do.

In Fig. 14.13, the developmental trajectories for the three conventionality groups are presented for a perceived environment measure, friends models for drug use, and, in Fig. 14.14, for a behavior measure, deviant behavior. With the exception of the high school sample curves on friends models for drug use, these additional data are fully consonant with those already discussed.

What has been shown in these figures is that the preexisting pattern of person-perceived environment attributes has systematic implications for the course of subsequent development. Developmental change is differential depending on the pattern of psychosocial attributes that antedates it—in this case, on the degree of conventionality.

What has also been shown is something of more general societal interest: With aging, with the assumption of new tasks and obligations, with exposure to new environmental contexts, with sociohistorical change, or with some interaction of all of these, there seems to have been a return to conventionality among youth from the late 1960s and early 1970s. Although this generalization cannot apply, of course, to

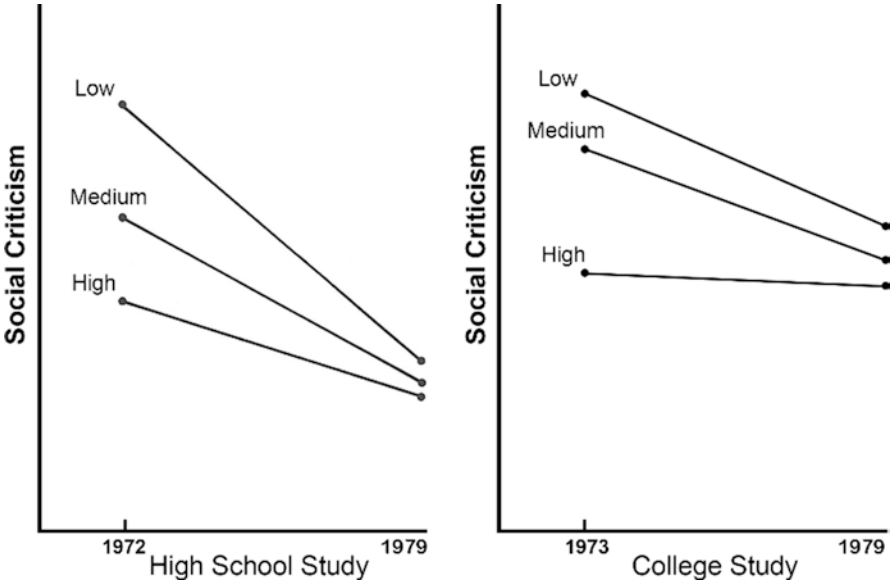

Fig. 14.12 Differential change in socially critical attitude over time

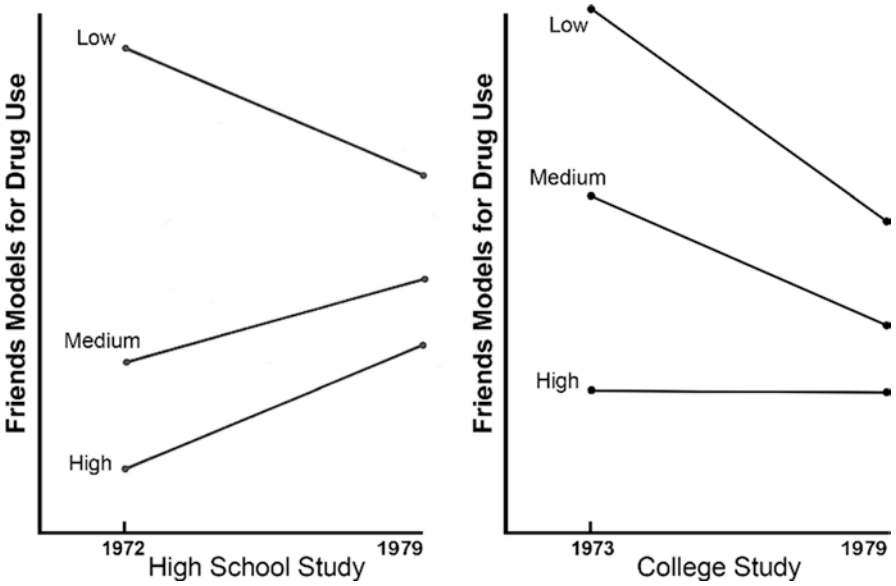

Fig. 14.13 Differential change in friends models for drug use over time

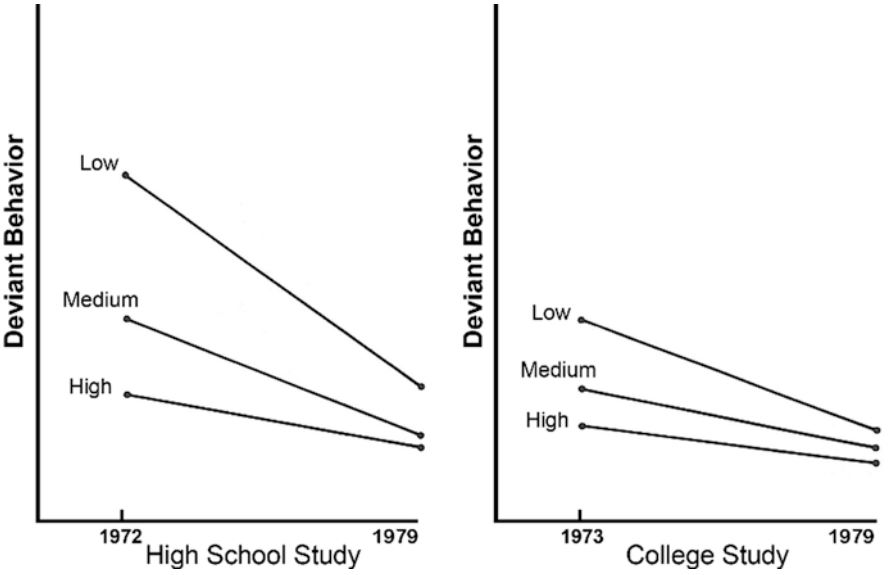

Fig. 14.14 Differential change in deviant behavior over time

all of the unconventional youths of the last decade, and although our samples may not have included the really radical youth of that period, the overall trend is clear. Even those in our samples who represented the least conventional positions as adolescents or youth seem to have become assimilated to or homogenized with those who were and who remained most conventional as they have entered into and proceeded through young adulthood.

Predicting the Timing of Transition Behavior

A final window on the stability of change looks toward the predictability of the emergence of certain new behaviors that serve as developmental milestones along the path from adolescence to young adulthood. Our focus, here, is on the timing of initial sexual intercourse and the degree to which variation in time of onset is signaled by an antecedent pattern of differential "readiness" for transition. Similar analyses have been carried out for the onset of drinking (Jessor & Jessor, 1975) and of marijuana use (Jessor, 1976).

In Problem Behavior Theory, a pattern of person and perceived environment variables is specified as theoretically deviance-prone, that is, as representing the dispositional and contextual likelihood of normative transgression. Since many of the behaviors that mark important adolescent transitions—beginning to drink, learning to drive a car, having sexual intercourse for the first time—are normatively age-graded, that is, proscribed for those who are younger and permitted or even

prescribed for those who are older, the notion of deviance-proneness can be applied to the likelihood of transgressing regulatory *age* norms. Under these circumstances, the pattern of person-environment variables is interpreted as representing *transition-proneness,* the likelihood of engaging in transition-marking behavior, a key aspect of developmental change.

