



# The Multidimensional Taxonomy of Individual Resilience

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## Abstract

Theoretical work in resilience has continuously evolved to inform and respond to advances in empirical work. In order to further scientific inquiry, it must continue to do so. This narrative overview of the field of resilience science focuses on contemporary challenges confronted by theoretical models of individual resilience and proposes a taxonomic structure for resilience—the multidimensional taxonomy of individual resilience (MTIR). The goal of the MTIR is to articulate a systematic framework within which extant theoretical and empirical work can be nested. Consistent with existing work, the MTIR organizes resilience into two primary branches—manifested resilience and generative resilience. These two components are then organized into subdomains that demonstrate evidence of conceptual distinctiveness. The specification of the subdomains in the MTIR draws support from a diverse body of work on resilience across disciplines and in multiple global contexts. The MTIR makes several critical advances, including expanding and refining the definitions and components of resilience in psychology, providing a clearer framework for conceptualizing mixed profiles of resilience, and tempering assumptions regarding the relational dependencies across domains of resilience. Finally, the utility of the MTIR in organizing research in resilience and advancing theory-testing and development is discussed.

## Keywords

resilience, adversity, trauma, multidimensional, multisystemic

Theoretical and empirical works focused on resilience have achieved important points of convergence in defining and refining its conceptual boundaries. Areas of agreement include recognition that resilience is (1) not a trait, although several traits may be important predictors of positive adaptation after adversity, (2) dynamic, in that it changes over time, and (3) multisystemic, in that it develops transactionally across persons and social systems (Luthar & Zelazo, 2003; Masten & Cicchetti, 2016; Ungar, 2012, 2018). Perhaps one of the most challenging aspects of resilience science is that such a dynamic and multisystemic concept makes it difficult to subject to direct measurement, and resilience must therefore be inferred from measurements theorized to “tap in” to the overall latent concept (Rutter, 2012a, 2012b).

Taxonomies, or systems for scientific classification, may be especially useful in providing a clarifying structure for such dilemmas. Taxonomies in the social sciences have a dual purpose—they not only seek to classify and operationalize but also to provide a structure within which the theoretical relationships between component parts can be articulated. As such, it should be expected that taxonomies will advance in their refinement and structure as empirical research and theory advance. To date, there is unquestionably sufficient theoretical and empirical work in resilience to inform the early development of a taxonomic system. The multidimensional taxonomy of

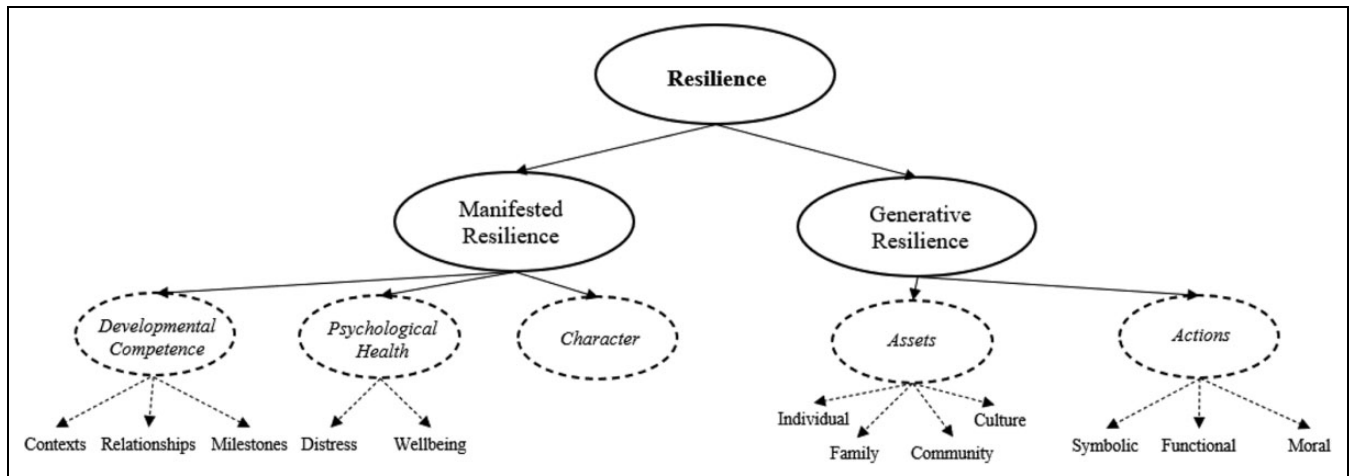
individual resilience (MTIR) proposed here seeks to integrate extant theoretical work on individual resilience to further expand and refine its definitional articulation as well as to provide a framework within which resilience theory can continue to advance. Several elements of the model clearly synchronize with contemporary resilience theory in psychology, but other elements expand beyond it, drawing upon important insights from other disciplines with clear import and evidentiary support for their inclusion in a taxonomy of resilience for psychological science.

Part of what has made the conceptualization of resilience so elusive is that it can refer to both *process* and *outcome* (Masten, 2014, 2016; Rutter, 2012a, 2012b; Ungar, 2012, 2018). The distinction between resilience-as-outcome and resilience-as-process is one that is largely well-established and accepted in the field of resilience science, and it is retained in the MTIR (see Figure 1). Generally, resilient outcomes are referred to as

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**Figure 1.** The multidimensional taxonomy of individual resilience.

*manifested resilience*, defined as “observable success in adapting to challenges” (Masten, 2016, p. 298). In contrast, models of resilience-as-process frequently draw upon Urie Bronfenbrenner’s (1979) social ecological theory of human development as a guiding framework and refer to the process of recovery *or* the process of navigation and negotiation for needed resources aimed at facilitating positive adaptation (Luthar et al., 2000; Masten, 2011; Ungar, 2012, 2018). Common to both these understandings is that resilience-as-process is transactional, dynamic, and multisystemic. To refer to resilience-as-process, the MTIR proposes the term *generative resilience*. This nomenclature is useful because it captures the potentiating quality of this type of resilience—that is, the subdomains in this branch of resilience are generally expected reflect individuals’ available resources for and mounted responses to managing the potential effects of adversity.

Although extant theoretical models of resilience generally frame manifested and generative resilience as linked in mutual reinforcement, scholars have highlighted the critical need for better conceptual specification in order to more precisely identify how these two aspects of resilience are interrelated (Fletcher & Sarkar, 2013; Ungar, 2012). This is in part due to the fact that success in potentiating manifested resilience may be significantly hampered by ongoing adversity, including structural inequity. As such, generative resilience should be considered a form of resilience in its right, not as solely a precursor to manifested resilience, since this relationship may fail to exist solely due to external constraints. This is especially important given observed variation in the strength of association of various indicators of manifested and generative across both constructs and contexts (Hamby et al., 2018; Park et al., 2004; Tol et al., 2013).

## Aims of the Review

The aim of the current review is three-fold. First, a brief narrative review of the literature on resilience is conducted with the goal of highlighting some of the challenges encountered by

extant theoretical models. Second, a taxonomic model, the multidimensional model of individual resilience (MTIR), is proposed as a means of organizing previous work in resilience science to create a structure that more clearly specifies and organizes distinctive aspects of individual resilience. In doing so, the MTIR seeks to both underscore the relevance of advances already made by resilience scientists and expand upon them by the integration of other theoretical and empirical work that responds to the pressing dilemmas currently faced by the field. Finally, the utility of the taxonomic model in organizing research in resilience and advancing theory-testing and development is discussed.

