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## APPLIED PSYCHOLOGY | RESEARCH ARTICLE

# Can wisdom be fostered: Time to test the model of wisdom

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**Abstract:** Several psychological theories and models of wisdom have been developed. Despite converging trend from different theories and models in the understanding of wisdom, intervention plans or attempts to facilitate wisdom have been meager. In this study, different components of the MORE Life Experience Model of Wisdom were taken as intervention targets, and these components were targeted through mindfulness training, journal writing, narrative simulation, and case discussion on leadership virtues. The basic purpose was to seek the answer for the possibility of development of wisdom in individuals by testing MORE model and we plan to answer this by fulfilling two aims: first, to find empirical support for the MORE life experience model, we wanted to see whether MORE components predict participants' self-rated wisdom scores; and second, to use this model as an intervention tool to foster wisdom. Intervention, lasted for 18 weeks, was done among 160 students (age range 19–22 years) enrolled for “leadership” course. Complete data were obtained from 108 participants. Result suggests Habitual Action ( $\beta = 0.24$ ,  $p < 0.05$ ), Personal Mastery ( $\beta = 0.24$ ,  $p < 0.05$ ), and Suppression ( $\beta = 0.20$ ,  $p < 0.05$ ) predicted Cognitive Wisdom; Personal Mastery ( $\beta = 0.34$ ,  $p < 0.001$ ;  $\beta = 0.43$ ,  $p < 0.01$ )

### ABOUT THE AUTHORS

Ankita Sharma, Assistant Professor of Psychology, in Indian Institute of Technology Jodhpur, is broadly interested in Psychology of excellence and well-being. Currently, she is continuing her work on optimal human functioning on three dimensions: Cognitive Functioning and Psychological Tendencies, Skills, ability and well-being management in personal, educational and organization context, Psychophysical intervention. The unifying thread along these three dimensions of work is the concept of “Optimal Human Functioning” and the working definition considered for it is “taking the individual to the next from current level”.

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### PUBLIC INTEREST STATEMENT

Academia and scientist quiet often warn against the development of knowledge without the development of society to use it wisely. Psychological sciences have started discovering this concept of wisdom quite earnestly in recent past and have developed many models, but the effort to explore the possibility of development or fostering wisdom is quite meager. The present study is an initial attempt to explore such possibility. Additionally, we also aimed to provide the evidence for one of a most recent model explaining a component of psychological processes involved in wisdom. This study provides useful insight in this important endeavor.

and Mindfulness ( $\beta = 0.23, p < 0.05$ ;  $\beta = 0.26, p < 0.05$ ) predicted Affective and Reflective Wisdom; and composite wisdom was predicted by Mindfulness ( $\beta = 0.33, p < 0.001$ ) and Reappraisal ( $\beta = 0.24, p < 0.01$ ). After intervention there were changes in Suppression ( $d = 0.34$ ) and Habitual Action ( $d = 0.26$ ). The study concluded with an affirmation to the conviction that wisdom may be amenable to the intervention.

**Subjects: Techniques & Interventions - Academic; Personal Development; Positive Psychology**

**Keywords: MORE wisdom model; wisdom intervention; mindfulness; narrative simulation**

### 1. Introduction

The importance of wisdom for the well-being of individuals and the welfare of society has been pointed out by many scholars. For almost 40 years,<sup>1</sup> the psychological science has given evidence for the association of wisdom with many positive outcomes. In more concrete and practical terms, wisdom has been associated with personal benefits such as better physical and psychological health, life satisfaction and happiness (Thomas, Bangen, Ardelt, & Jeste, 2017), as well as with societal benefits such as the sense of common good (Baltes, 2004; Staudinger, Maciel, Smith, & Baltes, 1998) and improved interpersonal relations (Thomas et al., 2017) at large. In particular, the significance of wisdom has been pointed out in developmental, both individual and social, transitional periods (Kunzmann & Baltes, 2005).

One of the important aims to studying the concept of wisdom was to bring this concept into the area of intervention and implication (Glück, 2015; Staudinger & Glück, 2011), which has not yet been achieved. However, individual and contextual factors pertinent to the development of wisdom have been investigated, and researchers continue to make efforts (see the review below) to facilitate wisdom, for example, as has been done with respect to happiness or therapeutic changes. *In this paper, we will briefly review the wisdom concept, related different models and will present rationale for choosing one established model to plan an intervention study and the resulting findings.*

### 2. Defining wisdom

Several theoretical approaches and understandings brought different definitions of wisdom. However, there are significant variations in definitions and models of wisdom. Usually, it is difficult to define but relatively easily identifiable when manifested (Baltes & Staudinger, 2000; Yang, 2011), with wisdom being considered as a multifaceted and elusive concept by several researchers (Glück, 2015). A study initiated to discover what people think of when confronted with the terms wise or wisdom is called the implicit approach (Sternberg, 1985); specifically, what constitutes a wise person (see overview Bluck & Glück, 2005). Another method, termed the explicit approach, focused on how experts thought of wise or wisdom, and how these ideas were then tested (Staudinger & Glück, 2011). Expert consensus characterizes wisdom as "... uniquely human; a form of advanced cognitive and emotional development that is experience-driven; and a personal quality, albeit a rare one, which can be learned, increases with age, can be measured and is not likely to be enhanced by taking medication" (Jeste et al., 2010).

We are refraining ourselves on providing any conclusive definition of wisdom, rather we aim to bring together different models of wisdom and identify common key factors suggested for development of wisdom.

### 3. Psychological understanding and models of wisdom

Here, a brief review of popular thoughts or models given by different researchers is presented to draw a conclusion for the common key factors. Clayton and Birren (1980) are mostly considered as the first among psychologists who tried to investigate wisdom. After them, the most notable earlier study in this area was carried out by Holliday and Chandler (1986). They used a central component

analysis of provided descriptors of wisdom by layman, which resulted in five major factors; (1) exceptional Understanding gained from experiences, (2) communication skill reflected in good advice, (3) general competence such as education and intelligence, (4) interpersonal skills, and (5) social unobtrusiveness such as non-judgmental attitude. Holiday and Chandler's factors have been replicated in other studies and support different later models of wisdom (Trowbridge, 2005).