The availability of longitudinal data on sexual experience for our participants makes it possible to explore the predictability of the onset of nonvirginity over an extended period of time. We were able to establish, for the high school sample (the college sample will not be considered here), that there were 142 males and 204 females who were virgins as of the 1970 testing, and that 93% of them had made the transition to nonvirginity by the 1979 testing. We were also able to establish the period of time within that 9-year interval when the transition took place. On this basis, it was possible to order all of the participants along a dimension of earliness—lateness of initial sexual intercourse. Six time-of-onset groups were formed: 1970–1971 (5 males and 27 females); 1971–1972 (20 males and 43 females); 1972–1973 (40 males and 50 females); 1974–1975 (38 males and 32 females); 1976–1979 (27 males and 36 females); and finally, of course, the *no onset* group of those who were still virgins in 1979 (12 males and 16 females). These six groups varying in earliness—lateness of the onset of nonvirginity constitute the criterion measure for developmental change. To the extent that the criterion measure is predictable from the 1970 pattern of psychosocial transition-proneness *when all of these participants were still virgins,* there will be further support for the stability of change, in this case behavioral change.

The key question to be answered is whether the 1970 psychosocial predictors already vary in a systematic way that signals and is consonant with the earliness—lateness of the subsequent transition to nonvirginity. The data, although not presented here (see Jessor, Costa, Jessor, & Donovan, 1983, for details), provide considerable evidence that that is precisely the case. The earlier onset groups show theoretically greater proneness to engage in age-graded, transition-marking behavior—in this case, sexual intercourse—than the later onset groups. In several instances, for example, for the females on the independence—achievement value discrepancy, the groups are perfectly ordered in the theoretically expected direction. In other instances full ordering is not attained, but the earlier onset groups have mean scores that are theoretically more transition-prone than those of the later onset groups, or else the largest mean difference obtains between the earliest onset group and the no onset group, for example, for the males on social criticism. The F ratios are significant for a larger-than-chance number of the psychosocial predictor measures examined (12 out of 27 for the males, and 18 out of 27 for the females); in every one of those cases the directionality is as theoretically expected, and on 11 out of the 27 measures the significant F ratio is replicated across the two sexes.

The content of these findings is of special interest to summarize. Earlier onset of nonvirginity, as contrasted with later onset, is associated with transition-prone characteristics in all three of the systems of Problem Behavior Theory. In the personality system, these include greater value on independence, lower value on academic achievement, greater independence-achievement value discrepancy, higher expecta-

tions for independence, lower expectations for academic achievement, greater social criticism, lower intolerance of deviance, less religiosity, and greater positive-as-against-negative reasons for drug use; in the perceived environment system, less parental support, less parent—friends compatibility, greater friends-relative-to-parents influence, more parent and friends approval for problem behavior, and more friends models for problem behavior; in the behavior system, more actual involvement in other problem behaviors and less involvement in conventional behavior. This antecedent, theoretically coherent pattern of variation in overall transition-proneness *in 1970* has been shown to be consonant with the variation in time of onset of nonvirginity over the succeeding, 9-year interval.

To assess the degree to which the multivariate pattern of the 1970 psychosocial measures can account for variation in subsequent time of onset of initial intercourse, multiple regression analyses were carried out. The time-of-onset criterion was successively regressed against sets of selected measures in the various theoretical systems of Problem Behavior Theory. The multiple correlations for the set of personality system measures are $R = .39$ for males and .37 for females. The multiple correlations for the perceived environment measures are higher, due largely to the proximal structure measures: $R = .51$ for males and .44 for females (see Jessor, 1981). When the personality set and the perceived environment set are aggregated, there is a further increase in the multiple correlations: $R = .60$ for males and .54 for females. Thus, the 1970 personality-environment predictors, taken together, account for about a third of the variance in the timing of initial sexual intercourse over the subsequent 9-year interval. The fact that variation in the timing of such a major developmental change can be signaled by antecedent psychosocial patterns adds further conviction about the stability of change.

Conclusions

This chapter began with a focus on one of the enduring concerns of developmental theory—how to provide an account for both continuity and change. The resolution of this dilemma, it was argued, might be found by seeking the continuities within change, that is, its predictability or stability. After documenting the occurrence of significant psychosocial change between the stage of adolescence/youth and the stage of young adulthood, the attempt was made to bring to bear multiple, independent lines of evidence in support of the stability of that change. The evidence, though diverse, appears to be coherent and to illuminate the developmental continuities that obtain in the process of growth into young adulthood. Stability and change seem best considered as two aspects of a single, dialectical process. Thought of in this way, there is clearly room for major shifts, pervasive transformations, and even radical innovations in development without the requirement for a disjunction from what has gone before.

The dimension of conventionality—unconventionality emerges from these analyses as one of central importance for development during this portion of the life

trajectory at least. Its relevance to the direction that developmental change has taken in these samples over this historical period is very apparent, as is its role in the prediction of differential psychosocial change and of the timing of transition behavior. Since the dimension is an elliptical summary of the variables representing transition-proneness in Problem Behavior Theory, its demonstrable relevance provides indirect support for the developmental formulations of that theory.

A further aspect of the formulations of Problem Behavior Theory that has received support in these explorations is its emphasis on *both* personality and the perceived environment as sources of variance in behavior and development. In the prediction of differential developmental change, the Index of Conventionality represented a successful composition of measures from both explanatory domains. And the joint role of person and environment predictors in forecasting the onset of nonvirginity was shown to be more successful than reliance on either set alone would have been.

Finally, the indispensable role of longitudinal design in the proper study of psychosocial development should be emphasized. Without it, the contours of change would continue to remain elusive, and the stability of change would continue to go largely unnoticed.

Acknowledgments Preparation of this chapter would have been impossible without the ideas, the assistance, and the collegiality of my collaborators on the project: Frances Costa, John Donovan, and Lee Jessor.

Note This chapter is a report of research supported by NIAAA Grant No. AA03745, R. Jessor, principal investigator, and is a report from the Research Program on Problem Behavior in the Institute of Behavioral Science, University of Colorado.

References

Backteman, G., & Magnusson, D. (1981). Longitudinal stability of personality characteristics. *Journal of Personality, 49*(2), 148–160.

Bloom, B. S. (1964). *Stability and change in human characteristics*. New York: Wiley.

Dusek, J. B., & Flaherty, J. F. (1981). The development of the self-concept during the adolescent years. *Monographs of the Society for Research in Child Development, 46*(4), 1–67.

Jessor, R. (1976). Predicting time of onset of marijuana use: A developmental study of high school youth. *Journal of Consulting and Clinical Psychology, 44*(1), 125–134.

Jessor, R. (1981). The perceived environment in psychological theory and research. In D. Magnusson (Ed.), *Toward a psychology of situations: An interactional perspective* (pp. 297–317). Hillsdale, NJ: L. Erlbaum Associates.

Jessor, R., & Jessor, S. L. (1975). Adolescent development and the onset of drinking: A longitudinal study. *Journal of Studies on Alcohol, 36*(1), 27–51.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic Press.

Jessor, R., & Jessor, S. L. (1984). Adolescence to young adulthood: A twelve-year prospective study of problem behavior and psychosocial development. In S. A. Mednick, M. Harway, &

K. M. Finello (Eds.), *Handbook of longitudinal research*, *Teenage and adult cohorts* (Vol. 2, pp. 34–61). New York: Praeger.

