ORGANIZATIONAL ASSESSMENT

Toward a Developmental Approach to Measuring the Development of Character: Perspectives from Project Arête

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ABSTRACT

Contemporary models of character development emphasize that character is a malleable outcome of individual-context relations. Positive character, or character virtues, vary in relation to specific contextual circumstances requiring the enactment of specific behaviors that are morally appropriate and necessary for positive individual-context relations to occur. The exploration of the features of character virtue development that arise in specific contexts points to the role of educational institutions as key settings wherein character develops, including higher education institutions whose fundamental mission is to train leaders of character. This potential value for understanding how leaders of character are "produced" within such an institution was a key basis of *Project Arête*, a study of the pathways of character virtue development and leadership traversed by the cadets within the United States Military Academy (USMA) at West Point. We discuss the theoretical and methodological ideas we have used within Project Arête to shape our assessments of character development and leadership, and focus on issues involved in the design, measurement, and analysis of developmental changes in individuals, context, and individual-context relations.

Contemporary models of character development (e.g., Berkowitz, Bier, & McCauley, 2017; Lerner & Callina, 2014; Nucci, 2017) emphasize that positive character attributes (i.e., character virtues) develop through mutually-influential, *and mutually beneficial*, relations between a specific individual and his or her specific context. The specificity of these relations means that there is a strong idiographic component to character development, one that derives from the specific attributes of a person and the specific features of his or her proximal and distal contexts (Bornstein, 2017). Simply, character arises when individuals with varying biological, psychological, and behavioral attributes coact in settings with specific interpersonal, institutional, cultural, and physical ecological features (Bronfenbrenner & Morris, 2006; Lerner, 2018c). Character is, then, a malleable, or plastic, relational attribute that can and should vary in the face of the different requirements for enacting behaviors that are morally appropriate and necessary for adaptive, positive individual-context relations within specific settings at specific times. In other words, across time and place, virtuous character is reflected in coherence of action — of "doing the right thing" — in order for positive individual-context relations to be maintained (Callina & Lerner, 2017).

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Given the growing interest in developmental science in these theoretical conceptions of the process of character development (Lerner, Vandell, & Tirrell, 2017), the past 20 years have seen a renaissance of studies of attributes of character virtues, of their interrelations within different developmental periods, and of the contributions of specific social and institutional contexts for promoting this development of character (e.g., Callina et al., 2017, 2018; Lerner, et al., 2017). This exploration of the features of character development that arise in specific contexts points to the role of educational institutions as key settings wherein character develops (e.g., Berkowitz, et al., 2017). The range of educational settings spans considered in the literature includes the kindergarten through Grade 12 span and, as well, extends into post-secondary settings, including both community college, vocational schools, and four-year college and university settings (Johnson, et al., 2014).

Moreover, interest in the features of character development that emerge within specific settings have led to a burgeoning of concern with the pathways of character development within some instances of higher-educational institutions. In particular, interest in character development has emerged within institutions that have as their fundamental purpose the training of students to become society leaders. Here, a key question is whether there are specific character virtues needed to contribute positively and coherently to specific social settings or sectors within which the student will live and develop (Callina, et al., 2017). Higher education institutions whose fundamental mission is to train leaders of character have, therefore, an important

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societal role to play beyond their own mission. They may be exemplars of educating students to be leaders of character and, as such, could serve as educational models for higher education more generally.

This potential value for understanding how leaders of character are "produced" within such an institution was a key basis for what we have termed *Project Arête*, a study of the pathways of character development and leadership traversed by the cadets within the United States Military Academy (USMA) at West Point (Callina, et al., 2017; 2018). The USMA mission is "To educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country and prepared for a career of professional excellence and service to the Nation as an officer in the United States Army." *Project Arête*, launched in 2015, is a longitudinal, five-year study, involving several cohorts of cadets; we use both quantitative and qualitative methods to investigate the development of character virtues among USMA cadets (Callina, et al., 2017, 2018). *Arête* comes from the Greek word for excellence. It connotes the aggregate of qualities, such as valor and virtue, that comprises good character. USMA seeks to educate and train cadets to achieve excellence in leadership and character. The project personnel seek to understand how such excellence is achieved. The project is a collaborative effort between Tufts University and USMA.