The conceptualization of wisdom by a group of colleagues at the Max Plank Institute is known as the Berlin Wisdom Paradigm (Baltes & Smith, 1990; Baltes & Staudinger, 2000), which is widely cited as a significant model of wisdom. It notes that “knowledge and judgment about the essence of the human condition and the ways and means of planning, managing, and understanding a good life” (Baltes & Staudinger, 2000). This is a performance-based criterion where wisdom is evaluated on the family of five criteria. Rich factual knowledge—wide knowledge of different life conditions and rich procedural knowledge—and judgment and advice giving in life-concerning matters, are considered two basic criteria necessary for reaching the three other meta criteria. Lifespan contextualism—knowledge of developmental context, relativism—knowledge on the existence of different value systems, and uncertainty—acceptance of unpredictability, are considered the three meta-wisdom criteria. Many empirical studies emerged from, and have confirmed criteria of, this model (such as Baltes, Staudinger, Maercker, & Smith, 1995; Pasupathi et al., 2001; Pasupathi, Staudinger, & Baltes, 2001; Smith & Baltes, 1990; Smith, Staudinger, & Baltes, 1994; Staudinger & Baltes, 1996; Staudinger, Lopez, & Baltes, 1997 etc.).

Similar to his theory of intelligence, Sternberg's (1998, 2000) conception focuses on the balance of different components of wisdom; thus, his theory is widely known as the balance theory of wisdom. According to this model, wisdom lies in the successful utilization of intelligence and creativity or what he called “tacit knowledge”. This success in manifested in balancing intrapersonal, interpersonal and extrapersonal (i.e. community work) interests through value systems to achieve good for all. Focus on value systems is of particular importance in this model, as goodwill achieved through compromising a collective value system cannot be termed as wisdom. Sternberg's model is advocated much in educational setups (Elliott, Stemler, Sternberg, Grigorenko, & Hoffman, 2011; Sternberg, 2001a, 2003). Further, he has proposed the WICS model (synthesis of wisdom, intelligence, and creativity) for the development of educational leaders (Sternberg, 2005). Still, all his models have to go through empirical testing to determine their suitability and perhaps for further refinement (Elliott et al., 2011; Sternberg, 2001b).

Ardelt's 3D wisdom dimensions based on implicit research, mainly of Clayton and Birren (1980), conceptualize wisdom as the integration of three personal characteristics: cognitive, affective, and reflective (Ardelt, 2003). The cognitive dimension emphasizes obtaining a deeper meaning of phenomena in regard to the intrapersonal and interpersonal aspects of human living; the reflective dimension refers to the ability to see the phenomena from a different perspective to reduce personal biases; and the affective dimension focuses on the understanding of one's and other's emotion and modulates for well-being. For wisdom, all three dimensions are considered as necessary as well as sufficient, whereas other characteristics described by different authors were considered as correlates of wisdom which may emerge simultaneously or as a consequence (Ardelt, 2011).

On the basis of his extensive studies on Eastern culture as well as a review of Western studies, Yang (2008) proposed another model called the “Process View of Wisdom”. According to his view, “wisdom could be defined as a special kind of real-life process that is achieved by a person cognitively makes an unusual integration, embodies his or her ideas through action, and hence brings forth positive effects to both self and others”. This model has been supported by studies involving wisdom descriptor, interview of wise person and interview of leaders (Yang, 2001, 2008, 2011, 2014).

Another model was presented by Webster (2003) on the basis of a review of the literature, where some dimensions of his model had empirical evidence, on his Self Assessed Wisdom Scale (SAWS). Later he termed his wisdom model “HERO(E)” as an acronym of *Humor, Emotional regulation,*

*Reminiscence/reflectiveness, Openness, Experience* (Webster, 2014, p. 167). Humor—as a sense of closeness to others and a mature coping strategy, emotional regulation—as exposure and understanding of the full spectrum of emotion, openness—to diversity of ideas, values, and experiences, and experience of different life transition as well as negative sides of life, have been added in this model. Unlike Ardel's model, this model adds learning from the autobiographical account in coping in reflectiveness dimension.

On a similar note, Bassett (2005) gave an emergent model of wisdom which includes developmental trajectory and strategies for teaching wisdom. Wisdom is explained as having four dimensions: discerning (cognitive), respective (affective), engaging (active) and transforming (reflective). Further, the model also includes the chief characteristics, proficiency, manifestation and learning prompt for each of the four dimensions. The model suggested transformative learning as a means for learning to become wise(r).

People often reported life experience as a significant wisdom characteristic and thought that various range of experiences facilitate wisdom (Ardelt, 2005; Bluck & Glück, 2005). However, it was made clear that it was not some critical experiences per se but that attitude, reflection and learning toward life experience brought wisdom to the people who have demonstrated wisdom. Based on this notion that life experience can facilitate wisdom when modulated through four resources—a sense of mastery (M), openness toward life experience (O), reflective attitude (R) and emotion regulation with empathy (E), Glück and Bluck (2013) have presented the “MORE life experience model”. The sense of mastery suggests one's self-belief in dealing with difficult life situations with acceptance of uncontrollability of several at the same time. Awareness of limits of ones' view and acknowledgment of the presence of several other views, which brings openness to an individual and reduces personal bias or prejudice, have been found one of the most consistent personal characteristics associated with wisdom (Glück, 2015). Willingness to see things in a broader perspective, the ability to question one's view from several viewpoints, and complex thinking style in terms of understanding the whole of an event are known as reflective attitude and has been considered an important component of personal wisdom. Reflective attitude has been considered as the predecessor of wisdom as it brings life insight. The final resource of the MORE model, emotion regulation and empathy, suggests ability to deal effectively with one's and other's emotion as well as utilization of understanding of emotion in a prosocial manner. All components of the MORE life experience model have been discussed as an important component in different theoretical understanding, research findings, and measures of wisdom (Glück & Bluck, 2013; Weststrate & Glück, *in press*).