Jessor, R., Costa, F., Jessor, L., & Donovan, J. E. (1983). Time of first intercourse: A prospective study. *Journal of Personality and Social Psychology, 44*(3), 608–626.

Schuerger, J. M., Tait, E., & Tavernelli, M. (1982). Temporal stability of personality by questionnaire. *Journal of Personality and Social Psychology, 43*(1), 176–182.

Chapter 15
Restoring Context and Meaning in Social Inquiry: The Reach of Qualitative Methods

Richard Jessor

Although still emerging from the thrall of positivism, social inquiry has for some time been undergoing a profound and searching reexamination of its purpose and its methods. Canonical prescriptions about the proper way of making science are increasingly being challenged, and a more catholic perspective on the quest for knowledge and understanding is gaining wider acceptance. The honorific status accorded particular research methods—the laboratory experiment, the large-sample survey—has less influence on working social scientists than before, and there is a growing commitment to methodological pluralism and more frequent reliance on the convergence of findings from multiple and diverse research procedures. This openness of the post-positivist climate in the final decades of the twentieth century has presented the social disciplines with the opportunity to think anew about what it is they are really after and how best to achieve those objectives.

Such salutary changes in orientation toward the making of science can be traced to several sources. One is the work in the history of science (for example, Hanson, 1958; Kuhn, 1962) that shattered long-held notions about how advances in knowledge were in fact produced. It is quite clear now that positivist reconstructions of scientific advance were highly idealized, based largely on deductions from the outcomes or end products of research rather than reflecting the actual process of inquiry that yielded those outcomes. A second source is the newer analyses in the philosophy of science that revealed the untenability of earlier thinking about the definition of concepts and the nature of confirmation and disconfirmation (Kaplan, 1964;

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Jessor, R. (1996). Chapter 1: "Ethnographic methods in contemporary perspective." In R. Jessor, A. Colby & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 3–14). Chicago: University of Chicago Press.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_15

Polanyi, 1964). These two sources of influence are, however, external to the social sciences themselves. The third source, from within the social disciplines, was widespread dissatisfaction with scientific accomplishment; that dissatisfaction was—and is—responsible for much of the changing climate of post-positive social science.

Most of the social science disciplines have experienced the eruption of internal "crises" over the past several decades: agonizing self-appraisals about the impoverished state of scientific accomplishment; worries about the shallowness or surface quality of the usual findings; and apprehension about the failure of research findings to cumulate or tell a story that has coherence, broad applicability, and permanence (Blalock, 1984; Ring, 1967). These various disciplinary crises appear to have several themes in common. To many in the disciplines, social scientific knowledge seems to have had only limited relevance for understanding societal problems, whether those involve social behavior such as school learning and interpersonal violence, or community and institutional conditions such as poverty, unemployment, and racial segregation. Another common theme—of particular concern in psychology—has been the *a*contextual character of research findings, the fact that the accumulated body of knowledge tends not to be situated, not to be conceptually and empirically connected to the properties and texture of the social settings in which it was obtained. A third theme reflecting discontent in the social sciences is the failure to accommodate human subjectivity in inquiry and to attend to the role of meaning in behavior, in development, and in social life. There has been a tendency to ignore subjectivity or to leave matters of the inner life to the humanities.

Fourth, there is frustration over the inability to recover persons—to retrieve their individuality—from the matrix of relationships that continue to be established among variables of scientific interest (see Elliott Mishler's essay, 1996). The absence of a person focus, and the continued emphasis on relations among variables, has yielded a body of knowledge in which persons in all of their complexity—actors managing the uncertainties and vicissitudes of daily life—are difficult to discern. In this regard, Abbott has admonished us that "our normal methods…attribute causality to the variables…rather than to agents; variables do things, not social actors" (1992: 428). Finally, there is widely shared concern about the tenuous purchase of contemporary social/behavioral science on the dynamics and the course of individual, institutional, and societal change. The obvious difficulties of carrying out longitudinal research are, of course, recognized, but there are more subtle and recondite factors at work here—the surprising paucity of conceptualizations that are truly developmental; the inattention to long-unit notions like "career" that can help to capture the time-extended organization of lives; and the seemingly ingrained preference for large-sample research over detailed studies of development in individual cases in particular settings.

Despite a continuing sense of crisis, the openness of the post-positivist era, the compelling logic of methodological pluralism, and the troubled sense that established approaches to social inquiry have yielded a less than bountiful harvest have all created a new context in which there is keen interest in shifting the orientation and enlarging the armamentarium of social research.

The Turn to Qualitative Methods

That interest has been most evident, perhaps, in the renewed attention to ethnographic or qualitative approaches (the terms are interchangeable as used here) in contemporary studies of social behavior and development. Although long-established in the tool kit of emic anthropology, symbolic interactionist and social constructionist sociology, and phenomenological psychology, ethnographic or qualitative methods have generally been given only limited respect, and they have never been able to attain the scientific status accorded the so-called objective or quantitative methods. Although acknowledged for their usefulness in the exploratory or preliminary phases of an investigation, that is, in the "context of discovery," they have been viewed with great skepticism when employed to establish valid, generalizable knowledge, that is, when used in the "context of justification." This marginalization of qualitative methods in the social science enterprise is precisely what has been changing in the post-positivist climate of epistemological openness and methodological pluralism.

The reintroduction of ethnographic approaches into mainstream social science has been stimulated especially by the sense that such methods speak directly to many of the central themes in the crises with which the social disciplines have been struggling. Ethnographers do, after all, concern themselves with extensive, naturalistic description of settings and contexts, with interpreting the meaning of social behavior and interaction, with understanding the perspective of the actor, the subjectivity of the Other, and with being able to narrate a coherent "story" of social life in which it is persons who have agency and who adapt and change with time and circumstances. Each of these aspects of qualitative inquiry can be seen as responsive to one or another of the felt shortcomings of mainstream research, and it is probably that fact which accounts for much of the recent renewal of interest in ethnography.

The Quantitative-Qualitative Antinomy

The terms *ethnography* and *qualitative method* refer to a congeries of approaches and research procedures rather than to any singular, self-contained, unique method. Their coherence—whether participant observation, unstructured interview, informal survey, case study, or the hermeneutic analysis of text—derives from a common concern with the interpretation of meaning and with understanding the point of view of the Other. Qualitative and quantitative methods are often cast as an irreconcilable antinomy, with each the polar opposite of the other, but such a contrast is inherently misleading. It is not only how data are collected but how they are used—for example, counted versus interpreted—that determines whether a study is more qualitative or more quantitative. And, of course, qualitative data lend themselves to being quantified, and quantitative data can be interpreted. As Hammersley concluded in *What's*

Wrong with Ethnography? "the distinction between qualitative and quantitative is of limited use and, indeed, carries some danger" (1992:159). A similar conclusion, phrased somewhat differently, is reached by Weisner (1996): "all studies have an 'ethnographic' component embedded in them, even if ethnography was not done."

Insofar as no sharp distinction can be drawn between ethnographic approaches and those more conventionally relied upon in formal investigations, the a priori restriction of qualitative method only to the "context of discovery" would seem difficult to defend. The role that ethnography can play in the "context of justification," though still relatively less explored, could well be an important instrumentality for advancing the frontiers of social knowledge, and *joint* reliance on qualitative and quantitative procedures, producing kinds of information that are complementary and converging, can now be seen as a powerful strategy for enriching the understanding of social life.