Andrew G. Farina, LTC, is an active duty Infantry officer in the U.S. Army, with 18 years of service. He is currently a doctoral research assistant at the Institute for Applied Research in Youth Development at Tufts University and a first-year doctoral student in the Eliot-Pearson Department of Child Study and Human Development. He earned his Master's in Business Administration through the Kenan-Flagler Business School at the University of North Carolina in 2015. He received his Bachelor of Science from the United States Military Academy (USMA) in 2001. Andrew's research focuses on the development of character in the military academy context. He is currently investigating intentional self-regulation and how it might be measured, observed, and optimized across the 47-month USMA experience.

Chaveso "Chevy" Cook is a first-year doctoral student in the Eliot-Pearson Department of Child Studies and Human Development at Tufts University. He has spent his first year working as a research assistant for the Institute of Applied Research in Youth Development working on the West Point Character Development project known as Project Arête. He has earned two masters from the University of Texas-El Paso and Columbia University, respectively, and received his bachelors from the United States Military Academy. Chevy is a Major in the U.S. Army and will continue his research as an assistant professor in the Department of Behavioral Sciences and Leadership at the United States Military Academy once he has completed his studies.

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This study aims to describe the developmental system of relations between cadets and the programs and people involved in the academic, military, physical, and character foci (or "pillars") of USMA (Callina, et al., 2017), pillars that – together – are aimed at developing across the 47-month USMA experience military leaders of character. As such, *Project Arête* addresses issues such as whether there is alignment and integration of goals, attitudes, and behaviors across USMA pillars; the role of trust and moral leadership in promoting character development among cadets; and whether bureaucratic functioning and cynicism threaten cadets' positive developmental pathways to officership (Callina, et al., 2017). Within the research we conduct about such issues, we seek to identify specific character development strategies and activities at USMA that are especially salient in promoting character and leadership attributes among cadets. In short, the aim of *Project Arête* is to provide a "way ahead" for West Point and the United States Army to assess, inform, and enhance character and leadership education to develop professional Army officers. Accordingly, the specific goals of the study are to:

1. Describe the pathways of character development for specific individuals or subgroups of cadets across the USMA educational program.

2. Identify the covariation between the development of cadet character and leadership attributes and specific experiences within the educational pillars of the institution: academic, physical, and military.

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Richard M. Lerner, Ph.D., is the Bergstrom Chair in Applied Developmental Science and Director of the Institute for Applied Research in Youth Development at Tufts University. He has received the American Psychological Association (APA) Division 7 Bronfenbrenner Award for Lifetime Contribution to Developmental Psychology in the Service of Science and Society, the APA Division 1 Hilgard Lifetime Achievement Award for distinguished career contributions to general psychology, the APA Gold Medal for Life Achievement in the Application of Psychology, the International Society for the Study of Behavioral Development Award for Applications of Behavioral Development Theory and Research, and the Society for Research in Child Development Distinguished Contributions to Public Policy and Practice in Child Development Award. Lerner serves on the Board of Directors of the Military Child Education Coalition (and co-chairs their Scientific Advisory Board). In July 2017, Pope Francis appointed Lerner as a Corresponding Member of the Pontifical Academy for Life.

3. Understand how character development is infused within and across these pillars.

4. Specify the conditions under which specific cadets, who have specific sets and series of experiences, manifest specific pathways of achievement within and across pillars and, eventually, manifest different attributes of character and leadership.

We have reported the theoretical bases, methodology, and findings of *Project Arête* in prior publications (e.g., Burkhard, Callina, Murray, Powers, & Lerner, 2018; Callina, et al., 2017, 2018; Murray, 2017; Murray, Callina, & Lerner, 2016; Powers, 2019). This special issue of the *Journal of Character and Leadership Development* affords us the opportunity to present that theoretical rationale for the methods we have used to assess the development of character virtues and leadership among USMA cadets. We explain the components of a developmental approach to the assessment of development.

The Challenge of Developmental Assessment

To address the goals of *Project Arête*, several important methodological issues regarding the assessment of cadet character and of the USMA context must be addressed. These issues involve, primarily, taking a developmental approach to the measurement of both individuals' character development and of their context. Human development involves changes within a person across time and place (Lerner, 2018c). Therefore, all methods aimed at assessing any feature of development must be able to detect—to be sensitive to—change. Methods that assess a person or a group at one point in time cannot measure change—which can only be detected across time points. Point-in-time methods (e.g., cross-sectional designs) are therefore not developmental methods.

Because character virtue development involves assessing the changing features of the individual, of

the context, and of the relation between individual and context (Lerner, 2018a, 2018b; Lerner & Callina, 2014), three methodological challenges must be met. First, measures of character, context, and relations must be able to detect change if, in fact, it exists. Second, research designs must use these measures in ways that allow true developmental change (as compared, for example, to regression-to-the-mean effects) to be detected with the change-sensitive measures. Third, data analysis methods must be able to identify change, as compared to only intraindividual constancy or interindividual stability. We discuss each of these challenges and explain how we address them within *Project Arête*.