Models given by Holliday and Chandler (1986), the Berlin Wisdom Paradigm Baltes and Smith (1990), Baltes and Staudinger (2000), Sternberg (1998, 2000), Ardel (2003), and Yang (2008) explain the manifested part of wisdom. These models provide us with the understanding that when manifested in behavior, wisdom expresses itself on these dimensions or criteria. The model given by Webster (2003), Bassett (2005) and Bluck and Glück (2005) reflect upon those factors which are responsible for or foster the ontogenesis of wisdom. In conclusion, we can say that although there are differences in the ways wisdom has been defined, there is substantial agreement for the essential elements or components of the wisdom concept (Glück, 2015; Glück & Bluck, 2013; Jeste et al., 2010; Staudinger & Glück, 2011).

#### 4. Wisdom intervention

There are differences in opinion in terms of whether wisdom is a trait. Disagreement exists on whether wisdom is an innate and stable characteristic, or is dynamic in nature (Grossmann, Gerlach, & Denissen, 2016); some experimental works have suggested that wise decision-making and reasoning can be facilitated. A very early attempt to develop wise reasoning was made by Staudinger and Baltes (1996). Their attempt was based on the notion that mutual cognition or sharing of knowledge (discussing with others) and appraising one's own response can result in wise judgment, and it was supported by their experiments. In other experiments (Grossmann, Sahdra, & Ciarrochi, 2016; Kross & Grossmann, 2012) two types of wise reasoning—*dialecticism* (acceptance that

circumstances do change) and *intellectual humility* (recognition of limitation of one's knowledge)—were facilitated through psychological distancing (observing the events while reducing egocentrism). It was found that wise reasoning may arise in personal meaningful issues (e.g. while dealing with current failure) when an individual psychologically distance him/herself.

We did not find any attempt, other than that discussed above, which directly tries to intervene or facilitate wisdom. Both the discussed experimental attempts focused on immediately generated reasoning; they did neither focus on crystallization or acquisition of this reasoning in individuals nor assess long-term effects of the facilitative strategies. Hence, it is reasonable to say that although wisdom is considered to be of paramount value and psychological science aims to bring this concept to the area of intervention and implication (Glück, 2015), no significant attempts have been made in this regard.

### 5. Current concern

In a review of models given on wisdom, we find most of them provide a description of wisdom, are theoretical in nature and lack empirical validation for the ontogenesis. A review of the work on wisdom also suggests that there is need to plan an intervention to facilitate or cultivate wisdom in different set-ups (Bangen, Meeks, & Jeste, 2013). Most of the empirical supports for wisdom models are correlational in nature; these models do not tell how this can be implemented in action—*how can wisdom be brought?*

In this view that models have to be checked in the practical ground, we focused on certain characteristics of wisdom described in the MORE life experience model and took this model in our exploratory venture. The MORE model was selected for exploration because: (1) the model includes the variables which are most commonly cited in another prominent wisdom model, (2) MORE components could be fostered through certain techniques which have some empirical validity,<sup>2</sup> and (3) in recent years, this model has received a lot of attention by researchers. The basic purpose was to seek the answer for the possibility of *development of wisdom in individuals by testing MORE model* and we plan to answer this by fulfilling two aims: first, *to find empirical support for the MORE life experience model*, we wanted to see whether MORE components predict participants' self-rated wisdom scores; and second, *to use this model as an intervention tool to foster wisdom*.

### 6. Methodology

#### 6.1. Participants and procedure

Pasupathi et al. (2001) argued that the developmental challenges of the adolescent phase require one to develop the knowledge and skills that help them to cope with ill-defined life challenges. They concluded from their study that adolescence is a major period of normative age-related growth of wisdom, so it is the best time for sowing the seed of wisdom.

On a similar note, people most typically associate wisdom with leaders (Baltes, 2004; Paulhus, Wehr, Harms, & Strasser, 2002; Weststrate, Ferrari, & Ardelt, 2016). Wisdom is often reflected in acts of judgment, evaluation and advice giving (Baltes & Staudinger, 2000; Pasupathi et al., 2001) and leadership training and position can be taken as of one of the optimal outlets where wisdom can be practiced.

Therefore, by combining these two guidelines, our study was conducted during a Leadership course which is offered in the fall semester (August–December). The course content was based on the “New Psychology of Leadership Approach” (NPoL), an idea that the basic requirement of an effective leader is the wisdom required to be part of the consensus and create the consensus.

A total of 160 students enrolled for the “leadership course” were chosen to take part in the study. Participation in the study was completely voluntary. Out of 160, complete data on all intervention and pre–post test measures were obtained from 104 students (88.5% male) their age ranging from

19 to 22 years (Mean = 20.98, SD = 0.58). Therefore, the data of 104 participants were included for analysis. In the first week of the semester, the course was set out to put within the perspective of social identity theory and individual virtues leading to enabling identity, and in the same week pre-assessment was also completed on the below-mentioned self-assessment scales. In the second week, the first session of mindfulness training was introduced. In the third week, the first case discussion and narrative simulation were carried out. One class per week was allotted for the query and discussion on homework of mindfulness practice, journal writing and case simulation and discussion. The second and third session on mindfulness was introduced in the first week of consecutive months. The post-assessment was done at the end of the fall semester, and the total duration between pre- and post-assessment was 18 weeks.

### 6.2. Research design

The study followed a pre-test/post-test design and students enrolled for “leadership” were purposefully chosen (as explained in Figure 1). Pasupathi et al. (2001) suggested that adolescence is the best time to sow the seed of wisdom, and Yang (2011) suggested that leadership is an area where wisdom could be easily seen in action and is open for the assessment of tangible outcomes; this also gives us an opportunity to use life stances of different leaders reflecting virtues closely related to wisdom for intervention (see Gini & Green, 2013).