Ethnography and Epistemology

Notwithstanding the post-positivist welcoming of methodological pluralism and current recognition of the inferential compatibility of qualitative and quantitative data, the epistemological status of ethnography continues to be challenged. On one front it remains beleaguered by the legacy of positivism, especially by its traditional concerns about validity and objectivity. On another front it is under siege by the post-modernists for not carrying its intrinsic reliance on subjectivity to the logical extreme, namely, the denial of empirical reality. Reflecting on these sorts of epistemological challenges, as well as on the moral and political questions now being raised about contemporary ethnographic work, Geertz has expressed alarm that "the very right to write…ethnography seems at risk" (1988:133); "its goals, its relevance, its motives, and its procedures all are questioned" (139).

In the essays that follow in Part 1: Epistemology and Ethnographic Representation of this volume (Jessor, Colby, & Shweder, 1996), and indeed in the others throughout this volume, the critical epistemological issues are dealt with both directly and indirectly. The combination of logical argument in some of those essays, and the demonstrably rich ethnographic yield in others, makes it clear that epistemology no longer provides a secure haven for critics of qualitative work. The consensus that emerges, instead, is that qualitative and quantitative methods of social inquiry, though often asking different kinds of questions, share a common epistemological foundation and a common philosophy of science.

One of the epistemological tensions surrounding ethnographic work has had to do with presuppositions about an empirical world, conventional science assuming its existence and post-modernists insisting that the constructionist perspective of ethnography permits only skepticism and doubt (see essay by Norman Denzin, 1996). It is interesting in this regard to reexamine a foundational work in sociological ethnography, namely, Blumer's classical exegesis on symbolic interactionism, in which he is explicit that "an empirical science presupposes the existence of an

empirical world" (1969:21). The same position for cultural anthropology has been expressed—in perhaps a more literary style—by Geertz: "Whatever else ethnography may be ... it is above all a rendering of the actual, a vitality phrased" (1988:143). Hammersley's methodological exploration of ethnography also accepts "the idea that research investigates independent, knowable phenomena" (1992:52), and Campbell (chapter, 1996) decries the efforts of those "ontological nihilists" in post-modern scholarship to "deny to language any degree of competent reference to a nonlinguistic world." In this volume (Jessor et al., 1996), only Denzin seems willing to consider post-modern doubt about an empirical world seriously. An earlier exchange about this very issue between Denzin and Plummer, another post-modern interactionist, is instructive. In the end, Plummer finds himself unwilling to go as far as Denzin: "I cannot leave the empirical world" (Plummer, 1990:159) is his almost plaintive conclusion.

Obviously, this ongoing ontological debate is unlikely to be resolved in any final way, and post-modern scholarship in the sciences and humanities remains a forceful presence in discourse about social reality (see Denzin's essay, 1996). Nevertheless, it seems clear from the essays in this volume (Jessor et al., 1996) that ethnography, notwithstanding its interactionist perspective and its commitment to social constructionism, remains closely allied to quantitative method, both having their epistemological feet set firmly in an empirical world.

The ethnographic insistence on grasping the perspective of the actor, on seeing the world as it appears to someone else, on understanding the subjectivity of the Other, has been another source of epistemological tension, this time challenged from the positivist rather than the post-modern flank. Shweder's notion of a "true ethnography" does, indeed, call for it "to represent the qualia of 'otherness,' of other 'minds,' of other 'ways of life.' It aims to make insiders intelligible to outsiders" (1996). Beyond positivism's resistance to subjectivity in general there is a special reluctance about claims that the subjectivity of the observer can reach and represent the subjectivity of the Other. How is it possible to know other minds?

In one sense, the knowing of other minds can be seen as a particular aspect of the larger ethnographic enterprise of coming to know the social world. That enterprise rests, as we have seen, on inherently subjective, interpretive practices of social and personal construction. But the problematics of knowing and representing other minds have generated additional and special assumptions about the commonality of human nature. Campbell (1996) calls attention in this regard to Quine's "principle of charity" (1960), the assumption that the Other is in many ways like ourselves. Similarly Shweder (1996) argues for assuming a "universal original multiplicity" underlying a potential for unity among human beings. That assumption undergirds the process of "mind reading" that is so critical in Shweder's vision of a true ethnography: "the construction of an account about what it is like to be a differently situated, differently motivated human being." The knowing of other minds, then, becomes feasible not only as part of the larger constructionist effort but resting also on the additional assumption that other minds are like our own in imaginative capability, an assumption that permits inquiry to proceed beyond the otherwise impenetrable barrier of solipsism.

Related to both of these issues—the existence of an empirical world and the knowability of other minds—is yet a third problematic issue, the place of "validity" in ethnographic representation. In quantitative approaches in mainstream social science, validity has always been an issue of central concern, but the charge is often made that there is no way to establish the validity or the truth value of scientific claims or observations in qualitative work.

Here again it is instructive to consult Blumer's exposition of the methodological position of symbolic interactionism to see how central the concern for validity actually has been. For Blumer, empirical validation comes from direct "examination of the empirical social world"; "the merit of naturalistic study [ethnography] is that it respects and stays close to the empirical domain" (1969:32, 46; see also Becker's essay, 1996). In this perspective, validity is safeguarded by procedures for close, careful, accurate, and extensive observation, procedures that can yield a coherent, credible, and internally consistent account. This is a somewhat different perspective on validity from the traditional discourse about "interobserver agreement" and "correlation with external criteria," but it is consonant with the implications of more recent notions such as "construct validity" that emphasize conceptual embeddedness, and with current emphases on the "plausibility" and "credibility" of scientific accounts (Hammersley, 1992), on their "ring of authenticity" (Shweder, 1996), and on "validation as the social discourse through which trustworthiness is established" (Mishler, 1990:420).

The very complexity of the validity notion in contemporary inquiry precludes any simplistic resolution that would apply across the various investigative procedures and diversity of circumstances of social research. What does seem clear, however, is that validity remains an essential and inescapable concern for qualitative study and that the interpretive products of ethnographic inquiry are, like any other scientific products, subject to appraisal for validity. Even the hermeneutic turn does not automatically permit evasion of such appraisal; Campbell's call for "a validity-seeking hermeneutics" (1986:109) is a noteworthy caution about just this obligation.

Ethnography and the Larger Enterprise of Social Science

The foregoing considerations and the essays in this volume (Jessor et al., 1996) provide strong endorsement for an ecumenical orientation to social inquiry—a stance that embraces a diversity of research methods. Fundamental epistemological differences between qualitative and quantitative methods no longer seem compelling, and there is a growing sense that, used together, they can be mutually enriching while providing alternative ways of converging on the same set of inferences. In addition, ethnographic approaches speak directly to much of the discontent with mainstream, quantitative accomplishment.

Conclusions such as these—if widely shared—could have reverberating implications for the larger social science enterprise, not just for the design of research efforts but also for the scientific "culture" in which those efforts are embedded.

Values that are now attached to methods might more appropriately be connected to the significance of the questions asked or the topics addressed. Graduate training in the methodology of research might try to encompass qualitative in addition to quantitative approaches so that every cohort of graduate students would not first have to exorcise the legacy of positivism before discovering for itself the advantages of methodological pluralism. A more pervasive legitimation of ethnographic approaches in both training and application might entail other changes as well, for example, changes in the norms and regulatory processes that influence the making of science—the kind of evaluative criteria employed by journal editors and by research review panels. And the scientific societies and journals that now celebrate honorific methods in their very titles—*Journal of Experimental Whatever*—might seek labels or titles that focus on substantive issues and topical concerns instead.