The Design of Developmental Research

As we have noted, development involves changes within a unit of analysis. Such a unit can be an individual, a portion of the context, or an individual-context relation. Developmental scientists study both *intra-unit* change (e.g., change within a person, or intraindividual change) and *inter-unit differences in within-unit change* (e.g., differences between people in their intraindividual change, or interindividual differences in intraindividual change; Baltes, et al., 1977; Lerner, 2018c).

As such, all developmental research designs, whether aimed at generating basic, descriptive information about individual pathways across specific portions of experiences within a specific context (e.g., USMA), or aimed at evaluating the changing pathways individuals travel over the course of program participation, require longitudinal (repeated) measurement (Collins, 2005; Nesselroade & Baltes, 1979). However, it remains the case that many studies that are aimed at assessing facets of character development use cross-sectional data (e.g., Rose, 2016). Such data cannot be used to provide evidence of, or understanding about, within-person change.

The between-person differences that may be identified in cross-sectional research may *not* be due to between-person differences in within-person change (e.g., developmental change). These between-person differences may be due to variables that were not assessed (e.g., experiential differences among participants, for instance, in histories of participation in out-of-school-time programs). As well, between-person differences may be due to variables that have not been analyzed although they may exist in the data set (e.g., religious variation, family structure variation, area of residence, or gender or race). This problem—of not being able to account for the basis of between-people differences in cross-sectional data sets—becomes especially important to recognize when the cross-sectional sample includes groups of different ages or educational levels (e.g., first-, second-, third-, or fourth-year cadets at USMA). The temptation of treating age group differences as if they reflected age changes is often too powerful for researchers or practitioners to ignore.

However, the temptation should be ignored. If not ignored, then researchers and program leaders run the risk of believing they are changing the development of participants when, in fact, their evidence does not pertain to development, to within-individual change, in relation to program participation.

As well, research designs should include plans for assessment of *endogeneity* (sample selection effects) associated with different groups, for example, applicants to USMA who aspire to become cadets and participate in NCAA athletic programs versus cadets without an interest in NCAA sport participation. Pre-existing differences among these two groups of applicants may be responsible (or, perhaps, more responsible) for cadet behavior and development than their exposure to the character development experiences offered at West Point.

Designs should also include plans to examine whether the findings that exist for an overall group of participants (e.g., fourth-years cadets) also exist when specific groups of participants, say, NCAA athletes versus non-NCAA athletes, males versus females, etc., are assessed separately. The overall findings may mask key differences between subgroups. Indeed, Duncan, Engel, Claessens, and Dowsett (2014) recommend assessing if the overall findings for a sample of study participants are still present (what they term as remaining "robust") when assessed in regard to specific subgroups of the sample. The importance of robustness analyses, then, is to determine if overall, group findings—for instance, the average number of honor code violations for a class cohort across their four years at USMA—apply equally for all cadets (men vs. women, cadets from different racial groups, cadets with different profiles of athletic participation, or cadets with different family histories of military participation). Thus, such analyses afford evidence for the ability to generalize findings to a broad group or for the need to differentiate among subgroups.

Measuring Developmental Change

All measures used in the study of within-person (intraindividual) change must be able to detect changes, if they exist, across the specific time divisions used in a specific study (Lerner, 2018c), for example, weeks, months, or years. However, it is often the case that measures are used that are specifically developed to be insensitive to variation across time or place; such measure development has most notably been used to develop tools to assess purported personality traits (e.g., Costa & McCrae, 1980; McCrae, et al., 2000). Indeed, many measures of character are designed to mirror the measurement properties of measures of personality traits (Lerner & Callina, 2014).

Taking a "trait approach" to the measurement of any attribute of development is both conceptually and empirically flawed. There may certainly be good reasons to create and use measures that are insensitive to variation across time and space. For example, devising a radiological measure of jawbone loss in people of

different ages and contextual (e.g., national) settings might be very important in the field of restorative dentistry. However, in the field of human development, wherein the fundamental questions are about changes in the processes of life, measures that are impervious to age- or context-associated variation are useless.