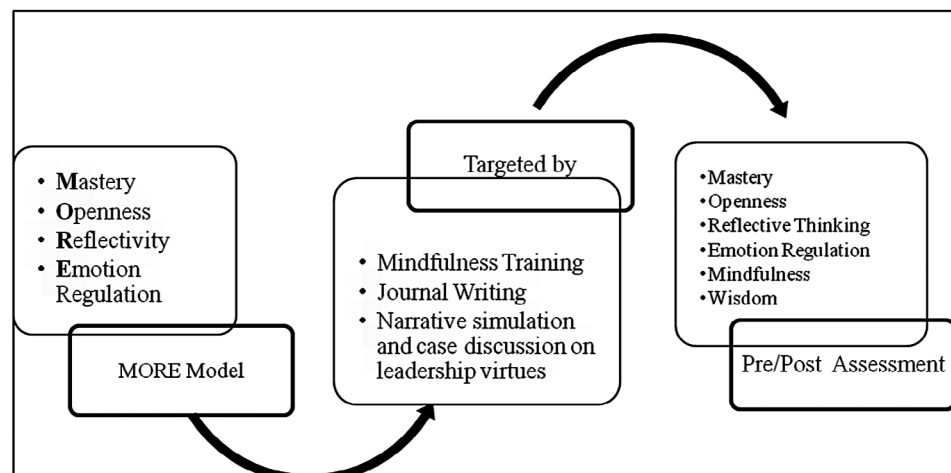
### 6.3. Instruments

**Personal mastery scale** (Pearlin & Schooler, 1978) was used to assess participants’ sense of personal mastery. This seven-item scale is self-administered and each item is rated on four-point scales ranging from “strongly agree (1)” to “strongly disagree (4)”. The validity of the scale was checked in different health-related setups (Caputo, 2003; Pudrovska, Schieman, Pearlin, & Nguyen, 2005). The scale had good internal consistency with 0.72 alpha values.

**Big five inventory** is a widely used personality scale (John & Srivastava, 1999), and contains 44 items and measures 5 personality dimensions: extraversion (8 items), agreeableness (9 items), conscientiousness (9 items), neuroticism (8 items), and openness (10 items). Each item is rated on five-point scales ranging from “strongly disagree (1)” to “strongly agree (4)”. A major focus of using this scale in the current study was on the openness dimension. The scale has a good internal consistency and all alpha values were  $\geq 0.80$ .

**Reflective thinking questionnaire** (Kember et al., 2000) is used to assess reflective thinking, especially in educational setups, through 16 items in 4 types of reflective thinking mentioned by Mezirow (1991). *Habitual Action* refers to involvement in learned action automatically with little consciousness, *Understanding* refers to the use of pre-existing knowledge without appraising it, *Reflection*

Figure 1. Design of current research.



refers to validity testing of belief and knowledge, and *Critical Reflection* is considered as the higher level of reflective thinking, and deals with the reasoning behind perception, thinking, and action. Each dimension consists of four items and each item is answered on a seven-point scale, from “definitely agree (1)” to “definitely disagree (7)”. The Cronbach’s alpha for different dimensions ranged from 0.62 to 0.76.

**Emotion regulation questionnaire** (Gross & John, 2003) differentiates between two types of emotion regulation strategies: a cognitive reappraisal (with 6 items) and expressive suppression (with 4 items). Reappraisal starts before full-blown emotion takes place and helps in reattribution to decrease the impact of the emotion-eliciting situation, thus is linked with less negative emotion, whereas suppression of emotion has been linked to inhibition of emotion-expressive behavior and linked with several emotion-related disadvantages (Gross, 2013). Ten items of this questionnaire are rated in a seven-point scale—“strongly disagree (1)” to “strongly agree (7)”. The items are worded in such a way that they reflect the capacity to cognitively regulate the emotion appraisal and expression. The alpha value for reappraisal component was 0.79 and 0.73 for the suppression.

**Mindful attention awareness scale** (MAAS; Brown & Ryan, 2003) measures the general tendency of being attentive to present-moment experiences in daily life. This scale has 15 items, such as “I could be experiencing some emotion and not be conscious of it until sometime later” (item-1), and “I find it difficult to stay focused on what’s happening in the” (item-3). Each item is rated on a six-point Likert-type scale (almost always to almost never). Mindfulness increases with increasing score. The internal consistency was 0.89.

**3D wisdom scale** (3D-WS; Ardel, 2003) is one of the most used self-assessment wisdom scales (Glück et al., 2013). Three dimensions (total 39 items) of this scale are: Cognitive (14 items), Reflective (12 items), and Affective (13 items), and items are rated on a five-point Likert scale from “strongly agree” to “strongly disagree”. Cronbach’s alpha was reported 0.78, 0.75, and 0.74, respectively, for the cognitive, reflective, and affective wisdom dimensions by Ardel (2003). However, in our study Cronbach’s alpha was less; it was 0.68, 0.66, 0.41, and 0.76 for the cognitive, reflective, and affective wisdom dimensions and composite scale, respectively. High score is interpreted as being high for that particular dimension. Among other available self-assessed wisdom scales, 3D-WS has the advantage that its three-dimensional components cover, and are thus compatible with, different conceptualizations of both implicit and explicit wisdom theories (Ardelt, 2011). Due to these reasons, 3D-WS is chosen as a criterion variable in the present study.

