A Matter of Uncertainty: The Berlin Model of Wisdom and its Intersection with Intellectual Humility

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Although there has been a recent focus on character virtues within developmental science (e.g., Lerner & Callina, 2014), there continues to be debate about the dimensions of character (e.g., McGrath, 2015). For instance, Baehr (2013) has argued that intellectual virtues, a subset of character virtues, represent an important dimension of character, as they are "the personal qualities or characteristics of a lifelong learner" (p. 249), qualities including curiosity and inquisitiveness. One way of assessing the role of intellectual virtues that Baehr specifies, is assessing the particular role that virtues play in positive functioning throughout the course of human development. Intellectual humility (IH) is an example of one such intellectual virtue that may have an important role in what Baehr terms "lifelong learning."

As Roberts and Wood (2003) define it, IH is both the accurate self-perception of one's knowledge in relation to others (i.e., neither prideful nor meek), as well as an ability to believe information in accordance with the evidence provided. One key contribution of IH, as a subset of the virtues that promote lifelong learning (i.e., intellectual virtues), may be its role in moderating or facilitating wisdom, as wisdom is understood as a lifelong process (e.g., Baltes & Staudinger, 2000). There are numerous theories of wisdom (e.g., Baltes, 1993; Baltes & Staudinger, 2000; Sternberg, 1998), and these theories are multifaceted and complex. For instance, in the Baltes paradigm of practical wisdom, one facet of wisdom is knowing that information is uncertain. It may be that someone who has the virtue of IH would be more likely to recognize that his or her own knowledge is uncertain than someone without this virtue; in turn, it may be that people high in IH are wiser than individuals low in IH. These are important hypotheses to test to understand

the role of IH in the process of lifelong learning and its contributions to positive human functioning throughout the life course.

To begin testing these hypotheses about the links between IH and wisdom, I will examine data from a study of character and leadership development among cadets at the United States Military Academy (USMA) at West Point. These data are part of a longitudinal, collaborative research study with Tufts University (funded by the Templeton Religion Trust), investigating the development of character attributes and the links between character, leadership, and scores on military, academic, and physical performance metrics at USMA. The study is called Project Arete, for the Greek word meaning excellence. The focus on IH within Project Arete stems from concerns of cadet elitism, and reflects the interest of staff, faculty, and leadership at USMA in developing leaders of character to become officers in the United States Army.

One key challenge in conducting this research is the lack of adequate measures of intellectual virtue that are appropriate for the group and age level under scrutiny. How does one measure IH and wisdom among the young adult cadets enrolled at USMA? In this paper, I will theoretically and empirically integrate the concepts of wisdom and IH, using extant psychological literature in wisdom and IH. I will describe my current and future research with Project Arete at USMA, which seeks to measure these intellectual virtues, including the methods and measures of that study that are pertinent to understanding IH and its role in positive human development.

Practical Wisdom and Uncertainty

Baltes' model for practical wisdom, the Berlin Wisdom Paradigm (BWP), is a multifaceted approach to defining the process of obtaining and utilizing practical wisdom, consisting of five criteria: basic criteria of factual knowledge (e.g., the various components,

processes and complexities of human nature and development) and procedural knowledge (i.e., strategies for interpreting and applying factual knowledge); the meta-criteria of lifespan contextualism; value relativism; and acknowledgement of and approach toward uncertainty (Baltes & Staudinger, 2000). However, despite the theoretical links between intellectual virtues and wisdom, these links have been sparsely empirically assessed, and only at a qualitative level (Samuelson et al., 2015). Moreover, although certain criteria of the BWP have been operationalized and empirically tested, in various capacities (e.g., Ardelt & Oh, 2016; Glück et al., 2013), the measurement of uncertainty has come up against disagreement as it pertains to qualitative coding and interrater reliability (e.g., Glück et al., 2013). In this paper, I argue that research on the development of practical wisdom may be enhanced by explicating the assessment of IH and its role in the BWP.

Seeking out intellectual virtues to better understand practical wisdom from the Berlin paradigmatic view might be the best approach to solving this measurement issue, especially given the complexity of wisdom. In addition, by understanding other intellectual virtues in the context of practical wisdom, researchers can come closer to understanding "lifelong learning" and what makes someone a lifelong learner. As Schwartz and Sharpe (2006, p. 380) argue:

> Virtues and strengths should not be treated in isolation from each other; they are not effective, in general, if exercised independently… [and] without practical wisdom, the other strengths, however well developed they may be, cannot be effectively deployed.