Therefore, in the construction of developmentally-appropriate measures, assessment must be made of whether change can be detected across theoretically meaningful divisions of time (e.g., weeks or months for infant motor development or cognitive development, respectively; or years, for the development among youth of identity, romantic relationships, or vocational interests). For example, if researchers had a hypothesis that the transition from one type of educational context to another (e.g., high school to USMA) may change the identity, or character of young people (e.g., Simmons & Blyth, 1987), then the researchers must use a measure that could detect changes across this period in order to test their hypothesis.

Most critically, change-sensitivity of measures of development must be identifiable at the individual level of analysis. As we have emphasized (see Baltes, et al., 1977; Lerner, 2018c), the study of development is the study of intraindividual change. Such within-the-person measures need to possess more than reliability or validity. They must also possess *measurement invariance (equivalence)* across times of measurement: Measures must have the same meaning at different times of life and, as well, measures must have several statistical properties that assure equivalence of measurement (e.g., see Card, 2017, for a discussion of these statistical properties). Moreover, if measures are used in studies of groups of people across national settings, they must also possess invariance across people and places (Card, 2017).

In sum, then, developmentally-useful measures must be invariant in regard to their statistical properties and

they must also be able to address change, especially change specific to a specific individual. This point raises the issue of *person-centered* versus *variable-centered* data analyses in developmental science.

The Analysis of Developmental Change

In developmental science, statistical procedures aimed at the analysis of within-person changes should be aimed, first, at discovering how variables covary within a person across time. The aim of developmental science is to understand each person's individually distinct (idiographic) pathway. Therefore, analyses that focus on changes within a person (person-centered analyses) should be the starting points in developmental research (Molenaar & Nesselroade, 2014, 2015; Rose, 2016). Analyses could then be aimed at determining if it is possible to group (aggregate) individuals in regard either to sub-samples of individuals (e.g., all NCAA athletes in the study, all first-year cadets in a specific entering class, or all female cadets in the study) *or* to the sample as a whole (Molenaar & Nesselroade, 2015).

However, at this writing, the predominant approach to creating evidence in support of the theoretical ideas about developmental processes, in general, and character virtue and leadership development, more specifically, is based on variable-centered assessments. That is, many developmental scientists continue to focus on how variables covary *across individuals* within points in time. Such analyses, even if computed at several successive times of measurement, reveal nothing about development. That is, as we have already emphasized, such analyses say nothing about within-person change (Molenaar & Nesselroade, 2014, 2015; Nesselroade & Molenaar, 2010; Rose, 2016). In short, variable-centered analyses, although reflecting a common, indeed a standard, approach to data analysis in the social and behavioral sciences (Molenaar, 2014), have no relevance to changes within an individual.

This standard approach to statistical analysis in the social and behavioral sciences is derived from specific mathematical assumptions (the *ergodic theorems*). These mathematical ideas allow specific statistical analyses (e.g., the computation of averages or standard deviations) that pertain to populations (e.g., to all first-year college students) to be used in computing characteristics of a sample from the population (e.g., a sample of, say, 1,200 individuals entering West Point as the Class of 2017; Molenaar, 2014). However, using statistics that are appropriate for populations with select samples from that population is only legitimate if a researcher can assume that every person in the sample is essentially the same (i.e., that they are homogeneous) and that the scores of each individual in the sample contribute to the sample average and standard deviation to the same extent across time (a situation termed *stationarity*).

For instance, continuing with the example of 1,200 individuals entering USMA as the Class of 2017, it may be the case that some youth in the sample are dissimilar because of variation in their cultural, geographic, and family background or because of variation in their interests (e.g., participation in NCAA athletics). Thus, a measure of a specific character virtue might not have equivalent measurement properties across subgroups formed by variation among these constructs. If so, then the computation of an overall sample average (or standard deviation for that matter) would not be appropriate. In addition, as cadets having these initial differences moved across the 47 months of their USMA education, their developmental pathways might vary in relation to these constructs and, as such, their "contribution" to the average score for the sample would likely change in sub-group specific ways. Therefore, the ergodic assumptions of homogeneity and stationarity would not hold for the sample in this example.

Simply, analysis of the characteristics of a sample through the use of the population statistics would not be appropriate if individuals were different at a specific point in their lives and if their differences followed diverse developmental courses (Molenaar, 2014; Molenaar & Nesselroade, 2014, 2015; Nesselroade & Molenaar, 2010). As documented in the reviews of Cantor, et al. (2018) and Osher, et al. (2018), such individuality is the case in the study of youth development in general, and educational development more specifically. Youth/student development is, then, *non-ergodic*. Therefore, researchers should not use statistical analyses (e.g., the computation of averages and standard deviations) that are reflections of an interest in populations if they are actually interested in individuals (Molenaar & Nesselroade, 2015).