#### 6.4. Intervention

**Mindfulness training** Mindfulness training based on Hanh’s (1999) “The miracle of mindfulness”, was followed. According to Baer (2003), mindfulness is “the non-judgmental observation of the ongoing stream on internal and external stimuli as they arise”. This defines mindfulness as an ability to be “conscious of purpose” and still being non-judgmental to the perception and experiences. Now, this opens up the possibility for an individual to view, understand and accept different viewpoints, values and behaviors of own and others, which lead to better emotional and social management. Glück and Bluck (2013) reported that one of the basic characteristics of wise people is the ability to see things in different perspectives, being less judgmental and accepting others’ values and views; mindfulness training could be one of the best ways to approach this. Mindfulness was expected to enhance openness, reflectiveness, and emotion regulation of participants (Crescentini & Capurso, 2015; Hayes & Feldman, 2006; Hölzel et al., 2011; Ortnor, Kilner, & Zelazo, 2007).

The module for mindfulness followed three sessions, starting with an anecdote followed by training of different elements in mindfulness practice, and then homework. The training in the first session includes “training to sit” and “focus on breath”. The second session starts with queries and discussions about the previous session and homework, then the second anecdote followed by “training for being conscious to mind”; similarly, the third session includes “training to be mindful of each moment”.

**Narrative simulation and case discussion.** Narrations of life incidences and life experiences of people help us to live through those moments and by discussing those, provide a sense of going through the thought and emotion the person may have felt. The significance of narrative simulation in wisdom development can be understood in Ferrari, Weststrate, and Petro's (2013) words:

[in] the narrative simulations individuals create of (a) hypothetical situations that may come to pass and (b) situations lived by others (e.g. literary or historical exemplars or others personally were known), as well as the reasoning processes through which individuals make meaning of these simulations.

People often report life events or stories of wise nominated people (Weststrate et al., 2016) and their own life experience to reflect on it as wise incidents (Glück, Bluck, Baron, & McAdams, 2005; Yang, 2014). According to Mar and Oatley (2008), narrative simulation has many advantages: (1) the audience may access a rich experience of events which was out of reach (such as historical, events of other's life, critical events) to him or her, (2) reflective processing can be done for the given incident, (3) it may help the audience to compare, predict and modify one's own behavior and at the same time understanding empathetically the behavioral contingency of the character in a given incident. Storytelling or narrative mode of intervention has been discussed well as an effective way to facilitate affective and behavioral changes (Kottler, 2015).

Combining the knowledge that wisdom is best reflected in acts of judgment and evaluation (Baltes & Staudinger, 2000; Pasupathi et al., 2001) and narrative simulation is a way for other people to experience and live through those experiences (Ferrari et al., 2013), the case studies of outstanding leaders were simulated in the present study. The eight case studies were chosen from the book "Ten virtues of outstanding leaders" by Gini and Green (2013) for the simulation and case discussion. The book follows the format of identifying one prominent virtue as a theme in a significant event of outstanding leaders and provides the snippets and discussion on it. The following cases were chosen for the present work due to the close association of case virtues with wisdom:

- (1) Deep honesty—James Burkey
- (2) Moral courage—Abraham Lincoln
- (3) Moral vision—Winston Churchill
- (4) Deep selflessness—Martin Luther King
- (5) Compassion and care—Oprah Winfrey
- (6) Intellectual excellence—Franklin Delano Roosevelt
- (7) Creative thinking—Herb Kelleher
- (8) Fairness—Dwight Eisenhower

**Journal writing** Reflection-on-action has been considered as an essential component of professional training and courses (Kember et al., 1996). Thus, journal writing has been used in various professional educational setups to promote reflective thinking among students (Brooman & Darwent, 2012; Carson & Fisher, 2006; Chirema, 2007). In this study, the journal writing included two aspects; first, writing own thoughts and experiences with homework of mindfulness training and second, the reflections on narration and discussion of leadership vignettes. The following questions were provided to the participants to guide their reflection to not only understand and empathize the experiences of the characters in the vignettes but also relate them to their own life:



- (1) Retrospect your life, and look for the different instances where you have shown this virtue.
- (2) If not as “1” then, identify those situations in your past where you could have acted with this virtue.
- (3) Re-imagine your past and describe followings: Have you learned any important lesson from your life experiences?, How this lesson can also help others?, How this virtue will shape someone’s goal, and how much these virtues will shape the world around you?

### 6.5. Analysis

Data were screened for outliers and assumptions pertinent to different statistical tests used. Z-score ( $-3.29 < Z < 3.29$ ) outliers were identified in pre-intervention assessment score of *Habitual Action*, *Understanding*, and *Critical Reflection*, and post-intervention assessment score of *Habitual Action*, *Understanding*, *Reflectiveness*, *Openness (BFI)*, *Reflective (3D-WS)* and *Affective (3D-WS)*. Removal of 5% of extreme outliers did not affect significantly their corresponding actual mean; hence, scores were retained.

Means and standard deviations were calculated for Age. The components of the MORE model (conceptualized as personality variable and/or antecedent to the development of wisdom) and the associated intervention are used as criterion in the study to predict the self reported wisdom (on 3D wisdom scale). Stepwise regression analysis was performed to predict different components of the 3D-wisdom scale to provide the empirical support for the model (Aim I) and finally a paired *t*-test was used for comparing targeted areas on pre- and post-intervention assessments, along with the calculation of Cohen’s *d* for the effect size (Aim II).