## Aim 1: Brief Overview of the Theoretical and Empirical Literature on Individual Resilience Why Individual Resilience?

The selection of the term “individual” may at first seem counterintuitive, given the common understanding of resilience as multisystemic and contextual. It is nonetheless a critical marker of the boundaries of the research reviewed here and the scope of the MTIR. That is, the focus of the current review and taxonomic structure is on the individual as the *core unit or level of analysis*. This recognizes that while resilience is multisystemic and transactional, that different systems may be characterized by meaningfully different internal processes and theories of change (Masten, 2014; Norris et al., 2008). The conceptualization of the individual as the unit of analysis within a series of dynamic systems rises from social ecological theories of development, which understand systems as “place[s] with particular features in which individuals engage in particular activities in particular roles . . . for particular periods of time” (Bronfenbrenner, 1979, p. 514). Here, the focus is on how individuals react and behave as agents within dynamic systems rather than on the particular properties that govern the higher level resilience *within* those larger systems. This does not obviate the importance of studying the resilience of broader

systems or the critical placement of the individual within them—far from it—but it importantly demarcates the boundaries of theory and measurement to focus on those directly relevant to understanding the outcomes and processes enacted on and by the individual.

*Challenges in the conceptual “bounding” of adversity.* Resilience is importantly distinct from other related streams of work on positive youth development (Lerner et al., 2005), flourishing (Narvaez et al., 2016), and positive psychology (Seligman & Csikszentmihalyi, 2000) in that it is interested not just in positive traits, behaviors, and adaptation but the presence of these adaptations in response to or in the aftermath of adversity (Ungar, 2018; Wright & Masten, 2015). Despite the fact that adversity is a critical pre-condition for distinguishing resilience from other theories of positive adaptation, there is no agreed-upon threshold for what constitutes adversity, typically defined as experiences posing a significant threat to adaptation or development (Masten, 2014). An overinclusive understanding of adversity (e.g., the presence of any life stressor) makes the concept of resilience nearly indistinguishable from other theoretical models of positive development as we anticipate that *all* individuals experience such stressors. An overly restrictive understanding of adversity, in contrast, risks an unhelpful focus on only the most highly observable, overt forms of adversity (e.g., child maltreatment or torture) to the neglect of other forms of adversity that are “silent” but no less pernicious (e.g., poverty; Meng et al., 2018; Smith et al., 2019).

An additional complication is that adversities are unlikely to impact domains of resilience equally. In research on allostatic load, for example, it appears that stress demonstrates a generally linear relationship with some outcomes, but other outcomes show a pattern of threshold effects, where declines in adaptation are only noted once a particular “threshold” of risk has been exceeded (e.g., Seeman et al., 2001). It is therefore possible that the risk posed any given event is conditioned on the number and severity of events that preceded it. The extent to which it threatens adaptation is also likely contingent on the particular domain of resilience under study. Further, intersectional theorists would argue that an individual’s particular matrix of adverse experiences is differentially weighted across contexts, suggesting that the potency of adversity may shift across setting and time (Hancock, 2007).

A related problem is the expected timing of resilience relative adversity. Although resilience theory has worked to accommodate chronic forms of adversity and mass trauma (Masten & Narayan, 2012; Masten, 2014), these models still largely assume that adversity has a start and end point *within* an individual’s lifetime. Each person is assumed to have a “pre-adversity baseline” against which their future functioning is compared to determine the presence or absence of resilience. Notions of “baseline” functioning in resilience research have been critiqued because such frameworks assume that there is some level of stability in individuals’ functioning over time, which is largely not the case, especially in settings with chronic environmental risk (Barrios, 2016). It is difficult, for example,

to consider how to capture resilience in the context of systematic and structural forms of violence. These forms of adversity may continue to be present even in the absence of direct forms of adversity in ways that are highly relevant for understanding both manifested and generative resilience (Quandt, 2018). Further, it is easy to identify cases where direct or structural violence has been sustained across the lifespan (e.g., Palestinian refugees; Giacaman et al., 2007) or across many generations (e.g., historical and structural forms of adversity experienced by Native peoples; Evans-Campbell, 2008). These enduring forms of adversity, coupled with evidence of “trickle down” intergenerational effects on adaptation, further complicate our understanding of “pre-adversity” baselines (Miller-Graff, Nuttall, & Lefever, 2018).

Although the complications of studying adversity must necessarily unfold over time in the context of robust and co-developing theoretical and empirical work, the MTIR defines adversity as follows: incident experiences and chronic circumstances that are undesired, negative and outside the scope of a developmentally optimal human experience. This definition therefore omits from inclusion events omnipresent across the life experiences of all persons (e.g., the death of a loved one in old age of natural causes). Such events are certainly *stressful*, but if they are included in the conceptualization of adversity, the study of resilience becomes indistinguishable from general work on positive/adaptive developmental processes. The phrase “developmentally optimal” was selected over “developmentally typical” for the reason that in many contexts, adversity represents a typical experience, but its typicality does not make it less troubling.

*Challenges in the conceptualization of resilience.* In addition to difficulty articulating the definition and role of adversity in individual resilience, both primary “branches” of resilience contend with challenges posed by emerging empirical work. Assuming one can identify a range of culturally relevant markers and qualities of manifested and generative resilience—no mean feat—manifested resilience has a somewhat tidier transition to empirical measurement than does generative resilience. That is, because manifested resilience is *not* a transactional process but an “achieved” outcome, it can arguably be more readily captured with discrete measurement tools that “stand apart” from transactional processes. It should be noted, however, that static (i.e., one assessment point) achievement of particular developmental competencies as sufficient to establish manifested resilience is debated, as some resilience theorists argue that there must be demonstrated stability of manifested outcomes over time for individuals to be considered truly “resilient” (Bonanno, 2012). In the context of chronic adversity, the evaluation of trajectories of manifested resilience over time may be especially critical, given that isolated “dips” in functioning related to continuing adversity may fail to capture longer term patterns of resilience.

There is also ardent argumentation rising from resilience theorists that the absence of psychopathology is insufficient evidence for the presence of resilience (Bonanno, 2012; Grych

et al., 2015), despite the popularity of this approach in the empirical literature (Yule et al., 2019). Such theorists argue that the lack of psychopathology does not necessarily suggest the presence of explicitly positive adaptation and competence (Bonanno, 2012; Masten, 2014). Further, many argue that from a qualitative perspective, individuals asked to report on what they believe to be resilient functioning do not simply say such things as “not being depressed” but rather report explicitly positive characteristics such as “living a good life” (Grych et al., 2015; Masten, 2014). While the conceptual difference is duly noted, the empirical problem is that many indicators of resilience—even those that are explicitly positive—are robustly and consistently associated with indicators of psychopathology. This is especially true of assessments of psychological wellness, as opposed to more distinctive constructs, like academic achievement (Luthar et al., 2000). This has led theorists to suggest that the integration of both positive and negative indicators of functioning may be an optimal path forward for the measurement of manifested resilience (Bonanno et al., 2011; Luthar et al., 2014). Little work to date, however, has addressed how the relationship among such indicators should be considered—especially in cases where positive adaptation and psychological distress coexist. This is a frequently noted phenomenon in recent work examining both positive and negative indicators of functioning and in theoretical work on the dual factor model of mental health, which posits that includes the inclusion of both assessments of subjective well-being in addition to psychopathology provides the most robust understanding of mental health (Antaramian et al., 2010; Infurna & Luthar, 2017b; Martinez-Torteya, et al., 2017). For example, Antaramian and colleagues (2010) found that adolescents exhibited four distinct profiles of mental health: positive mental health (67%), significant psychopathology but high well-being (17%), low psychopathology and low well-being (8%), and distressed (8%).