According to the authors, practical wisdom gives meaning to virtues, and these virtues must therefore be integrated into the framework of practical wisdom. In using psychometrically sound measurements of virtues other than wisdom, both generally in character and specifically within intellectual virtues, researchers can best understand and optimize enacting practical wisdom,

which includes the criteria that comprise practical wisdom. The rest of this paper will focus aligning components of practical wisdom with that of intellectual virtue, using, as an example, alignment of both wisdom generally and the BWP criterion of awareness and management of uncertainty, with the intellectual virtue of IH. The hope is that the process used below to align an intellectual virtue with wisdom and a wisdom criterion can be used as a template for doing the same for other virtues and the others of Baltes' wisdom criteria.

Intellectual Humility and Uncertainty

To begin the process of establishing which intellectual virtue, or virtues, align with awareness and management of uncertainty, there must be alignment at the level of face-validity, that is, similar definitions of criterion and virtue(s). Baltes and Staudinger (2000) describe the management of uncertainty criterion as "(a) the validity of human information processing itself is essentially limited (constrained), (b) individuals have access only to select parts of reality, and (c) the future cannot be fully known in advance" (p. 126). These components of the uncertainty criterion of the BWP reflect what could be understood as humility, but because procedural and factual knowledge are at the center of the BWP, these components more specifically reflect the virtue of IH.

Similarly to Roberts and Wood (2003), according to McElroy et al. (2014), IH allows one to be open to the ideas of others and to possess self-awareness of one's arrogance, thereby enabling one to offer and receive ideas with little or no offense. In other words, IH is knowing *and* accepting both what you contribute and cannot contribute intellectually in a given situation. IH implies that there are things that cannot be known, and that those who embody IH are virtuous for having such insight. It is for this reason that IH aligns with the management of

Baltes' uncertainty criterion. The accurate perception of one's intellectual contributions pertains to parts (b) and (c), while the evidence evaluation component of IH is associated with part (a).

In establishing the semantic and theoretic threads of IH and management of uncertainty, empirical assessment is an additional tool in providing evidence of using an intellectual virtue to better understand wisdom. Empirical studies have established associations between various desirable attributes and IH, such as self-regulation (Dwiwardani et al., 2014), cognitive flexibility and openness (Jarvinen & Paulus, 2016; McElroy et al., 2014), and general humility (Davis et al., 2015), which are attributes similarly associated with wisdom in other studies (e.g., Ardelt & Oh, 2016; Baltes & Staudinger, 2000; Baumeister & Vohs, 2012). Although these are similarities across studies separately assessing either IH or wisdom, empirical work (albeit, as aforementioned, sparse) has emerged directly linking the two concepts. In a study assessing folk concepts of wisdom and IH, Samuelson et al. (2015) found that participants, using a free-listing procedure, listed a large amount of related terms when describing a wise person as they did when describing an intellectually humble person. In their analyses, Samuelson and colleagues found that IH and wise-person concepts shared 46 descriptors (e.g., aware, bright, intellectual, insightful), but also retained their distinctiveness as separate theoretical and empirical concepts (the ratio of shared to unique descriptors was .39), across both social and epistemic domains.

Despite the existence of qualitative empirical connections between IH and wisdom (e.g., Samuelson et al., 2015), there are two points to emphasize as researchers move forward in understanding and assessing these two constructs, and potentially finding an empirical link between IH and management of uncertainty: (a) there is sparse research as it pertains IH, let alone its relation to wisdom, and (b) extant IH research has not taken a developmental perspective. The first point, over time, given the current interest in IH within the social sciences,

will likely resolve itself. The second point, however, is more of a challenge. As mentioned at the beginning of this paper, not only is there contention about what comprises character, and intellectual, virtues, but theories of character development are still being debated within the field of contemporary developmental science (e.g., Lerner & Callina, 2014; Nucci, in press). As Lerner and Callina (2014) articulate, research on character in psychology has often involved assessing traits, which are thought to be inherent and immutable features of an individual's personality. Research within social, evolutionary, and positive psychologies that focuses on traits (e.g., Davis et al., 2015; McElroy et al., 2014; Samuelson et al., 2013) has reduced character virtues to within-individual constructs, rather than accounting for contextual influences. A contemporary, developmental approach to understanding character virtues eschews the trait conception of character, in favor of a process-relational paradigm that emphasizes the mutual embeddedness of multiple levels of the ecology of human development (Lerner & Callina, 2014; Overton, 2015). Although developmental approaches to character virtue assessment have begun (e.g., Callina et al., in press), these are still in the preliminary stages. In sum, a general concern in the character virtue literature is finding appropriate assessments that are change sensitive and can appropriately assess both the individual and the context. The same is true for studying IH.