### 6.6. Results

Different components of wisdom (3D wisdom) were predicted by different targeted variables of the MORE model, using step-wise regression analysis (see Table 1). Using post assessment value of targeted variables, results suggest that habitual action, personal mastery, and suppression positively predict cognitive components of wisdom ( $\beta = 0.24, p < 0.05$ ;  $\beta = 0.24, p < 0.05$ , and  $\beta = 0.20, p < 0.05$ , respectively). Personal mastery and daily mindfulness experience positively predicted affective ( $\beta = 0.34, p < 0.001$ ;  $\beta = 0.23, p < 0.05$ , respectively) and reflective ( $\beta = 0.43, p < 0.01$ ;  $\beta = 0.26$ ,

**Table 1. Prediction of different components of (3D) wisdom through MORE life experience resources (post-intervention) (N = 104)**

Predictor variables	R	R <sup>2</sup>	R <sup>2</sup> (Adjusted)	ΔR <sup>2</sup>	ΔF	β	t
<i>Criterion variable: cognitive wisdom</i>							
Habitual action (RT)	0.24	0.06	0.05	–	5.99*	0.24	2.45*
Personal mastery	0.33	0.11	0.09	0.06	6.36*	0.24	2.53*
Suppression (ER)	0.39	0.15	0.13	0.04	4.67*	0.20	2.16*
<i>Criterion variable: affective wisdom</i>							
Personal mastery	0.34	0.12	0.11	–	13.38***	0.34	3.66***
Mindfulness (MAAS)	0.41	0.17	0.15	0.05	6.10*	0.23	2.47*
<i>Criterion variable: reflective wisdom</i>							
Personal mastery	0.27	0.07	0.06	–	7.73**	0.43	2.78**
Mindfulness (MAAS)	0.35	0.12	0.11	0.05	6.01*	0.26	2.45*
<i>Criterion variable: composite wisdom</i>							
Mindfulness (MAAS)	0.33	0.11	0.10	–	12.34***	0.33	3.51***
Reappraisal (ER)	0.41	0.17	0.15	0.06	6.97**	0.24	2.64**

Notes: RT = reflective thinking, ER = emotional regulation, MASS = mindful attention awareness scale.

\**p* < 0.05.

\*\**p* < 0.01.

\*\*\**p* < 0.001.

$p < 0.05$ , respectively) components of wisdom. However, only daily mindfulness experience and reappraisal related to emotion positively predicted composite wisdom ( $\beta = 0.33$ ,  $p < 0.001$ ;  $\beta = 0.24$ ,  $p < 0.01$  respectively).

Intervention outcomes used a paired  $t$ -test and Cohen's  $d$  (Tables 2 and 3). After 18 weeks of intervention, participants' emotion suppression and automaticity toward habituated action decreased significantly [ $t(103) = 3.52$ ,  $p < 0.001$ ,  $d = 0.34$ ;  $t(103) = 2.60$ ,  $p < 0.05$ ,  $d = 0.26$ , respectively]. No other significant difference was found in different targeted MORE components after intervention (Figures 2 and 3). Any significant difference was also not observed in self-rated wisdom by the participants (Table 3). However, the effect size of 0.10 and above could be seen on emotional reappraisal [ $t(103) = 1.74$ ,  $p = 0.09$ ,  $d = -0.17$ ]; reflection component of reflective thinking [ $t(103) = 1.02$ ,  $p = 0.31$ ,  $d = -0.10$ ], extraversion and conscientiousness of personality dimensions [ $t(103) = 1.11$ ,  $p = 0.27$ ,  $d = -0.11$ ;  $t(103) = 1.88$ ,  $p = 0.06$ ,  $d = 0.18$ , respectively] and also in affective wisdom [ $t(103) = 1.15$ ,  $p = 0.26$ ,  $d = 0.11$ ].

**Table 2. Mean differences in different MORE related components after 18 weeks intervention (N = 104)**

Outcome	Pre-intervention		Post-intervention		t(103)	95% CI for mean difference	p	Cohen's d
	M	SD	M	SD				
Personal mastery	19.32	3.08	19.43	3.30	-0.33	-0.74, 0.53	0.75	-0.03
Reappraisal (ER)	25.83	5.77	27.32	7.17	-1.74	-3.19, 0.20	0.09	-0.17
Suppression (ER)	18.97	5.24	16.62	4.75	3.52***	1.02, 3.67	0.001	0.34
Habitual action (RT)	11.92	2.37	10.95	2.96	2.60*	0.23, 1.17	0.011	0.26
Understanding (RT)	13.86	2.66	13.73	3.31	0.37	-0.55, 0.78	0.71	0.04
Critical reflection (RT)	13.15	2.43	13.00	3.38	0.44	-0.51, 0.79	0.66	0.04
Reflection (RT)	15.25	2.24	15.55	2.07	-1.02	-0.88, 0.28	0.31	-0.10
Extraversion	24.42	4.30	24.93	4.43	-1.11	-1.42, 0.41	0.27	-0.11
Agreeableness	31.18	4.99	30.84	4.74	0.66	-0.70, 1.39	0.51	0.06
Conscientiousness	29.78	4.00	28.78	5.05	1.88	-0.05, 2.07	0.06	0.18
Neuroticism	23.85	4.54	24.23	4.57	-0.75	-1.40, 0.63	0.45	-0.07
Openness	33.64	4.96	34.13	5.51	-0.77	-1.75, 0.77	0.44	-0.08
Mindfulness (MAAS)	54.14	10.47	53.40	10.00	0.68	-1.43, 2.91	0.50	0.07

Notes: ER = emotional regulation, RT = reflective thinking, MASS = mindful attention awareness scale.

\* $p < 0.05$ .

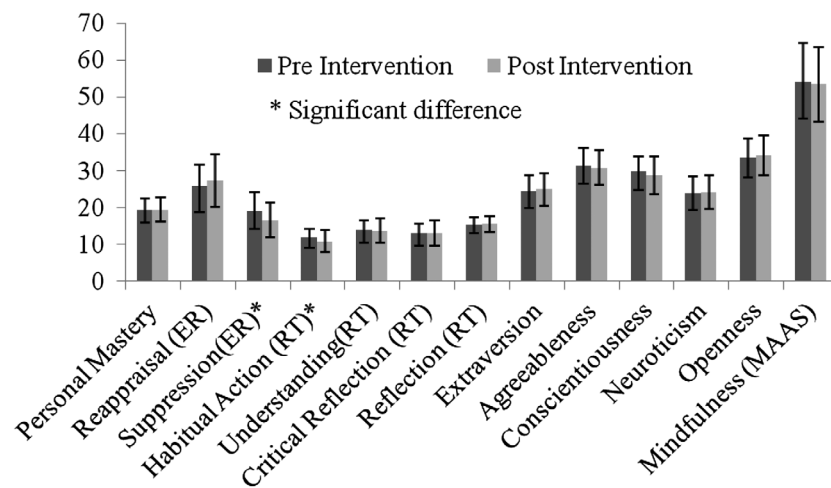
\*\* $p < 0.01$ .