A clear depiction of the most relevant indicators of resilience and their relationship to one another has also been precluded somewhat by subdisciplinary and interdisciplinary silos that have produced divergences in indicators across models. Empirical examinations of resilience rising from developmental and ecological perspectives, for example, often fail to account for character strengths and trait-change factors that have characterized work on this topic among positive psychologists and personality theorists (e.g., Grych, et al., 2015; Jayawickreme & Blackie, 2016). Similarly, moral and ethical understandings of and responses to adversity central to many anthropological and theological understandings of resilience have largely been omitted from the psychological literature (Kleinman, 2006; Panter-Brick, 2015; Titus, 2017). For example, Panter-Brick (2015) describes how, in the context of chronic adversity and oppression, themes of justice, dignity, and respect emerge as central. Titus (2017) also highlights that conceptualizations of the human person all fundamentally rest on philosophical and theological assumptions about the human person in society. The neglect or oversimplification of these assumptions, he argues, leads to an impoverished view of the

complex processes at play in developing aspects of resilience such as virtue (Titus, 2017). In short, there has been significant progress across fields regarding the possible indicators of manifested resilience, but the concept would be meaningfully advanced by identifying and integrating relevant subdomains capturing the range of conceptual “clusters” of indicators that have emerged across disciplinary and subdisciplinary boundaries.

Integrating interdisciplinary work into conceptual clusters or subdomains of manifested resilience also has the benefit of furthering the empirical articulation of how subtypes of manifested resilience relate to one another within and across contexts and time. This would do much to forward a scientific examination of a third core debate related to manifested resilience—that is, how to interpret “pathological” resilience and potential “spoiler” effects. In this matter, there is actually relatively little agreement across major resilience theorists. Masten et al. (2015), for example, notes that “. . . in developmental science, the concept of resilience [carries] the connotation of good outcomes, requiring definitions and judgements about what constitutes positive or desirable outcomes for children” (p. 10). Michael Ungar’s (2004) work, in contrast, concludes that “problem behaviors help some individuals experience themselves as resilient” (p. 357), citing evidence of marginalized street youth utilizing neo-Nazi ideology to help achieve a needed sense of power and esteem (Totten, 2000). The challenge, as Ungar (2004) rightly notes, is that not all deviant behaviors can be identified as resilient, but there are also situations where deviance is either (a) a matter of perspective or (b) a reasonable response to an extreme adversity. As such, any interpretive “judgment” on the “goodness” of particular outcomes is necessarily highly contextual and situational (Ungar, 2012) and models of resilience must be sufficiently flexible to evaluate how individual indicators of resilience might vary in meaning and adaptive quality across and within contexts (Wright & Masten, 2015). The complexities presented by this debate suggest the relevance of a taxonomic structure that recognizes the multidimensionality of manifested resilience, permitting for a deeper, refined, and more systematic exploration of the diverse ways in which “profiles” of resilience vary across subdomains.

Over the past several decades, theoretical and empirical work on resilience has increasingly focused on the evaluation of resilient processes (Luthar et al., 2000). Consistent with a developmental psychopathology perspective, developmental models of resilience have often focused on individual and sociocontextual factors that contribute to patterns of risk and resilience across the lifespan (Cicchetti & Toth, 2009). In contrast, constructionist perspectives describe “process” as the extent to which individuals navigate and negotiate for needed resources across systems, which are themselves more or less resilient (Ungar, 2012). Common to both theoretical perspectives is a core focus on the incorporation of multisystemic protective factors across an individual’s social ecology that “shape the individual’s capacity to experience resilience when experiencing adversity” (Ungar, 2012, p. 21). Brought

together, these perspectives highlight a meaningful taxonomic branching for generative resilience into two core factors: (1) multisystemic *assets* representing resources accessed by individuals that are postulated to contribute to manifested resilience and (2) *actions* individuals take to mount a response to adversity.

Multisystemic assets, inasmuch as they are evaluated within longitudinal process models, are often modeled as mechanisms of change or predictors of later adaptive functioning. For example, one might consider how family support and neighborhood predict (and promote) later mental health (Miller-Graff, Howell, & Scheid, 2018). The study of these factors, typically organized into social ecological levels using Urie Bronfenbrenner's (1979) framework, has been strongly represented in recent empirical work on resilience and is a major organizing force for the field (e.g., Betancourt & Khan, 2008; Wright & Masten, 2015). As a result, there is relatively strong agreement regarding both the core "levels" of analysis as well as some of the most "universal" factors in terms of the relevance of their protective role across cultures. Some of the core assets that have been identified across cultures as most relevant for manifested resilience include relational supports, access to material resources, and social cohesion (Ungar, 2015). Importantly, the structure and function of such promotive factors may vary across cultures, pointing to the importance of contextually and culturally grounded assessments, even of "common" promotive resources (Ungar, 2008).

Despite the agreement on many of the core "levels" of analysis in the evaluation of multisystemic assets, empirical research in this area has often encountered challenges in delineating the conceptual bounds of assets and manifested resilience. The problem of conceptual boundaries between assets and manifested resilience arises, in part, from the unsurprising fact that manifested resilience at one time is likely to predict future manifested resilience (Luthar et al., 2000). Without a clear conceptualization of subdomains, it quickly becomes perplexing (and potentially tautological) to determine where to "place" such concepts theoretically in terms of whether they represent "process" or "outcome." The consequence is a failure of empirical models to adequately distinguish trajectories of positive manifested adaptation from the processes and resources that promote that adaptation; an important distinction—especially as resilience science attempts to branch into intervention. Here, the MTIR seeks to decouple manifested resilience and generative resilience from language that statistically implies how such concepts must be studied "frees" research to engage in a more concept-driven evaluation of longitudinal processes.

A second aspect of generative resilience, individual actions, however, also required elaboration to distinguish it from multisystemic assets. This subdomain of generative resilience often includes processes such as coping, appraisal, meaning making and active participation in community and culture (Coifman et al., 2007; Grych et al., 2015; Ungar, 2008; Utsey et al., 2007). Although the theorized interrelationships and mechanisms between generative and manifested resilience vary somewhat

across theoretical models, the conceptual delineation of assets and actions is not just typological, but central to varying hypotheses about how generative resilience may (or may not) give rise to manifested resilience.

In addition to challenges related to the definitional specification of generative resilience, this aspect of resilience encounters difficulties similar manifested resilience in how to address "spoiler" effects. That is, there is evidence that generative resilience may not always be associated with manifested resilience in expected ways based on contextual, cultural, or situational factors. Regarding situational factors, for example, research by Coifman and colleagues (2007) found that individuals high in repressive coping, which has typically been associated with negative outcomes, had better adjustment during bereavement (Coifman et al., 2007). Bonanno (2005) also notes that manifested resilience can be produced in the context of acute traumatic events when individuals engage in a "whatever it takes" approach, which often involves maladaptive—but effective—actions. For example, the presence of cheating behavior rises when contextual factors emphasize performance over mastery, and although an undesirable process from an ethical perspective, cheating can lead to a sense of preserved self-worth and higher achievement in such contexts (Sideridis & Stamovlasis, 2014). An example of cultural and contextual factors affecting the nature and direction of the relationship between generative resilience and manifested resilience can be found in research on children's caregiving responsibilities, which have long been purported to be represent maladaptive "parentification" of children (Jurkovic et al., 2001). This research indicates that expectations around children's filial responsibility vary significantly depending on cultural norms such as collectivism and familism (Jurkovic et al., 2005). Across and within cultures, the extent to which children perceive their responsibilities as *fair* within the particular norms and expectations of their context and culture is a much more important predictor of adaptive functioning than is level of caregiving responsibility alone (Jurkovic et al., 2001, 2005).