By acknowledging the progress psychologists have made in evaluating IH to date, developmentalists, using a relational developmental systems framework, can devise a theoretical developmental model for IH that can be augmented by wisdom research, which is subsequently mutually beneficial to understanding both constructs. In addition, if scholars agree with the premise that IH is a subset of wise reasoning, then researchers *must* evaluate intellectual humility from a developmental perspective, as wisdom, itself, is an inherently developmental concept (Baltes & Staudinger, 2000). In revisiting Schwartz and Sharpe (2006), virtues can only be

"effectively deployed" when reflected in practical wisdom, and thus virtues (i.e., intellectual virtues) must be understood in the framework of the greater system in which they function (i.e., practical wisdom), especially if we are to understand intellectual virtues as contributors to *lifelong* learning. In other words, there is little to no utility in evaluating a part of a whole as a static characteristic if the whole itself is process-based. Now that the link between the wisdom and IH has been established, by way of (a) the semantic, theoretical similarities between IH and the wisdom criterion of management of uncertainty, (b) their hypothesized contributions to lifelong learning (e.g., Baehr, 2013), as well as (c) similar empirical correlates and associations, we must now finesse IH into a framework where these links can be empirically and reliably tested.

Developmental Nature of Practical Wisdom and IH

To revisit Baltes' model, life-span contextualism is articulated as one of the five components of practical wisdom in the BWP. This criterion indicates the life-long feedback loop of mutually influential, bidirectional relations between the person and the context in which he or she is embedded (individual ⇔ context relations; Overton, 2015); without this system, wisdom cannot exist or develop. Likewise, the components of wisdom – and, indeed, all developmental phenomena – must be understood from a relational, developmental perspective. By linking the criterion of acknowledgement and management of uncertainty, and wisdom as a whole, with IH, life-span contextualism must, in fact, be applied to understanding the concept of IH, as is relevant to the feedback loop of individual and contextual factors that contribute to and optimize IH development. Until this point in time, those invested in studying IH (i.e., social, personality and positive psychologists) have only examined the internal processes correlated with this intellectual virtue. In investigating these types of constructs, researchers imply that external

influences are not important in understanding and potentially predicting IH. This stance may be a relic of the Cartesian-Split, mechanistic model that historically shaped the ontology of human development, which purports that one mechanism for a construct, and how it develops, overrides the influence of other potential mechanisms on this construct (e.g., nature over nurture; Overton, 2015). In the case of IH, internal mechanisms – i.e., traits – are given priority, and the researchers have not found it worthwhile to integrate the environment and the potential importance it may have in relation to IH.

Current approaches to IH, therefore, are reductionist and, by design, risk blindness to important factors contributing to IH and its development (Lerner, 2015). Samuelson et al. (2013) articulate this concern best, explaining the lack of developmental, life-span research in the area of IH. Hence, social scientists must attempt to bring developmental science into the conversation around IH, in order to promote an integrative, life-span, change-sensitive approach to measuring and predicting IH in and across individuals, as well as understand the feedback loop between IH and wisdom, as a greater construct. Aligned with the theoretical backdrop that Baltes provides for his wisdom paradigm (Baltes & Staudinger, 2000), contemporary developmental scientists have focused on the process of individual ⇔ context relations and the paramount importance of process, holism, and embeddedness. By translating IH research into this process framework, developmentalists can ensure that both wisdom and IH are understood as having potential for being compatible developmental concepts.