\*\*\* $p < 0.001$ .

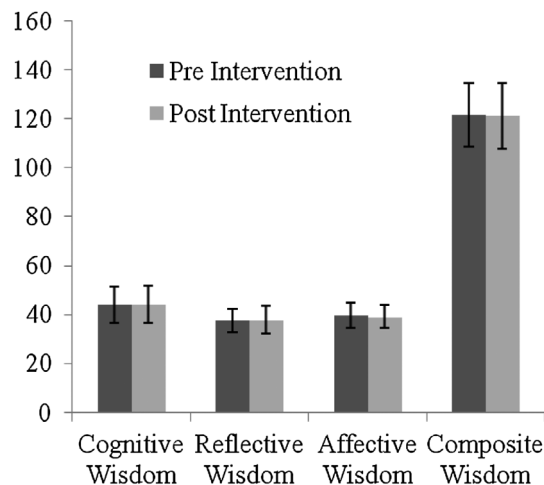
**Table 3. Changes in self rated 3D-Wisdom after 18 weeks intervention (N = 104)**

Wisdom outcome	Pre intervention		Post intervention		t(103)	95% CI for mean difference	p	Cohen's d
	M	SD	M	SD				
Cognitive	44.07	7.25	44.14	7.56	-0.09	-1.81, 1.65	0.93	-0.01
Reflective	37.62	4.67	37.9	5.58	-0.48	-1.47, 0.90	0.63	-0.05
Affective	39.89	5.18	39.17	4.72	1.15	-0.53, 1.97	0.26	0.11
Composite	121.76	13.05	121.26	13.59	0.34	-2.38, 3.38	0.73	0.03

**Figure 2. Mean differences in different MORE related components after 18 weeks intervention.**



**Figure 3. Mean differences in self rated 3D-Wisdom after 18 weeks intervention.**



## 7. Discussion

The work presented here attempts to explore the possibility of development of wisdom. We attempted this by (1) seeking evidence for the role of MORE model components in a prediction of wisdom, and by (2) intervening on these components, with respect to whether they can be enhanced. The results are further discussed in two sections.

### 7.1. MORE components and 3D wisdom

The MORE life experience model conceptualizes wisdom as the body of experience-based knowledge, consisting of both cognitive and non-cognitive resources (i.e. MORE components) (Glück &

Bluck, 2013). However, the MORE model still has to go through empirical testing, and the present study attempts this. The 3D wisdom scale was used for the criterion value because the conceptualization of wisdom as consisting of cognitive and non-cognitive resources matches with the conceptualization in the MORE model.

Significant predictions were found by MORE components. However, the factors predicting wisdom were varying as per the dimensions of wisdom, and personal mastery was the only component which positively predicted all three dimensions of wisdom. The sense of mastery is one of the psychological resources of coping, and “concerns the extent to which one regards one’s life chances as being under one’s own control” (Pearlin & Schooler, 1978). In the wisdom context, the sense of mastery also focuses on the acceptance of uncertainty of human living and limits of human capacity (Baltes & Staudinger, 2000), and we found in our study that participants’ sense of personal mastery positively predicted their cognitive, affective, and reflective self-assessed wisdom. We assumed that sense of mastery occurs through a variety of direct experience, so no intervention was planned per se to address the sense of personal mastery; however, we anticipated that presentations of different life vignettes of individuals who achieved excellence would facilitate participants’ sense of mastery.

A cognitive reappraisal in emotion regulation is expected to reduce experiential and behavioral components of negative emotion and thus takes place at the beginning of emotional experience before emotional-reaction trajectory formed fully (see Gross & John, 2003). Similarly, the capacity to control the expression of emotion is also part of the regulation which is expected by wise individuals, so they protect themselves and others from its negative consequences (Ardelt & Ferrari, 2014; Baltes & Kunzmann, 2004). In the present study, emotional regulation was not found as a significant predictor of affective component of wisdom in 3D-WS which deals with understanding of emotion and regulation; however, control over the expression of emotion (ER: suppression component) was found as predicting cognitive wisdom positively and capacity to reappraise the situation (ER: reappraisal) was found as predicting composite wisdom positively. This result may indicate the importance of cognitive strategizing in the regulation part, and hence the prediction of a cognitive and composite score of wisdom. In this study, emotion regulation was tapped for intervention through mindfulness practices.

Reflective thinking has been described as one of the major components of wisdom by an expert panel of wisdom researchers (Jeste et al., 2010), and has been part of self-assessment of wisdom scales (Ardelt, 2003; Webster, 2003). However, there are multiple ways in which reflective thinking could be conceptualized. Ardelt (2003) defines reflection as the ability to see phenomena from different perspectives, whereas Webster (2007) defines it as a tendency to look back to the past to gain insight (Weststrate & Glück, *in press*). Kember et al. (2000) recommended that in educational setups, reflectiveness should be assessed in terms of four components: *habitual action, understanding, reflection and, critical reaction*. Only habitual reaction type positively predicted cognitive wisdom ( $\beta = 0.24, p < 0.05$ ), which was targeted mainly in two ways: mindfulness, and journal writing.

Finally, mindfulness was found as the only predictor in this study which predicted all affective, reflective, and composite wisdom components. Current studies have shown several mechanisms, and the physical as well as psychological benefits of mindfulness practice. It is suggested that attention, decentering, and emotional regulation are a major mechanism of mindfulness (see meta-analysis Zoogman, Goldberg, Hoyt, & Miller, 2015). It teaches the practitioner to bring attention to current thought, emotion, and sensation without labeling or judging it; thus, reducing biases and fostering openness. Becoming able to understand one’s emotion allows one to regulate it in a better way and down-regulate immature reactions to it (Coffey, Hartman, & Fredrickson, 2010). We expected that daily mindfulness practice would help participants in enhancing their openness tendency, reflective thinking, and emotion regulation. Correlation of mindfulness to wisdom has been shown in previous research also (Beaumont, 2011).