In sum, the extent to which generative and manifested resilience are associated appears to have complex overlays with environmental fit and cultural resonance. Further, possible positive consequences of malicious behaviors suggests that some the subdomains of manifested and generative resilience may be more closely predictively "tied" than others, motivating a serious consideration of whether malicious behavior should be considered resilient, and if not, how to better account for it in models of resilience. Constructionist perspectives on resilience further highlight challenges in the measurement of both manifested and generative resilience in that understandings of what it means to be resilient are socially constructed and contextually and culturally specific (Theron et al., 2015; Ungar, 2004).

## Aim 2: The MTIR

The core challenges reviewed above are certainly not exhaustive but highlight some concrete ways in which a clearer

specification of resilience's component parts can advance scientific inquiry in the field. First, more clearly specifying resilience into taxonomic "branches" can assist in both a clearer articulation of each branch and its relationship to the overarching concept of resilience. The creation of a taxonomic model permits for a nesting of more strictly operationalized definitions of the components of resilience that can partner with and organize existing theoretical models to further expand and advance resilience research. A developed taxonomy that reflects a multidimensional understanding of resilience permits a more refined investigation of how aspects of resilience differentially relate to adversity and to one another. A multidimensional taxonomy also allows for a more complex understanding of individuals, disrupting the assumption that individuals do well or do poorly across all indicators, consistent with recent empirical work (Infurna & Luthar, 2017a, 2017b).

The MTIR proposed here therefore seeks to integrate extant theoretical work on individual resilience but to further expand its articulation, both definitionally and regarding the possible interrelationships between domains. Further, this model seeks to integrate aspects of resilience that have been highlighted in empirical work in psychology and other disciplines but are largely omitted from contemporary theoretical models of resilience in psychology. Importantly, the MTIR forwards an important clarification regarding resilience; manifested resilience and generative resilience are both *forms* of resilience, meaning that they represent aspects of resilience in their own right and are not contingent on one another to be considered resilience. That is, manifested resilience following adversity does not necessarily have to be "produced" by generative resilience to be considered adaptive. Conversely, generative resilience does not have to "result" in manifested resilience as an intrinsic definitional criterion, as there is compelling evidence to suggest that there are many reasons that generative resilience fails to produce such adaptation—most notably ongoing structural violence and injustice.

### Manifested Resilience

The MTIR retains Masten's (2016) concept of manifested resilience as "observable success in adapting to challenges" (Masten, 2016, p. 298). Consistent with previous work, manifested resilience in this model assumes that from a cultural and social perspective, adaptation is explicitly *positive* in valence and value. This necessarily means that the standards for what is considered to be manifested resilience can and will meaningfully vary across contexts (Luthar et al., 2000; Theron et al., 2015). Given previous work suggesting heterogeneous rather than homogenous profiles of manifested adaptation within individuals, the MTIR divides manifested resilience into the subdomains of *developmental competence*, *psychological health*, and *character*. These subdomains reflect a sensible and systematic integration of the extensive body of empirical work on manifested resilience while also recognizing that functioning in each of these domains is relatively separable and demonstrates distinctive relationships with adversity. Adverse life events, for

example, have been shown to have stronger relationships with indicators of psychological health (e.g., subjective well-being, mental health) than with aspects of character, which may demonstrate relative stability despite adversity for at least some individuals (Chopik et al., 2020; Hamby et al., 2018). It is important to recognize that these "subdomains" represent fields of work with vast bodies of literature in their own right and that there is also likely to be meaningful variation in predictive relationships *within* and not just *between* domains. The description of each subdomain of manifested resilience here therefore aims only to provide a working understanding of each domain focused on framing its relevance to the overall conceptualization of manifested resilience, rather than an exhaustive review of the literature in each area.

*Developmental competence* is defined as the successful acquisition of developmentally relevant skills in multiple domains, consistent with the "major expectations of a given society or culture in historical context" (Masten, 2001, p. 229). Drawing heavily from a developmental psychopathology approach (Masten et al., 2015) and earlier articulations of resilience theory, this subdomain would be expected to include competence in both contexts (e.g., school, work) and relationships (e.g., interpersonal skills), in addition to the achievement of individual, developmental milestones (e.g., language acquisition).

As is critical in establishing taxonomic separation, empirical work supports the conceptual distinctiveness of developmental competence from both psychological health and character. For example, in an analysis of multiple dimensions of manifested resilience, psychological health and competence in school and interpersonal relationships emerged as empirically separable constructs (O'Donnell et al., 2002). Further, different types of manifested resilience were predicted with different strength by multisystemic assets (i.e., parent, school, and peer support) and exhibited slightly different relationships with victimization (O'Donnell et al., 2002). Another recent study showed that while a minority of children experience maladaptation across numerous domains of manifested resilience, it is common for children to have preserved functioning in some areas but not others (e.g., low adaptive and social behavior but preserved functioning in family relationships; Martinez-Torteya et al., 2017). There is also compelling evidence that character and developmental competence are meaningfully associated but conceptually distinct. For example, in a study of university students, a broad range of character strengths had modest yet significant relationships with assessments of life satisfaction but far weaker associations with academic competence (Lounsbury et al., 2009).

*Psychological health*. Drawing on the dual factor model of mental health, the MTIR conceptualizes psychological health as two unique but interrelated dimensions, including both the absence of distress and disorder and the presence of well-being (Antarmanian et al., 2010). It has been noted that including negative understandings (i.e., absence of psychopathology) in conceptualizations of psychological health *is* important inasmuch as

there are meaningful and consistent differences in adaptive functioning related to the presence of mental illness (Keyes, 2005). Yet, the dual factor model of mental health argues that an overreliance on psychopathology as a primary indicator leads to an impoverished understanding of psychological health, which is better typified by considering psychopathology and well-being as intersecting continuums that produce a variety of patterns of wellness (Wang et al., 2011), with this patterned variation differentially associated with other adaptive outcomes (Smith et al., 2020; Suldo et al., 2011). For example, one study found that student well-being was most closely tied to social functioning with peers, while the quality teacher–student relationships were more strongly influenced by student psychopathology (Smith et al., 2020).

Indeed, though resilience research aims to focus on indicators of positive adaptation, meta-analytic work has suggested that empirical research has overwhelmingly focused on the absence of psychopathology (Yule et al., 2019). Consistent with the dual factor model of mental health, resilience researchers have underscored the importance of including negative and positive indicators together in a comprehensive assessment of manifested resilience (Bonanno et al., 2011; Hamby et al., 2018). Some recent work on multidimensional indicators of resilience has incorporated this perspective, “bundling” together measurements of distress with other aspects of positive health and well-being, supporting the relevance of the dual factor model for understanding and describing manifested resilience in the aftermath of adversity (Infurna & Luthar, 2017a, 2017b).