Changing a culture—even that of a field of science—is notoriously difficult. Yet it seems that that is precisely what is called for if there is indeed to be a "deep incorporation" (see Weisner's essay, 1996) of qualitative approaches in the study of social behavior and human development. Happily, the essays in this volume suggest that change is well underway in the culture of social inquiry.

The Essays in This Section

The essays in this section on Epistemology and Ethnographic Representation speak for themselves—with vigor, with logic, with wisdom, and with commitment. All deal, in one way or another, with the critical epistemological issues in the ethnographic enterprise. Since two of the essays, Denzin's and Campbell's, were prepared as commentaries on the other chapters, only brief, additional comment is warranted here.

Richard Shweder's far-reaching effort to characterize "true ethnography," presented as the keynote address at the conference, ranges from how we know other minds, to what the concept of "culture" entails, to whether there are plural prescriptive norms for development (that is, whether developmental outcomes are differentially valued in different social and historical contexts).

Elaborating the position that a true ethnography is a "mind read," Shweder argues forcefully that other minds are, indeed, accessible, and that the meanings of social action can be comprehended and represented. In mind reading, a process of interpretation is applied to what someone says and does, and mental state concepts are invoked to model what that Other "has in mind." This interpretive process is, of course, fundamental to all ethnographic inquiry, and its application to knowing other minds engages cultural psychology in the larger constructionist enterprise.

True ethnography views culture as analytically separate from behavior; theoretically important, such a perspective provides for a problematic relation between the two, thereby conserving culture as an explanatory resource in accounting for variation in behavior and development. For Shweder, culture is a conceptual model of the preferences and constraints that characterize a "moral community," one whose

members are each other's reference group. This gives culture a "local" character that enables it to play a proximal explanatory role in relation to the patterns of ordinary social life. Its local character also implies that, for any complex society, it will be more useful to entertain multiple cultures than to seek one that is overarching and sovereign.

Most provocative, perhaps, is Shweder's exploration of the relation of culture to human development. In raising the issue of plural *prescriptive* norms for development, he is proposing that desired developmental outcomes may be context dependent, variable, or different—depending on time, setting, and circumstance—rather than autochthonous or inherent. Some developmentalists may not find this easy to accommodate, while social contextualists will most likely welcome it. Among the latter, Dannefer has emphasized "the irreducibly social dynamics of individual development" and pointed to "the pervasive impact of social structure as an organizer of development" (1984:106).

Overall, Shweder's vision of true ethnography will have to be reckoned with by future scholars venturing to represent "what it is like to be a differently situated… human being."

Howard Becker's essay (1996) rejects any fundamental epistemological difference between qualitative and quantitative research. Indeed, he is impatient about the fact that "the issue does not go away…this continuing inability to settle the question." In "further thoughts" at the end of his chapter, he suggests that it is the status differential between the quantitative research community and the qualitative research community that sustains the ongoing tension—a reflection of the politics of science rather than of any difference in philosophy of science.

Seeing epistemology in its prescriptive mode as a negative discipline, Becker is more concerned with empirical practice, with the relation between what is actually done in research and the compellingness of the inferences it yields. This "practical epistemology" is, in fact, entirely consonant with the emphasis of recent work in the sociology and history of science.

Qualitative work, according to Becker, does differ from quantitative work in other ways—in being more interested in specific cases than aggregate relationships, in more accurately grasping the point of view of the actor, in yielding more contextually situated understanding, and in providing fuller—"thicker," "broader"—description of the phenomena of interest. His contrast serves as a critique of quantitative or "objective" methods and illuminates some of their limitations in achieving the shared goals of social inquiry. The typical social survey, for example, necessitates and thereby imposes costly simplification on the complexity of the world of everyday life and social action.

In dealing with the validity issue as a matter of "credibility" based on the accuracy, precision, and breadth of the data gathered, Becker joins with the other authors in this section. This interpretation of validity is in the Blumerian tradition and is a reaffirmation of the centrality of validity concerns in qualitative research.

Elliot Mishler undertakes a rather heroic task—to recover the "missing persons" in so much of mainstream social research. Scholars in both sociology (for example, Abbott, 1992) and psychology (Magnusson and Bergman, 1988) have again

reminded us that inferences drawn from aggregate data may not apply to all—or even to any—of the individuals making up the aggregate, and that individual variability in such aggregate data, instead of being dealt with, is usually dismissed as error. Arguing "the incommensurability of group and individual analyses," Mishler (1996) proposes an alternative paradigm to the nomothetic, population-based model that dominates contemporary research, namely, case-based research in which individual cases—persons, cultures, organizations, or institutions—are the units of study and analysis.

The compatibility of a case-based orientation to research with the ethnographic tradition in social inquiry is apparent. It is an approach that lends itself to Blumer's "close observation," or, as Mishler notes, "that privileges the accumulation of details," and it obviously enhances the accommodation and representation of context. However, the key commonality, according to Mishler, lies in the shared concern for *cases* as the unit of analysis rather than in any common preference for qualitative over quantitative methods. Indeed, a contribution of his essay is the exploration of quantitative approaches to the patterns and structures that emerge in case-based analyses.

The person-centered rather than variable-centered thrust of Mishler's chapter reflects his theoretical preoccupation with the concept of agency, and his essay is an attempt to restore agency to persons, an objective that is, of course, central in current developmental science. The application of case-based analysis to narratives about "careers" illustrates the role of agency in long-term developmental change. Mishler's conclusion that "case-based analytic methods are now on the agenda in the human sciences" portends a scientific future in which "missing persons" may well be easier to find.

In a penetrating exploration about the nature and locus of disability, R. R McDermott and Hervé Varenne (1996) grapple with epistemological issues involving the social construction of reality, the meaning and signification of action, and the contribution of context to understanding the course and outcome of development. Relying exclusively on case study—the deaf on Martha's Vineyard; a learning disabled child named Adam; and illiterate adults among pest exterminators in New York City—they argue that the social (and political) construction of disability, the way a "difference is noticed, identified, and made consequential," is more influential than the disability itself.

The place of "culture" in these case studies is central. Indeed, in explicating their perspective on culture *as* disability, disability is located in the culture rather than the person: cultures "actively organize ways for persons to be disabled." In their view, persons are "acquired" by already framed, cultural notions of disability. This treatment of culture as a construction analytically separate from behavior is consonant with that in Shweder's true ethnography, and the close, detailed, contextually embedded observation such case studies permit reinforces Becker's and Mishler's calls for case-based study and analysis. The complex role of culture in shaping the course and setting the outcomes of development is also apparent in these exemplars. As the authors conclude, "in organizing a science of development, it may be necessary to begin with the recognition that life in any culture gives us much to fall short of."

The essays by Norman Denzin and Donald Campbell were invited as commentaries on the other chapters, and they fulfill that charge brilliantly. Unable to attend the conference, Denzin prepared his discussion on the basis of early drafts of the various papers. He provides an intensely interesting and challenging post-modernist or post-structuralist perspective on the ethnographic project, one much more radical than that of any of the other contributors. Despite his ontological differences with the other authors, however, Denzin sees researchers as "bricoleurs" and qualitative work as "bricolage," yet another way of urging the methodological pluralism about which a growing consensus has already been noted. His ultimate interest in "cultural studies"—critical analyses of cultural representations of everyday experience in film, sports, music, and so on—as an approach to studying youth development in high-risk settings does promise to enhance the bricolage by delineating further the quiddities of experience in everyday life settings.