There are lots of models of wisdom, existing, and emerging nowadays, but all are compromised by the absence of empirical evidence. Ardelt (2003) conceptualized that all three components of her 3D wisdom model (*cognitive, reflective, and affective*) are identical and one needs all three present simultaneously to be called wise. Other characteristics described of a wise person, such as ego integrity, maturity, humor and judgment skills, are assumed as correlates or consequences of wisdom and may be compassed within three dimensions of 3D wisdom. Some of the MORE components such as personal mastery, openness, and emotion regulation have been found correlated to all three dimensions and composite wisdom in previous research (Ardelt, 2011), and our findings support this claim to some extent.

## 7.2. MORE intervention outcomes

Many recommendations are there for the importance of effect size and inefficiency of only “*p*-value” in explaining and understanding the research (American Psychological Association, 2001). Especially in practice-based or intervention studies, the inclusion of effect size (ES) is much more (Dunst, Hamby, & Trivette, 2004). There are different ways to calculate ES depending on research design, and Cohen’s *d*’ is one of the most common method. Cohen (1988) recommended to use and interpret ES as 0.20 (small), 0.50 (medium) and 0.80 (large). However, he also acknowledged the danger of out-of-context interpretation. Glass, McGaw, and Smith (1981, p. 104) and Coe (2002) recommended that in clinical and education setups, an ES as small as 0.10 should also be considered. As per this recommendation, we will discuss results in a combination of significance value and effect size (>0.10) for the present study.

In the intervention, components of the MORE model: openness, reflective thinking, and emotional regulation were targeted through mindfulness training, journal writing, narrative simulation, and case discussion on leadership virtues (personal mastery was not tapped because we believed that sense of mastery occurs through the variety of direct experience). We found that intervention outcomes show no significant differences on most of the targeted components, except, participants’ tendency for emotional suppression decreased and their awareness toward habitual action increased with small effect sizes after the intervention. However, there was an increase in emotional reappraisal, reflective thinking, extraversion, and conscientiousness personality dimension with small effect sizes; but the *p*-values were not significant. Similarly, an increase in affective wisdom with small effect size and non-significant *p*-values was observed.

The kind of mix result we obtained, where intervention created change in intended direction with a small effect size and significant *p*-values for some components and insignificant for others, suggests that it might be possible to develop wisdom by targeting MORE components. However, to reach a consensual result where effect size is good and significant, certain additions are also required. First of all, perhaps the duration of the intervention was short. In this short duration some factors, specifically, personality variable may not be assumed to change. Stability of personality traits has been shown across different studies (see Roberts & DelVecchio, 2000) and in the present study also we did not find any increase in participants’ self-reported openness. Second, a more intensive intervention is required, such as constant availability and help from a mentor, in-depth and in detail participative case discussion, etc. Conceptualization of development or ontogenesis of wisdom suggests three important factors (Baltes & Staudinger, 2000; Staudinger & Glück, 2011): (1) person general factors—cognitive capacities, certain characters (such as openness, social skills, value system, and self regulation), (2) expertise factors—motivation and practice for learning and availability of mentor, (3) facilitative experience—availability of context where wisdom can be practiced and displayed, influence one’s learning from experience. When these factors are applied in one’s autobiographical experience to plan, manage and review it contribute to the development of personal wisdom, and when the same is applied for general experience, contribution occurs to general wisdom (Staudinger & Glück, 2011). To work on these three factors: personal general factors, expertise factors, and facilitative experience, a longer and more intensive program is required.

Differentiation has been made between personal and general wisdom which suggests that personal wisdom is relatively difficult to achieve, as insight and introspection into one's own conduct is difficult compared to evaluating and judging other's (Mickler & Staudinger, 2008). It is also found that emergence of personal wisdom is itself difficult, and so is cultivation of personal wisdom. In the present study, we also did not find any significant change in wisdom after the intervention. Therefore, even with long and intensive intervention, a caution will still be required in hypothesizing about the development of personal wisdom.

### 7.3. Limitation and future direction

A major limitation of this study could be that the identification of influence of given intervention on dimension of wisdom or components of the MORE model is not possible since the intervention plan included three different strategies. Mindfulness was found to be a significant predictor and it was the only quantified intervention variable. No quantification related to journal writing, narrative simulation, and case discussion was done, and therefore, analyzing any possibility that this intervention factor would affect more than one component and other work as a mediator or at worst did not play any role, was not possible. However, we adopted a pre-test-post-test repeated measure design but there was no control group to compare with. So studies could be conducted with mindfulness and other quantifiable components and a control group. Ardelt (2003) has argued that wisdom consists of all three dimensions, which need to be present simultaneously; however, we found that different components of the MORE model and intervention variable were not related and predicted all three dimensions of the 3D wisdom model; an investigation is also required to look at the conceptualization of wisdom. Further, as it is evident that personal wisdom is difficult and takes time to develop, a measure of general wisdom could be taken as a criterion variable to see the effect of the intervention on the development of wisdom.

## 8. Conclusion

There is an abundance of wisdom models with untested implications. Theoretical models need to be translated in functional terms and models have to be tested; the present study was an initial attempt in this direction. The results from this study affirmed the conviction that wisdom may be amenable to the intervention. If an intervention which targets personal mastery and intensive mindfulness intervention is conducted; there is a higher possibility of intended results. The present study provides useful insights for future studies in the development of wisdom analyses.

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### Notes

1. If we take Clayton and Birren (1980) as first scientific investigation of wisdom, as a reference point.
2. Explained in detail further in methodology section.

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