In terms of well-being, it is important to note that most researchers studying well-being include both hedonic and eudaimonic aspects of assessment (Huta & Waterman, 2013; Keyes, 2005). Hedonic well-being in such models typically refers to subjective affective states of happiness, satisfaction, or pleasure (Huta & Waterman, 2013). Eudaimonic well-being, in contrast, typically refers to action-oriented, externalized behaviors that promote a life of value and excellence (Huta & Waterman, 2013). In the MTIR domain of psychological health, the focus is on hedonic well-being, not because it is more important or central but because it is more closely tied to the construct of psychopathology in terms of its focus on affectivity and because eudaimonic well-being is captured within the generative resilience branch of the MTIR. In short, the construct of psychological health, as articulated in the MTIR, represents a compilation of indicators of distress (i.e., psychopathology, negative affectivity) and well-being (i.e., happiness, satisfaction and enjoyment) that are primarily reflect a state-based assessment of global psychological health.

*Character* can be defined in a variety of ways, but its conceptualization in the MTIR defines it as a state of being, formed by both nature, habit, and ecological forces that represents a propensity for “right action” in reference to a particular context or circumstance (Aristotle as translated by Gellera, 2017). Although philosophical understandings of character understand it as a reflexive relationship between action and state, the MTIR constrains the measurement of character to its

manifested aspect here, focusing on trait-based features common to taxonomic and theoretical models in personality psychology (Aquino & Reed, 2002; Cohen & Morse, 2014; Peterson & Seligman, 2004). This is certainly not to preclude the relevance of moral action, but rather, the MTIR situates moral action in the domain of generative resilience, which takes up action-oriented components of this dimension of resilience. This conceptual distinction is further supported by meta-analytic work suggesting that features of character are only modestly associated with moral behavior (Hertz & Krettenauer, 2016).

Psychologists conducting research on resilience have engaged remarkably little with character, despite engagement of such concepts in theoretical models of posttraumatic growth (e.g., Staub & Vollhardt, 2008) and more robust work in other psychological subdisciplines, such as the moral development (Narvaez & Lapsley, 2005) and positive psychology (Peterson & Seligman, 2004) literatures. Moral character is deserving of a place in the conceptualization of manifested resilience for several reasons. First, it is an important response to concerns regarding “spoiler” effects, particularly in cases where individuals exhibit good psychological health and developmental competence, but would generally be perceived by others to be characterologically deficient or morally “corrupt.” Similarly, we could envision individuals of strong character who “fail” to achieve competency in the normative sense, yet whom we would not discount as poor examples of resilience. By adding character to the conceptualization of manifested resilience, we give better language to describe these varied profiles and can more meaningfully explain how particular domains may relate differentially to aspects of generative resilience.

Importantly, character in the MTIR is broadly conceptualized and does *not* solely represent the inclusion of strengths explicitly associated with individual well-being. Although it is clear that some character strengths are more strongly associated with psychological well-being than others (Park et al., 2004; Toner et al., 2012), a lack of relationship does not diminish the relevance of character to other aspects of resilience in the context of adversity. For example, a recent study of high school students found that interpersonal character strengths (i.e., modesty and humility, kindness and generosity, forgiveness and mercy, fairness/equity/justice, and citizenship/teamwork/loyalty) were not associated with subjective well-being or happiness but may have important relevance for the overall social environment (Toner et al., 2012).

Together, the conceptualization of manifested resilience in the MTIR, including the domains of *developmental competence*, *psychological health*, and *character*, serves several important functions. First, it recognizes the multidimensional and heterogeneous nature of manifested outcomes following adversity that has been noted in previous work while also effectively moving toward a conceptual integration of factors into a broader framework. Within the domain of manifested resilience, interrelationships can be understood as probabilistically mutually reinforcing over time but not tautologically so (i.e., character strengths that do not relate to well-being can still be

considered resilient). This better accommodates the variability in noted in interrelationships between various forms of manifested resilience and permits for clearer theory-testing of how and why different profiles of manifested resilience might emerge following adversity. Further, it allows for greater flexibility in identifying how generative forms of resilience relate to manifested resilience, recognizing that some forms of generative resilience may be more closely tied to some forms of manifested resilience than others.

### Generative Resilience

Generative resilience is defined in the MTIR as the unique composition of assets available to and accessed by an individual across their social ecology and actions taken to redress the effects of adversity on the individual, relational, or common good. This definition is consistent with theoretical work that posits the transaction of assets and action in the “generation” of other manifested resilience but expands upon it in significant ways. First, though the MTIR makes use of the commonly recognized subdomains of assets and actions, it expands the conceptualization of actions significantly to include not only functional actions designed to directly facilitate manifested resilience but also to include moral and symbolic actions, which are often represented in work on resilience outside of psychology.

*Assets* refer to the multisystemic resources and opportunity structures available to and accessed by an individual at multiple levels of the individual’s social ecological context. Despite some divergences in terminology (e.g., Grych et al., 2015 “assets and resources”; Ungar, 2012 “opportunity structures”; Wright & Masten, 2015 “promotive factors”), this taxonomic domain is a subdomain that has achieved relatively strong specification and support in both theoretical and empirical work in resilience. The evaluation of assets generally includes an “accounting” of the resources and opportunity structures to which an individual has access within various social ecological systems. The MTIR includes individual, family, neighborhood/community, and culture/context, accordingly, as levels of analysis, although there are certainly other relevant and meaningful systems that one could include within this framework. Various resources and opportunity structures at each of these social ecological levels have been a focus of recent syntheses of the research literature, which have compiled “lists” of the key promotive factors in each that are consistently associated with manifested resilience (e.g., Masten, 2014). Recent theoretical work has also expanded hypotheses regarding the role of assets, suggesting that both their density and diversity may be important (Grych et al., 2015).

The biggest challenge posed by the inclusion of multisystemic assets in models of resilience is adequately distinguishing individual promotive factors (as one “level” within multiple resource systems) from manifested resilience, since there is reasonable evidence to suggest that manifested resilience begets manifested resilience (Lerner et al., 2010). There are in fact numerous individual difference factors, however, that

clearly do not reflect manifested resilience but could be conceptualized as assets inasmuch as they confer a particular resource or advantage. For example, recent research has highlighted the relevance of behavioral genetics in understanding differential resilience/vulnerability to environmental adversity across the lifespan (Keers & Pluess, 2017). Since one’s genetic makeup is not an “achieved” outcome, it doesn’t fit well within conceptualizations of manifested resilience. Rather, it is best conceptualized as an individual asset factor that coexists among others in a multisystemic framework.

*Actions* refer to conscious, agentic behaviors by individuals designed to redress the effects of adversity on the individual, relational, or common good. The MTIR’s definition of actions thus incorporates key elements central to this understanding of resilience in extant theoretical literature (Ungar, 2012) but expands upon them in important ways. Most critically, it is inclusive of actions taken by an individual that are not specifically designed—or necessarily even result in—any direct “benefit” for individual manifested resilience. For example, work on resilience in post-disaster settings has suggested that many individuals who survive natural disasters, particularly those with marginalized identities (i.e., physical disability), survive due to social ties that assisted in promoting their safe exit from risk zones (Aldrich, 2012). Individuals assisting others out of disaster zones often take on some level of personal risk to do so, and the immediate outcome (i.e., the protection of another individual) is not intended to produce gains for their manifested resilience. It is critical to recognize that while we seek (here) to evaluate the individual as the unit of analysis as the focal point of measurement, individuals are still a part of a complex and multilayered social system, and their constructive membership in and individual action upon these systems are a part of generative resilience. If we overrestrict our view of resilience-as-process to include only those actions conferring direct and immediate benefit to the individual, we ignore the inherently dynamic characteristics of social and cultural interaction that in themselves constitute a type of resilience, regardless of whether or not individuals intentionally seek to “gain” from them. It is important, however, that generative resilience be “more” than just any good action. Consistent with this, the definitional understanding of actions in the MTIR is inclusive of actions specifically taken to redress the effects of adversity rather than adaptive action more generally.