Campbell's essay creates a valuable dialectic with Denzin's. As noted earlier, Campbell remains committed to efforts to improve the competence of scientific belief, and he rejects what he labels "ontological nihilism," the denial in post-Structuralism of the possibility of valid reference to an independent reality. Acknowledging the "worldview embeddedness of all observations" and the social construction of social reality, he argues nevertheless for a science in which validity remains a guiding objective to be pursued even if never likely to be fully achieved. The obstacles to the latter that he singles out for discussion—methodological cultural relativism and the failure of communication—have important ramifications for the process of trying to understand other cultures and other minds.

Campbell urges us to learn from successful exemplars in our efforts to extend ethnographic methodology, and he refers specifically to the substantive chapters that appear later on in this volume. With that positive appraisal of what lies ahead, we can turn to the essays in this section to see, in detail, what their authors have to tell us about the epistemology of ethnographic research.

References

Abbott, A. (1992). From causes to events: Notes on narrative positivism. *Sociological Methods & Research, 20*(4), 428–455.

Becker, H. S. (1996). The epistemology of qualitative research. In R. Jessor, A. Colby, & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 53–71). Chicago: University of Chicago Press.

Blalock Jr., H. M. (1984). *Basic dilemmas in the social sciences*. Beverly Hills, CA: Sage Publications.

Blumer, H. (1969). *Symbolic interactionism: Perspective and method*. Englewood Cliffs, NJ: Prentice-Hall.

Campbell, D. T. (1986). Science's social system of validity-enhancing collective belief change and the problems of the social sciences. In D. W. Fiske & R. A. Shweder (Eds.), *Metatheory in social science: Pluralisms and subjectivities*. Chicago: University of Chicago Press.

Campbell, D. T. (1996). Can we overcome worldview incommensurability/relativity in trying to understand the other? In R. Jessor, A. Colby, & R. A. Shweder (Eds.), *Ethnography and human*

development: Context and meaning in social inquiry (pp. 153–172). Chicago: University of Chicago Press.
Dannefer, D. (1984). Adult development and social theory: A paradigmatic reappraisal. *American Sociological Review, 49*(1), 100–116.
Denzin, N. K. (1990). The spaces of postmodernism: Reading Plummer on Blumer. *Symbolic Interaction, 13*(2), 145–154.
Denzin, N. K. (1996). The epistemological crisis in the human disciplines: Letting the old do the work of the new. In R. Jessor, A. Colby, & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 127–151). Chicago: University of Chicago Press.
Geertz, C. (1988). *Works and lives: The anthropologist as author*. Stanford, CA: Stanford University Press.
Hammersley, M. (1992). *What's wrong with ethnography? Methodological explorations*. London: Routledge.
Hanson, N. R. (1958). *Patterns of discovery: An inquiry into the conceptual foundations of science*. Cambridge, UK: Cambridge University Press.
Jessor, R., Colby, A., & Shweder, R. A. (Eds.). (1996). *Ethnography and human development: Context and meaning in social inquiry*. Chicago: University of Chicago Press.
Kaplan, A. (1964). *The conduct of inquiry: Methodology for behavioral science*. San Francisco: Chandler.
Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
Magnusson, D., & Bergman, L. R. (1988). Individual and variable-based approaches to longitudinal research on early risk factors. In M. Rutter (Ed.), *Studies of psychosocial risk: The power of longitudinal data* (pp. 45–61). Cambridge, UK: Cambridge University Press.
McDermott, R. P., & Varenne, H. (1996). Culture, development, disability. In R. Jessor, A. Colby, & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 101–126). Chicago: University of Chicago Press.
Mishler, E. G. (1990). Validation in inquiry-guided research: The role of exemplars in narrative studies. *Harvard Educational Review, 60*(4), 415–442.
Mishler, E. G. (1996). Missing persons: Recovering developmental stories/histories. In R. Jessor, A. Colby, & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 73–99). Chicago: University of Chicago Press.
Plummer, K. (1990). Staying in the empirical world: Symbolic interactionism and postmodernism—A response to Denzin. *Symbolic Interaction, 13*(2), 155–160.
Polanyi, M. (1964). *Personal knowledge: Towards a post-critical philosophy*. New York: Harper & Row.
Quine, W. V. (1960). *Word and object*. New York: Wiley.
Ring, K. (1967). Experimental social psychology: Some sober questions about some frivolous values. *Journal of Experimental Social Psychology, 3*(2), 113–123.
Shweder, R. A. (1996). True ethnography: The lore, the law, and the lure. In R. Jessor, A. Colby, & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 15–52). Chicago: University of Chicago Press.
Weisner, T. S. (1996). Why ethnography should be the most important method in the study of human development. In R. Jessor, A. Colby, & R. A. Shweder (Eds.), *Ethnography and human development: Context and meaning in social inquiry* (pp. 305–324). Chicago: University of Chicago Press.

Chapter 16
The Transdisciplinary Nature of Contemporary Behavioral Science

Richard Jessor

I would like to express my deep appreciation to the Society for Adolescent Medicine for this extraordinary award. The recognition that it represents for our research on adolescence is important to me, and it would be treasured for that reason alone. What makes it an even more special award, however, is the fact that it comes from a Society I have long admired, a society many of whose members I have known and collaborated with over the years—Iris Litt, Bob Blum, Charlie Irwin, Roger Tonkin, David Kaplan, and Dennis Fortenberry—to name only a few.

Rather than talk about my research, with which some of you are already familiar, I prefer to use my time this morning to engage the larger enterprise all of us are involved in—advancing knowledge that can serve the welfare of the 1.5 billion young people on our planet, the great bulk of whom are growing up in the developing world.

I want to consider, today, the accelerating changes that have been underway, in recent decades, in both the nature of inquiry and the organization of knowledge because they have major implications for the grasp we can achieve on what adolescence is all about at the start of the 21st century. That grasp, as we all know, will have to encompass social contexts and social institutions, cultural tradition and cultural change, psychological dispositions and subjective identities, biological processes and physical growth, and more.

The recent changes I am concerned with had their origins much earlier, of course. Let me remind you of the remarkably prescient statement by one of the founders of modern scientific medicine, the great 19th century German physician/scientist, Rudolf Virchow. In his book, *Disease, Life, and Man,* Virchow asserted, and I quote: "Medicine is a social science in its very bone marrow" (Virchow, 1958). His state-

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Jessor, R. (2005). Remarks on the changing nature of inquiry. *Journal of Adolescent Health, 37*(1), 9–10.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_16

ment signaled an exceptionally precocious readiness to supervene traditional disciplinary confines, to transcend the division between science and application, and to locate matters of health and illness in their larger social context. For the mid-19th century, such thinking is simply stunning.

Another early contributor to the more recent changes I have been alluding to was also a renowned German scholar, this time a social psychologist of the mid-20th century, Kurt Lewin. Lewin argued that science is best made in the very context of the problems it seeks to understand, and he rejected the conventional antinomy between theory and application. He urged the *theoretical* psychologist not to look toward applied problems "with highbrow aversion or with a fear of social problems," and he exhorted the *applied* psychologist to realize that "there is nothing so practical as a good theory" (Cartwright, 1951).