As a consequence, to obtain valid information about developmental processes it is necessary to have the study of within-person change within single individuals as a primary focus of developmental analysis. Toward such analyses, Molenaar and Nesselroade (2015; Nesselroade & Molenaar, 2010) have developed statistical procedures such as the *Idiographic Filter*. The Idiographic Filter recognizes that, although each person may have a specific (individual) course of development, individuals may nevertheless be aggregated if their individual pathways are sufficiently similar at latent levels of analysis to allow groups to be formed. If such groups can be formed, then generalizations across people can be made. Through use of procedures such as the Idiographic Filter, developmental scientists may capture the unique features of within-person change and, as well, produce generalities about groups.

To indicate the research implications of this approach, it is important to understand the *"specificity principle"* (Bornstein, 2017). This principle involves researchers asking a multi-part "what" question when conducting programmatic research exploring the function, structure, and content of development of diverse youth. For instance, in seeking to understand how the diverse young people who enter USMA each year may have a specific series of individual ⇔

context relations associated with the development of character virtues and leadership, researchers might undertake programs of research framed by a multi-part question such as: "What features of character virtue development and leadership emerge; that are linked to what trajectory of individual ⇔ context relations; for cadets of what sets of individual psychological, behavioral, and demographic characteristics; having lived in what families, communities, geographic areas, and physical ecologies; at what points in their pre-USMA education within what historical periods (e.g., graduation class-cohorts)?"

Accordingly, through conducting programmatic research addressing such specificity-based questions, the particular sets of individual ⇔ context relations involved in the life of a specific cadet may be identified and, as well, the specific relations associated with his or her development of character and leadership may be discovered (e.g., see Rose, 2016). Therefore, one key outcome of such specificity principle-framed research can be the identification of the diverse ways in which individual ⇔ context relations may capitalize on the potential for plasticity in human life and result in cohorts of USMA cadets who make successful transitions to become leaders of character for the U.S. military and our nation (Spencer & Spencer, 2014; Spencer, Swanson, & Harpalani, 2015).

Conclusions

The approach to the assessment of character virtue and leadership development that we have summarized may be of great ecological validity to USMA leaders across the pillars of the institution. A developmental approach to the assessment of character and leadership development will provide USMA, and other

institutions adopting this approach, with a distinctly important evidence base.

This evidence will provide a useful empirical rationale for individualizing the resources needed to enhance a cadet's developmental trajectory across the course of their education. In addition, the evidence base may be useful for designing and delivering, for specific groups of cadets, the individual-context relations that maximize the likelihood that they will succeed at West Point and as commissioned military officers.

Of course, whereas the developmental approach to assessment that we have described can provide the evidence base enabling institutional leaders to make decisions about how to best invest in the educational experience provided at West Point, there are challenges involved in instantiating this approach. We have learned that institutional leaders need to emphasize to the entire USMA community that research is essential

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for creating an evidence base necessary for evaluating and/or changing institutional policy. As such, leaders need to ask all members of the community to support and participate in data collection. To create such advocacy for research by leadership, researchers need to provide institutional leaders with collaborative input into plans for measurement and data analysis. Such access shares ownership of the research with leadership and provides them with direct input into the research vision.

The building of such a partnership enables another challenge to be successfully addressed. Leadership can

emphasize the importance of research and the need for participation in research; however, the institutional personnel who control student schedules must make accommodations to their plans to enable efficient data collection with sufficient numbers of students. Without such accommodations, data collection aspirations will not be successful.

Accordingly, to meet these challenges we sought to both integrate the research team with the leadership at USMA and with the personnel involved in maximizing opportunities for productive data collection. We created an institutional steering committee with representatives from across the several sectors of USMA. In addition, we embedded post-doctoral fellows at USMA who were responsive to collaborative requests for data collection and/or data analyses from leadership and from key personnel having control of cadet scheduling. These approaches enabled us to create a mutually-beneficial partnership.

With the approach to collaboration, we have been able to present USMA leadership, faculty, and staff with evidence enabling understanding of the specific combinations of individual and contextual variables that need to be integrated, at specific times in the lives of specific cadets, to enhance the probability of specific character and leadership developmental outcomes emerging across the USMA 47-month educational experience. The generation and dissemination of such evidence can be a beacon for directing higher education institutions seeking methods for and approaches to the character development of their students in the service of building evidence bases for enhancing character virtue development..

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