Resilience as a form of transformative agency that is performed by individuals has appeared in the context of theoretical work in anthropology and social work (Brown & Westaway, 2011; Panter-Brick, 2014; Ungar, 2012) and is also reflected in process-oriented theoretical models of resilience in psychology (e.g., Grych et al., 2015). The MTIR draws together multidisciplinary theoretical and empirical work to further elucidate this dimension of resilience, categorizing it into three novel subdomains: functional action, moral action, and symbolic action. Definitionally, the subdomains are distinguished from one another by the person–object relationship of the action: individual actions directed at the self (functional), individual



actions directed at the common good (moral), and individual actions directed at broader sociocultural narratives (symbolic).

*Functional action* employs the most classical understanding of resilience-as-process, referring to the ways in which individuals seek to promote or sustain their own individual manifested resilience (Ungar, 2012). That is, functional action is constituted by external actions and internal processes enacted by the individual, in response to adversity, for benefit of the individual (i.e., oriented toward facilitating a particular form of individual manifested resilience), regardless of the actual success in achieving a “gain” in manifested resilience. Functional action incorporates many of the classical “processes” identified as relevant to manifested resilience after adversity, including coping, meaning making, and problem-solving (Grych et al., 2015; Masten, 2014). Incidentally, many of the characteristics of eudaimonic well-being, omitted from the manifested resilience in this taxonomy, are best captured here (e.g., meaning making, self-management, active engagement, environmental mastery; Ryff, 2014). These processes are directly aimed at confronting and responding to the adversity in question with the underlying motivation of individual change. This type of resilience aligns most closely with previous conceptualizations of resilience-as-process, and generally we would expect this form of action to have the strongest relationship with manifested resilience. In most cases, empirical work suggests that functional action is meaningfully tied to various aspects of manifested resilience. For example, a recent study found that religious coping moderated the effect of acculturative stress on life satisfaction in a sample of Muslim adults living in New Zealand (Adam & Ward, 2016). Similarly, recent empirical work has identified interrelationships between functional processes such as meaning making and character strengths, such as forgiveness (Hamby et al., 2018).

It is important, however, that functional action not be dependent on its achieved outcome for it to be understood as resilience. In many cases, for example, manifested resilience consequent to functional action may only be produced long-term or may never occur at all, despite an individual’s best efforts. For example, one could argue that voting as a way of advocating for self-interests could represent a form of functional action. That is, by activating citizenship rights in voting, individuals seek to achieve a desired resource outcome that has some discernable benefit to their manifested resilience. Yet it’s not clear that voting necessarily produces the desired results, at least in the near term, and it may never result in the desired outcome for the individual. Further, it is also important to recognize that structural power dynamics may also interfere with and attenuate the relationship between functional action and manifested resilience. By way of example, consider the recent senatorial election in Alabama. One of the contested events preceding the election was the institution of a new voter registration law requiring a photo ID to vote, which was closely followed by budget cuts resulting in the closure of Department of Motor Vehicle offices in counties with a disproportionately high number of Black residents (Rincon, 2017). Here, the ability of individuals to assert their individual political will (i.e.,

functional action) and the likelihood of the success of that action are attenuated by overarching governmental power structures that have been complicit in structural marginalization of these communities, with those living in predominantly Black communities having to exert decidedly more effort to obtain the necessary documentation to vote than those in predominantly White communities. Racial gerrymandering (Cason, 2017) also means that individuals who do successfully engage in the functional action of voting are also likely to exert differential impact and experience differential success in voting, with some votes receiving more political value than others in systematic ways.

*Moral action*, in contrast, refers to ways in which individuals act in response to adversity, with the value-driven desire to do good. Moral actions are directed at the common good, understood here as not necessarily excluding the self, but rather including both the self and the community as interrelated and integral parts of the common good (MacIntyre, 1981). Unlike functional action, moral action is best understood as having a positive effect on one’s individual manifested resilience as an indirect or situationally contingent by-product but not as a critical goal of the activity. That is, moral action is designed to facilitate the common good, of which the individual is a part; ostensibly, the individuals’ maintenance of the common good has important implications for the quality and cohesion of the society in which they live, with relevant implications for their (ultimate) individual adaptation, as well as that of others. To date, resilience research has largely focused on ways in which individuals act to preserve their own psychological health and developmental competence but has nearly entirely ignored the concept of moral action, unless it constitutes a violation of a social norm that appears as a “failed competency” (e.g., delinquency, O’Donnell et al., 2002).

This is at odds with clear evidence from research in both moral psychology and other disciplines regularly engaged with questions related to morality and ethics. For example, individuals identify a wide variety of character traits and their related actions as identity-central (Aquino & Reed, 2002). Higher centrality of moral identity is associated with a more expanded sense of regard for others (Reed & Aquino, 2003), suggesting that individuals’ engagement with moral values ultimately has meaningful implications for their social relationships. In turn, it is very clear from the empirical literature in psychology that the quality of social and community relationships has very clear implications for individual manifested resilience (Greene et al., 2015). We would therefore expect that—especially in contexts of adversity—moral actions of individuals may not always reflect an intention to promote individual manifested resilience though it need not exclude it. Rather, we would expect an expanded sense of self as a part of whole, with appropriate moral action taken to maximize “rightness,” even if it fails to produce direct “benefit.”

Although the idea of moral action has not been strongly represented in psychological research in resilience, it has gained increasing traction in other fields including medical ethics and ethics education (Young & Hylton Rushton,

2017). It has long been central to work on fear and virtue in theology and philosophy, and the thin (or absent) integration of morality in resilience research has been critiqued by moral theologians (e.g., Titus, 2006). In these fields, adversity is recognized as having inherent moral import—introducing ambiguity, complexity, and intense fear that threaten to challenge our understanding and ability to engage in moral behavior (Titus, 2006; Young & Hylton Rushton, 2017). Researchers have also noted that adversity can perniciously shape cultural and social norms within social micro- and macro-systems, making it moral socialization and moral action more difficult (Kleinman, 2006; Young & Hylton Rushton, 2017). For example, in describing his experiences in Maoist China, a working physician notes,

We feel alienated from any standard of values. Only those that count at the moment to help you get through mean something . . . Its' a corruption of what they once meant. This is the saddest and most unfortunate legacy of Maoism. (Kleinman, 2006, pp. 89–90)

Some psychologists have argued that despite the neglect of moral action in studies on resilience, constructs commonly integrated into resilience research, such as prosocial behavior, have inherently moralistic presuppositions (i.e., understandings of positive behavior in social groups are usually guided by underlying moral principles about right action (Staub, 2013). Thus, the neglect to seriously consider the moral presuppositions underlying theoretical conceptualizations of resilience, as well as the role of moral action in understanding responses to adversity, threatens to both leave incomplete psychological empirical research on resilience and weaken researchers' ability to critically reflect upon and engage with the culturally informed underpinnings of assessments.