Beyond the transdisciplinary perspective so brilliantly foreshadowed by Rudolf Virchow, and beyond Kurt Lewin's salutary insistence that theory and application are bedfellows in the quest for knowledge, the more recent changes that are most apparent are those in the very organization of scientific knowledge.

Traditionally, especially on academic campuses, knowledge has been organized in packages called "disciplines," whose boundaries were more or less clearly circumscribed. Only a few hardy souls ever ventured beyond those boundaries; those who did tended to wait until they had tenure, and the interstices between or among disciplines were left largely unexplored. The idea of a "*discipline*" as the fundamental way of organizing knowledge, and of "*departments*" as the locus for disciplines in Academe, achieved a kind of sacrosanct timelessness that was beyond questioning. I often found myself having to remind my colleagues, however, that there is actually no reference to "chemistry" or "sociology" or "economics" or "biology" in the *Talmud,* and that, in fact, these are relatively recent, 19th and 20th century ways of parsing the intellectual world.

Indeed, it is this very way of parsing the intellectual world—organizing knowledge around the traditional disciplines—that has been increasingly challenged these past several decades across all the domains of scholarship. For one concrete example, a leading sociologist, Neil Smelser, former president of the American Sociological Association, came to see his own discipline as beleaguered, and he predicted that the very term, "sociology," will not be "denotative of an identifiable field" in the foreseeable future. Instead, and consonant with the theme of my remarks today, he anticipated that "scientific and scholarly action will not be disciplinary in character but will, instead, chase problems..." (Smelser, 1991).

What we have all been witnessing these past decades has been the emergence of *entirely new fields of inquiry,* with names that did not even exist in the academic lexicon until recently, fields like *neuroscience,* and *cognitive science,* and, indeed, *behavioral science.* These new fields tend to be located in problem-focused institutes and centers, rather than in departments, and they are exemplars of the change I am focused on. They not only transcend the disciplinary organization of knowledge, but they challenge its very sufficiency and, indeed, even its appropriateness.

The thrust toward change and the emergence of transdisciplinary organizations of knowledge has come, of course, from the never-ending quest for a firmer grasp on nature, as well as from the pressing demands of society that inquiry be responsive to

its problems and needs. Those of us working on the problem of adolescence have felt both of these influences, and they are increasingly changing how we do our research.

But "change will not come easily" according to Phil Abelson in an editorial in *Science* just a few years ago. He went on to say: "The rigid departmental structure [in universities] has become outmoded. Many of the best opportunities for significant scholarship lie in multidisciplinary areas." Abelson also reports on a letter the prestigious Kellogg Commission sent to the presidents and chancellors of state universities and colleges; in that letter, the Commission points out that society has problems; universities have departments (Abelson, 1997). A year later, in another editorial in *Science,* a neuroscientist took note of the fact that "The modern university is partitioned along academic lines that no longer truly reflect today's intellectual life...modern knowledge systems are inseparably interdisciplinary" (Gazzaniga, 1998). And in a recent issue of *Science,* there is an article arguing for yet another emerging field of inquiry, this one called "*sustainability science.*" The authors argue that "Progress in sustainability science will require fostering problem-driven, interdisciplinary research" (Kates et al., 2001).

To sum up, my thesis has been that these are changing—*even revolutionary*—times for the making of science. Inquiry is breaking free of the constraints of disciplinary boundaries; it is increasingly coming to be problem-driven, and it more frequently entails perspectives and approaches that are transdisciplinary in nature. As I indicated earlier, these are characteristics that the Society for Adolescent Medicine stands for, and they are clearly evident in its *Journal of Adolescent Health.* In symbolizing all of this for me, today's award has won my deepest appreciation.

Let me close with an apposite quotation from the epidemiologist, Reuel Stallones. In one of his writings, he called our attention to what he described as: "a territory of especial beauty at the intersection of the biomedical and social sciences" (Stallones, 1980). It has been my privilege, over almost the past half century, to be able to explore that territory of especial beauty in my own search for understanding of the problem of *adolescent health and well-being.*

Note Richard Jessor delivered this address upon receiving the Outstanding Achievement in Adolescent Medicine Award from the Society for Adolescent Medicine in Los Angeles, California, on April 1, 2005.

References

Abelson, P. H. (1997). Editorial: Evolution of higher education. *Science, 277*(5327), 747.

Cartwright, D. P. (Ed.). (1951). *Field theory in social science: Selected theoretical papers by Kurt Lewin*. New York: Harper & Brothers.

Gazzaniga, M. S. (1998). Editorial: How to change the university. *Science, 282*(5387), 237.

Kates, R. W., Clark, W. C., Correll, R., Hall, J. M., Jaeger, C. C., Lowe, I., et al. (2001). Sustainability science. *Science, 292*(5517), 641–642.

Smelser, N. J. (1991). Sociology: Retrospect and prospect. In R. Jessor (Ed.), *Perspectives on behavioral science: The Colorado lectures* (pp. 115–130). Boulder, CO: Westview Press.

Stallones, R. A. (1980). To advance epidemiology. *Annual Review of Public Health, 1*, 69–82.

Virchow, R. (1958). *Disease, life, and man: Selected essays* (L. J. Rather, Trans.). Stanford, CA: Stanford University Press.

Chapter 17
The Cross-National Generality of Theoretical Explanation

Richard Jessor

The last couple of decades have seen a burgeoning of comparative studies of the behavior, health, and development of adolescents living in societies, cultures, or settings outside the United States. These studies have often been carried out by local researchers with collaborators from the U.S., or they sometimes represent the local application, in distant lands, of theories and models and measures many of which were developed in the U.S. Together, they have provided a growing corpus of comparative research findings that has enabled the field of adolescent health and development to complement its usual focus with a much more panoptical perspective on its essential subject matter.

The topic of adolescent problem behavior exemplifies this extra-U.S. or cross-national trend in adolescent research. The countries in which theory or models about adolescent problem behavior, initially developed in the U.S., have been applied represent varying degrees of contrast with American society—from Canada and Italy early on, for example, to China, Korea, and Slovenia more recently, and currently, Turkey, Bolivia, and Iran. What are we to make of these studies when they repeatedly reveal underlying similarities in developmental processes or relationships despite such often radical differences in social context, social organization, and normative climate? And why do such findings seem often to generate a sense of surprise?

Part of the surprise at finding cross-national similarities stems, perhaps, from a deeply imbued orientation, in our own scientific work, toward seeking out *differences,* and testing whether those differences are unlikely to be due to chance alone. Part may be due to our awareness of entire disciplines, such as anthropology, that have long taught us about the uniqueness of different cultures and societies and that

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Jessor, R. (2008). Description versus explanation in cross-national research on adolescence. *Journal of Adolescent Health, 43*(6), 527–528.

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R. Jessor, *Problem Behavior Theory and the Social Context*, Advancing Responsible Adolescent Development, DOI 10.1007/978-3-319-57885-9_17

have brought their sometimes exotic practices to our attention. However, surprise not withstanding, there is something much more fundamental involved. The challenge is to reconcile the repeated emergence of similarity of outcome findings across contexts and settings that are, in most cases, markedly disparate from each other or from our own. That challenge is what is illuminated by the Vazsonyi and colleagues article (Vazsonyi et al., 2008) in the current issue of the *Journal of Adolescent Health.*

Vazsonyi and colleagues examine whether a particular explanatory framework developed some decades ago in the U.S., namely, Problem Behavior Theory (PBT), can provide a significant account of variation in adolescent problem behavior when applied to non-U.S. samples of adolescents in two countries, specifically, Switzerland in Western Europe and Georgia in Eurasia, each markedly different from the other on multiple dimensions, and both different from the U.S. Using large national probability samples and sophisticated analytic methods, the investigators found that their reduced PBT theoretical model fit both country data sets well, and they conclude that, despite the macro societal differences and the more micro differences in actual levels of risk factors, protective factors, and problem behaviors, "PBT has applicability across developmental contexts or societies" (Vazsonyi et al., 2008).