Developmental Model of IH and Project Arete

In establishing the need for a process understanding of IH, as it is embedded in a developmental context and within the concept of practical wisdom, as purported by Baltes (Baltes & Staudinger, 2000), there is a complex road ahead of social scientists. The

developmental trajectory is complicated, and cannot be solved in one study or paper, but each scientific endeavor can help to piece together the greater system at play in developing virtues, as well as the greater context to which the virtue contributes. For this reason, I propose the need for a theoretical, developmental model for IH, but not for a lack my own intellectual humility. In order to test a developmental model based in good theory and science, researchers must first take the steps to understand what exactly is related to IH, and what IH subsequently affects in broader contexts. In order to explore what is related to IH, I not only propose that we use the extant IH research to develop a model, but also explore other associations. My colleagues and I, at Tufts University and USMA, have also chosen to engage in the empirical understanding of IH, using preliminary data from a longitudinal, mixed-method project we are conducting.

Project Arete is a five-year longitudinal, multi-method and multi-rater study. The primary goal of this ongoing, collaborative project, called "Project Arete"—the Greek for *moral virtue* or *moral excellence*— is to assess the developmental processes involved in West Point's mission, that is, to graduate leaders of character who will become officers in the United States Army (*Gold Book,* 2015). The purpose of the project is to better understand the "black box" of character virtue development at USMA, in order to describe, explain, and optimize this development for cadets, as well as assess what could be applicable to other contexts of higher education and student experiences. Although data collection has only just begun, there is potential for rich data to surface and provide depth to the character virtue literature, including that of IH and wisdom.

In order to take advantage of this opportunity to developmentally assess IH, at least within the context of USMA, I included a measure of IH, the Intellectual Humility Scale (IHS; McElroy et al., 2014), in our preliminary data collection. In assessing this measure and its other

positive attributes, correlational analyses revealed a strong, positive associations between IH and general humility, honesty, gratitude, grit, hardiness, intentional self-regulation, empathy, and generosity (Pearson's *r* ranged from .221 to .384). In addition, IH was significantly negatively correlated with Machiavellianism, especially the subscales of morality and distrust of others (Pearson's r = -.375 and -.273, respectively). These preliminary data can help us to utilize the other opportunities for data collection as the project progresses, devising qualitative components to triangulate understandings of IH, both conceptually and developmentally.

By integrating these various findings across studies of both wisdom and IH with one another, researchers can begin to develop a model sensitive to changing individuals and contexts, towards an idiographic understanding that Bornstein (in press) marks as the specificity principle. The principle highlights the importance of understanding the process of specific attributes, in specific contexts, with specific individuals, who have specific experiences, demographics, etc. By using results across studies of IH and wisdom with varying types of individuals (e.g., West Point cadets) at varying ages (e.g., college-aged) in varying contexts (e.g., a military academy), we can better describe what IH will look like as context, individual, and experiences shift and change, within and between individuals and groups of individuals. Although these analyses are preliminary and not yet longitudinal, and though they do not completely encompass the entirety of IH across individual and context, they are a springboard for those who have the paradigm and resources to understand IH developmentally. These types of analyses not only give way to building a developmental model for IH, but the analyses also show the potential embeddedness of IH in wisdom, and potentially, more specifically, management of uncertainty.

Conclusions and Future Directions

These preliminary analyses, coupled with the extant IH work in the social sciences, shows the potential links between Baltes' practical wisdom (and, more specifically, the criteria of assessment and management of uncertainty) and IH. From these analyses, scientists can begin to build models that represent a realistic, process-based understanding of IH as a virtue embedded in the greater process of wisdom. Over time, a theoretical model of IH development can be tested, and eventually can be understood as both its own system and as part of a larger system, co-acting with other virtues, as well as co-acting with wisdom. IH will manifest differently in various persons, as does wisdom, because differences are adaptive based on person and context, as well as the intersection of the two. An appropriate developmental model for IH will encompass, much like the general theories for wisdom, guidelines for what comprises IH, giving specificity to the construct, as well as a flexibility for the model to fit the myriad trajectories we have as diverse humans and groups of people. As Lerner and Callina (2014, p. 323) point out:

> What is now needed is a developmental science of character development, one guided by a theoretical framework reflecting these emphases on the multidimensional and dynamic nature of character development and one that will promote integrative empirical research in this field.

As such, to contribute to a developmental science of character virtues, a life-span developmental perspective is necessary in order to focus on the development of IH and its contribution to wisdom, and how these two, separately, and in tandem, contribute to the importance of intellectual virtue, that is, what Baehr (2013) articulates as "lifelong learning."

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