*Symbolic action* refers to actions directed toward social and cultural narratives that promote meaning making or shift broader cultural discourses around adversity and resilience. Importantly, the individual participates in such actions without any intent or expectation to successfully obtain a particular resource or “good” for anyone but rather as an expressive act to counter or redress adversity abstractly. These acts could take many forms, including individual expression via cultural or religious practices, including the creation of cultural products, intentional maintenance of daily practices and habits in the midst of extreme hardship, or the participation in individual or collective social/political action. Such acts are deeply embedded in context and culture and are imbued with personal and collective meaning. Symbolic actions are clearly separable from functional ones in that they are not primarily oriented toward promoting manifested resilience, and they are distinctive from moral actions as they do not primarily pertain to the performance of a characterological virtue.

By way of example, a recent qualitative study of forms of resilience in Palestinian families highlighted the powerful tradition of passing down (across generations) the keys to homes from which families had been exiled (Atallah, 2017). Atallah

(2017) notes, “These keys are powerful symbols . . . and are frequently passed down from generation to generation as reminders of [the] right to have a history and to maintain a remembered presence as indigenous peoples” (p. 14). Such acts of symbolic resilience are distinctive in that they do not represent an overt attempt to access a particular asset or form of manifested resilience as might be true of functional action nor are they clearly aimed at larger moral goals. Although one could certainly imagine how such symbolic actions might contribute to some specific aspects of psychological health (e.g., satisfaction) or character (e.g., hope/optimism), these actions are not overtly oriented toward such ends.

Similarly, ethnographic work conducted by theologian Emmanuel Katongole (2017) in East Africa documents a powerful history of songs and poems of lament, giving voice to and naming atrocities that have occurred, not as a way of fomenting individual adaptation but rather as a way of participating in a social practice that focuses on the interrelationships of individuals with their communities and with God, ultimately giving rise to hope. In another powerful account of life in a Nazi concentration camp, Primo Levi speaks to the importance of washing—even with dirty water that does not produce cleanliness—as an important act denying dehumanization and reaffirming dignity and “moral survival” (Levi, 1969). Together, we can see symbolic actions as manifestations of resilience emerging consistently across contexts, particularly in those affected by chronic and intergenerational forms of adversity.

It is important to note that like other aspects of resilience, the understanding of whether a particular action is functional or symbolic is contextually specific. For example, educational attainment clearly has a functional purpose insofar as it facilitates future developmental competence in the domain of work (Whitman & Leibenberg, 2015). In many contexts of chronic adversity, however, the relationship between education and future achievement (i.e., competence) may be constrained by the availability of economic opportunities. In such contexts, such as in post-conflict communities, several studies have noted that educational attainment retains a high symbolic value, representing an individual's participation in abstract future-building activities for themselves and their communities that have cultural value (Eggerman & Panter-Brick, 2010; Whitman & Leibenberg, 2015). The distinction between symbolic and functional resilience and the weaker predictive value of the former to other forms of resilience has also been noted by research and theory in sociology and political science (Gilliom, 2001; Ryan, 2015). Such work conceptualizes symbolic acts of resilience as direct and meaningful responses to adversity that build a “space” for adaptation while refusing to accept the conditions within which one lives (Ryan, 2015).

### **Aim 3: Utility of the MTIR for Organizing the Field and Advancing Theory-Testing**

The MTIR is rooted in an integrative review of major theoretical work in the area of resilience and aims to advance the field by developing a more systematic taxonomic structure that

integrates core elements common to contemporary theoretical work, while also expanding beyond them, integrating aspects of resilience considered in other disciplines. The result is a taxonomy that focuses on the individual as the unit of analysis while also incorporating central focus on sociocultural factors and processes—the absence of which has been lamented in previous review work (van Breda & Theron, 2018). The MTIR also robustly responds to critiques regarding the obtuseness of “resilience” as a concept (Jayawickreme & Blackie, 2016) by providing a comprehensive taxonomic structure that organizes and more precisely delineates major lines of extant empirical work on resilience, connecting them with clear operational terms.

### *Expanding the Conceptualization of Adversity and Resilience*

First, in its framing, the MTIR articulates inclusion and exclusion criteria for “what counts” as adversity, restricting it from including developmentally expected negative events (e.g., natural, age-expected death of a loved one) and expanding it to more explicitly include structural and historical forms of injustice. In more specifically breaking down resilience into component parts, and specifying their relationship to the larger “whole,” the MTIR thus serves the purpose of integrating theoretical frameworks and affirming the now clear empirical evidence that resilience is not an all-or-nothing endeavor, motivating research toward the next step of better typifying the unique processes that undergird the development of varied profiles of resilience.

The MTIR also makes a distinctive assumption that generative resilience should be understood as a domain of resilience in its own right, and its relevance is not contingent on its demonstrable impact on individual, manifested outcomes. This assumption is grounded in two key findings from the empirical literature on resilience to date. First, it recognizes that structural power dynamics may moderate the impact of generative resilience on manifested resilience (Bottrell, 2009). The failed success of generative resilience to result in manifested resilience is therefore not necessarily a counterindication of the intrinsic qualities of those behaviors but rather of the context in which they unfold. In freeing the assumptive ties between generative and manifested resilience, the MTIR is also better equipped to account for moral and symbolic actions, which often do not have clear and direct “pathways” to manifested resilience but nonetheless consistently emerge as key demonstrations of resilience across cultures. This moves resilience research away from an individually focused, palliative perspective (i.e., “good” actions are those that beget “good” individual outcomes, and “good” outcomes are what “counts” for resilience) and motivates it to encounter, in a serious and scientific way, how to understand humans as fundamentally relational beings, living in community, who can embody resilience even in the absence of observed direct benefit.

This perspective better captures emerging literature from conflict settings, in which not all goods come “bundled” with

positive and equivalent effects on individuals and communities alike. For example, a recent study in Sierra Leone found that reconciliation processes promoted forgiveness, social trust, and social network size but were also associated with decrements in psychological health (Cilliers et al., 2016). Such studies force resilience researchers to confront difficult, but pressing questions in the translation to intervention—Is it most correct to focus on manifested resilience as the primary target of change? In what ways does this promulgate a culturally unshared assumption that individual adaptive success is the most important kind of resilience that an individual can express? How do we understand the intersection of theories of individual and community resilience as they pertain to intervention?

### *Refining Measurement*

In addition to a broad and clear articulation of the conceptualization of resilience across theoretical models and disciplines, taxonomic frameworks serve to assist measurement refinement, improving the quality and specificity of empirical research. Taxonomic frameworks are designed to cogently unite diverse theoretical perspectives under a common, simplified semantic framework (John & Srivastava, 1999). Developed taxonomies can then be leveraged to better articulate standards for measurement validity and reliability, a significant challenge that assessments targeting the “open concept” of resilience have encountered (Windle et al., 2011). Establishing the subdomains of resilience draws researchers away from attempted assessments of the larger concept and toward assessment of more specific subdomains, which is likely to improve specificity of measurement and better identify how measurements are conceptually and empirically distinct. For example, the Connor Davidson Resilience Scale, a common measure of resilience, taps into multiple taxonomic subdomains including character (e.g., items related to perseverance, humor), developmental competence in relationships, and functional resilience (e.g., coping). Thus, though tapping into multiple dimensions of the larger concept of resilience, it is challenging if not impossible to test the complex theoretical processes at play that underlie these items in a way that provides a robust test of theory. Rather, researchers may be better served by assessing the subdomains themselves, and testing process-oriented hypotheses about how these subdomains interact to inform our broader conceptualization of resilience. The advantage of such approaches has been well exemplified by contemporary studies of the Resilience Portfolio Model, which have indeed demonstrated that these subdomains show differential associations with each other and with adversity (Hamby et al., 2018).