Their conclusion accords with a large body of other cross-national studies of adolescent problem behavior, some of which use the full PBT framework (Jessor et al., 2003) and others of which rely on explanatory concepts similar to those in PBT but do not represent an explicit test of that particular theory (Dimitrieva, Chen, Greenberger, & Gil-Rivas, 2004). What all have in common, however, is the establishment of similarity of findings about problem behavior when very different national contexts are engaged in comparative inquiry.

Such findings constitute a sharp and sometimes startling reminder that *description and explanation are two very different ways of looking at the world or of undertaking adolescent research.* The descriptive approach, focused as it is on outward, observable appearances, or on what Kurt Lewin (1931) (borrowing an analogy from genetics) termed the phenotypic level, lends itself to taking note of and codifying obvious differences. In descriptive research, the preoccupation is often with differences in means or prevalence levels; for example, in the study by Vazsonyi and colleagues, it was noted that the crime rate in Georgia is twice that in Switzerland, and, in another cross-national study (Jessor et al., 2003), it was noted that Chinese adolescents were less involved in problem behavior than were adolescents in the U.S. Valuable as such knowledge can be, it does not provide an *understanding* of the variation observed in the different national contexts.

The explanatory approach, on the other hand, seeks precisely to provide understanding; its focus is on the underlying, causal level of relations among theoretically specified determinants, the genotypic level in Lewin's terminology. In explanatory research, the preoccupation is with the structures of relations among theoretical constructs or variables, structures that make logical (and ultimately, empirical) sense out of the variation observed at the descriptive level. Because those relations among variables are specified by a theory, they should prevail in any context or setting to which the theory can be applied, and the findings they yield should be similar

or invariant across contexts, no matter how disparate. In their article, Vazsonyi and colleagues documented major descriptive differences between Switzerland and Georgia, but their explanatory approach (using a reduced PBT model) yielded major similarities if not, indeed, invariances.

The full PBT explanatory model includes three types of protective factors (i.e., models protection, controls protection, and support protection) and three types of risk factors (i.e., models risk, opportunity risk, and vulnerability risk), and such theoretical constructs should have general applicability to adolescents growing up anywhere. Although the source or magnitude of support protection, to take one example, may vary in different societies, coming from, say, a single mother in a U.S. family or from an extended-kin group in a Chinese family, the theoretically specified relation of support protection to problem behavior should be the same in both settings.

Theoretical or explanatory approaches have played a substantial role in other cross-national studies of adolescent problem behavior than those cited by Vazsonyi and colleagues in their article, and the finding of similarities at the explanatory level has been widespread. Three are worth noting. Dimitrieva and colleagues (2004) conclude the following from their study of adolescents in the U.S., China, Korea, and the Czech Republic: "Our results revealed substantial similarities across four cultures in the role that family factors play in ... problem behaviors" (Dimitrieva et al., 2004). Greenberger and colleagues report, from their study of 11th graders in the U.S., Korea, and China, that there were "striking similarities across the three samples in the relations between adolescent misconduct and the perceived sanctions of parents and friends" (Greenberger, Chen, Beam, Wang, & Dong, 2000). In addition, Link's comparative study of U.S. and German drinking behavior emphasizes "the cross-cultural generalizability of these particular criminological theories of adolescent substance use" (Link, 2008). In sum, despite marked phenotypic differences in developmental settings, genotypic relationships underlying adolescent problem behavior have been shown to have considerable cross-national generality.

It would be remiss to end this commentary on cross-national research without drawing its collateral implications for comparative research on adolescents *within* a society or country, comparisons so frequently made by adolescent researchers across racial/ethnic groups, or socioeconomic statuses, or gender. The same dialectic applies—descriptive differences between groups in prevalence or means do not necessarily entail differences in relationships among variables at the underlying, causal, or explanatory level. Indeed, in nearly all of our own applications of PBT over decades of inquiry, we have consistently found similar relations among theoretical predictors for both genders and for the different U.S. racial/ethnic groups. Most compellingly, an extensive investigation by Rowe and colleagues offers powerful support for ethnic/racial similarity in what the authors refer to as "developmental process" (meaning the relations among explanatory variables), in accounting for variation in delinquency and school achievement. Noting that "many researchers fail to distinguish between group average levels and developmental processes (correlations)" (Rowe, Vazsonyi, & Flannery, 1994), the authors used six independent data sources and used structural equation modeling to compare covariance matrices

for the different U.S. racial/ethnic groups (black, Hispanic, Asian, and white). The investigators' key finding was that "developmental processes in different ethnic and racial groups were statistically indistinguishable," and they concluded that "developmental processes are indeed invariant across U.S. racial and ethnic groups" (Rowe et al., 1994).

The findings by Vazsonyi and colleagues on the applicability of PBT, developed in the U.S., to adolescent problem behavior in both Switzerland and Georgia, should not, therefore, elicit surprise. After all, when astrophysicists seek to account for the movements of planets in our solar system, they do not invent different theories for different planets just because they differ in appearance; when neuroscientists seek to account for the functioning of neurons, they do not invent different theories for different model animals just because they differ in appearance. For studies of adolescent behavior, health, and development, descriptive differences do not preclude underlying similarity in causal relations or invariance in the explanatory account.

References

Dmitrieva, J., Chen, C. S., Greenberger, E., & Gil-Rivas, V. (2004). Family relationships and adolescent psychosocial outcomes: Converging findings from Eastern and Western cultures. *Journal of Research on Adolescence, 14*(4), 425–447.

Greenberger, E., Chen, C. S., Beam, M., Whang, S. M., & Dong, Q. (2000). The perceived social contexts of adolescents' misconduct: A comparative study of youths in three cultures. *Journal of Research on Adolescence, 10*(3), 365–388.

Jessor, R., Turbin, M. S., Costa, F. M., Dong, Q., Zhang, H., & Wang, C. (2003). Adolescent problem behavior in China and the United States: A cross-national study of psychosocial protective factors. *Journal of Research on Adolescence, 13*(3), 329–360.

Lewin, K. (1931). The conflict between Aristotelian and Galileian modes of thought in contemporary psychology. *Journal of General Psychology, 5*(2), 141–177.

Link, T. C. (2008). Youthful intoxication: A cross-cultural study of drinking among German and American adolescents. *Journal of Studies on Alcohol and Drugs, 69*(3), 362–370.

Rowe, D. C., Vazsonyi, A. T., & Flannery, D. J. (1994). No more than skin deep: Ethnic and racial similarity in developmental process. *Psychological Review, 101*(3), 396–413.

Vazsonyi, A. T., Chen, P., Young, M., Jenkins, D., Browder, S., Kahumoku, E., et al. (2008). A test of Jessor's problem behavior theory in a Eurasian and a Western European developmental context. *Journal of Adolescent Health, 43*(6), 555–564.

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