Although some domains of the MTIR will need very little “work” in measure specification due to the presence of a long history of psychological research and a clear application of such measures in studies of resilience, other domains of the MTIR that are underrepresented in the psychological literature will bear greater specification. Particularly for these domains, but also for the translation of resilience research across

contexts, both qualitative and quantitative data collection must be leveraged (Theron et al., 2015). For example, attempting the assessment of moral action in purely quantitative terms is likely to be insufficient as not all moral actions are equally “good selections” in all situations. Rather, moral psychologists have underscored the relevance of phronesis—the ability to cogently interpret, weigh, and integrate the demands of morally complex landscapes to identify the best response (Lapsley, 2019). As researchers work to establish measurements for subdomains of resilience, it is therefore critically important to synthesize not only complementary methodological approaches but to lean into other disciplines and subdisciplines with rich histories of work in each subdomain to inform both methods and measures.

### *Improving Meaningful Synthesis Across Studies*

A clear operationalization of terms also leads to an increased potential for meaningful review and meta-analytic work. Systematic reviews and meta-analyses have long been recognized as critical mechanisms for synthesizing “unmanageable amounts of research” and drawing out key results that address problems such as publication bias and replicability (Droogan & Song, 1996). To date, systematic reviews and meta-analyses on resilience have been limited by several factors. First, the diverse nature of the overarching construct of resilience and the large amount of empirical work falling under the broad “umbrella” of resilience poses significant difficulty in conducting a meaningful and effective search and synthesis of the literature. For example, a brief search in PsycInfo at the time of writing showed a total of 14,680 records of peer-reviewed journal articles citing “resilience” as a key word in the past decade and 1,651 peer-reviewed articles in 2019 alone. Such searches, while expansive, do not even include large, relevant bodies of work on key constructs implicated in resilience but being conducted by researchers who don’t largely frame their work in the context of resilience theory, per se (e.g., Kliever et al., 2004).

To date, systematic reviews in resilience science have largely focused on narrowing the scope of reviewed research by subpopulation, integrating research into summative analyses of protective factors across social ecological systems (e.g., Chua et al., 2019; Gartland et al., 2019; Marley & Mauki, 2019). A notable exception to this is a recent meta-analysis by Yule and colleagues (2019), which examines the relative effects of different multisystemic assets on the adaptive functioning of children exposed to violence. Although still exploring resilience in a particular population, by clearly operationalizing the subdomains of resilience under study, Yule and colleagues’ (2019) analysis, rather than being solely descriptive, actually tests key questions central to the relationship between assets and individual well-being. A developed taxonomy permits researchers to better cull through a huge return of search results related to resilience to synthesize other research questions and then to clearly place those questions within the broader field and within theoretical models under study.

### *Advancing Theory-Testing*

Although at a superficial level the organization of a taxonomic framework seems a matter of nomenclature, taxonomies are also designed to reflect the “housing structure” within which theoretical models are articulated. They must therefore seek not only to reflect the state of theory in the field but should also grow and be re-specified as theoretical models are tested and advanced. One challenge that the field of resilience science has encountered is a plurality of theoretical models, employing slight but meaningful differences in the hypothesized processes at play in the manifestation and production of resilience. Without an overarching taxonomic framework, it becomes difficult to make meaningful comparisons of hypothesis tests *across* theoretical models. Yet, this is critically important not only to advancing the state of resilience science but also in addressing the replication crisis in psychology, which some have argued is at least in part due to an overreliance on descriptive research to the detriment of true theory-testing (Oberauer & Lewandowsky, 2019). Extant theories of resilience, though similar at an overarching definitional level (i.e., reflecting resilience, writ large), *do* hypothesize different relationships between various subdomains, a fact that has been obscured by the semantic messiness of the terminology at play. For example, the Resilience Portfolio Model (Grych et al., 2015) proposes an understanding of the interrelationships between exposure to violence and aspects of manifested (psychological health, developmental competence) and generative resilience (assets, functional action) that is mathematically distinctive from Ungar’s (2012) social ecological theory of resilience, despite the fact that both models contain several overlapping subdomains of manifested and generative resilience. Thus, a taxonomic framework that semantically unites theoretical models can spur critical questions about the relative complementarity of these models, and the contextual conditions (and types of adversity) under which various theoretical models hold. In addition, the more refined specification is likely to contribute to better development of micro-theory (e.g., about interaction, development and processes both within *and* across subdomains) rather than focusing solely on the overarching concept, which has led to problems in model testability given trade-offs in sheer feasibility related to both the size of assessment batteries and sample size.

### **Conclusions and Future Directions**

The MTIR serves two core purposes. First, it seeks to create a clear classification system within which extant empirical work on resilience can be sensibly organized and described. The first taxonomic branch of the MTIR (i.e., generative and manifested resilience) has been articulated in the most recent wave of theoretical work on resilience, but the specific delineation of component parts of each domain has been only loosely specified. Further, disciplinary silos and the focus on and preponderance of quantitative data collected in the global west have precluded the inclusion and full elucidation of some

components of resilience present in the MTIR but conspicuously absent previous theoretical models of resilience in psychology. Taxonomies in psychology also serve a critical purpose of advancing theory, not only serving to describe component parts of an overarching construct but incorporating and advancing theoretical understanding of how component parts relate to one another. Taxonomic frameworks are therefore always “works in progress” and are designed to be reflexively informed by the collection of empirical data. In the case of the MTIR, the identified subdomains represent large bodies of psychological and interdisciplinary work in their own right, each with their own conceptual debates and challenges. Resilience scientists should find this at once exciting and humbling, underscoring the extent to which resilience science demands broad interdisciplinary and global engagement in order to effectively advance.

### Public Health Significance

The MTIR holds high public health significance in its ability to effectively synthesize past and future empirical work and direct such work toward application. Using the MTIR, researchers and practitioners can more effectively evaluate particular domains of resilience, identify appropriate targets for interventions, consider possible unanticipated effects, and understand how interventions should be adapted in response to different types of adverse circumstances. With the rapid expansion of resilience-focused interventions in aid settings, systematic frameworks for the developing evidence-basis for interventions is a pressing public health priority.


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### Author Biography

**Laura E. Miller-Graff's** research examines the developmental effects of exposure to violence in childhood. With a focus on children who have multiple traumatic exposures, she investigates resulting patterns of resilience and psychopathology, including the development of posttraumatic stress symptoms. Working within an ecological framework, her research seeks to understand how various systems (i.e., individual, family, and community) interact to promote or inhibit healthful development following violence exposure. She has a particular interest in the adaptation and evaluation of trauma assessment and treatment as they relate to international conflict settings. Current investigations include (1) the unique and overlapping effects of intimate partner violence (IPV), maltreatment, and community violence on women and children's cognition and adjustment, (2) factors contributing to resiliency in children and young adults exposed to multiple types of violence, and (3) intervention work with violence-exposed persons in multiple global contexts.