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WISDOM AND LEADERSHIP: DO WISE PEOPLE PERFORM MORE EFFICIENTLY?

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WISDOM AND LEADERSHIP: DO WISE PEOPLE PERFORM MORE EFFICIENTLY?

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Abstract

Many scholars have argued that wisdom might be an important skill contributing to leader performance. Although some support is available for this proposition, strong empirical evidence bearing on this proposition is not available. In the present study, 126 graduates were asked to work on a well-established leadership performance task where participants were to assume the role of principal of an experimental secondary school and prepare plans for leading the school. Plans were appraised for quality, originality, and elegance. Prior to the starting to work on the task, participants completed a new measure of wisdom along with a battery of cognitive a non-cognitive individual difference measures. It was found not only that wisdom was positively related to leader performance but was a strong predictor of performance in leadership roles when compared to other individual difference measures. The implications of these findings for leader assessment and development are discussed.

Keywords: leadership, wisdom, leader performance, performance prediction

Wisdom and Leadership: Do wise people perform more efficiently?

Many capabilities contribute to peoples' abilities to perform well in leadership roles. For example, Lord, De Vader and Alliger (1986) and Vincent, Decker, and Mumford (2002) have shown intelligence contributes to performance in leadership roles. Zaccaro et al. (2015) have shown divergent thinking skills also contribute to performance in leadership roles. Other research indicates that personality characteristics such as extraversion (Felfe & Schyns, 2006), emotional regulation (Arnold, Connelly, Walsh, & Martin Ginis, 2015), and leader self-efficacy (Paglis & Green, 2002) all contribute to effective performance in leadership roles.

Although many individual difference variables apparently contribute to performance in leadership roles, Zaccaro, Green, Dubrow, and Kolze (2018) and Mumford, Todd, Higgs, and McIntosh (2017) have argued that cognitive skills are among the most powerful predictors of performance in these roles. They identified nine skills that contribute to leader performance including 1) problem definition, 2) cause/goal analysis, 3) constraint analysis, 4) planning, 5) forecasting, 6) creative thinking, 7) idea evaluation, 8) visioning/sensemaking, and 9) wisdom. Indeed, prior studies have shown many of these skills, such as cause/goal analysis (e.g., Marcy & Mumford, 2010; Strange & Mumford, 2005), constraint analysis (e.g., Medeiros, Steele, Watts, & Mumford, 2018), planning (e.g., Marta, Leritz, & Mumford, 2005), and forecasting (e.g., McIntosh, Mulhearn, & Mumford, in press; Shipman, Byrne, & Mumford, 2010) are not only strongly positively related to leader performance, producing correlations in the mid .40s, but also influence performance on a variety of leadership tasks while adding to the prediction obtained from more traditional individual differences measures—for example, intelligence and divergent thinking.

Although a strong body of evidence is available for the impact of many of these cognitive skills on leader performance, far less evidence is available for the impact of wisdom on performance in leadership roles. As Sternberg (2020) has pointed out, the lack of evidence pointing to the impact of wisdom on leader performance is regrettable for three reasons. First, peoples' implicit conceptions of leadership typically hold that leaders are wise. Second, the nature of the problems people confront in leadership roles (e.g., complexity, ill-definition, social conflict, broader institutional commitments) all suggest wisdom should be an important determinant of leader performance. Third, socialized, or prosocial, solutions to problems presented in leadership roles seem to call for wisdom on the part of leaders. Given these observations, the intent of the present study was to provide evidence indicating that wisdom is, in fact, positively related to performance in leadership roles, and examine how the impact of wisdom on leader performance might be moderated by certain attributes of the problems leaders are being asked to address.

Wisdom

Wisdom is a somewhat ambiguous concept. In dictionaries wisdom is defined as understanding what is the right or lasting, common sense, good judgement—indeed, most of us would agree leaders need commonsense and good judgement to viable, lasting solutions serving institutional goals. In psychology, however, a variety of different operational definitions of wisdom have been proposed. For example, Erikson, Erikson, and Kivnick (1986) define wisdom as detached concern. Meacham (1990), in contrast, defined wisdom as a balance between knowing and doubting. Ardelt (2004) defines wisdom as reflective cognition which evidences sympathy for others.

Although all these definitions of wisdom have value, the most widely accepted definition of wisdom proposed by Baltes and his colleagues (e.g., Baltes, Staudinger, Maercker, & Smith, 1995; Kunzmann & Baltes, 2005; Staudinger, Lopez, & Baltes, 1997) holds that wisdom is reflected expert knowledge in the pragmatics of life that permits exceptional insight, judgement, and advice about complex and uncertain matters. A similar view may be found in Sternberg's (1990) definition which holds balanced integration of tacit, experiential knowledge in addressing complex, real-world problems provides the basis for wisdom.

Within this framework, the procedures used to measure wisdom are rather straightforward (e.g., Mickler & Staudinger, 2008; Staudinger, Maciel, Smith, & Baltes, 1998). Initially, people are presented with a complex, ill-defined problem likely to arise in the course of their life. They are then asked to think aloud as they work through this problem. The resulting think aloud protocols are appraised by judges with respect to key attributes of wisdom. For example, Smith and Baltes (1990) asked judges to appraise 1) use of rich factual knowledge, 2) use of rich procedural knowledge, 3) contextualism, 4) value relativism and 5) management of uncertainty. Of course, other types of problems, for example reflection on prior life events (Brienza, Kung, Santos, Bobocel, & Grossmann, 2018), or other attributes of wisdom, such as reflection or self-insight (Mickler & Staudinger, 2008) might also be appraised.

Broadly speaking, the evidence accrued using these methods does point to the reliability and validity of appraisal of wisdom obtained using these methods. Reliability coefficient (typically alpha coefficients) lying in the low .70s are obtained. More centrally, a number of studies (e.g., Baltes, Staudinger, Maercker, & Smith, 1995; Mickler & Staudinger, 2008; Staudinger, Maciel, Smith, & Baltes, 1998; Brienza, Kung, Santos, Bobocel, & Grossmann, 2018) indicate wisdom appraisals obtained using such measures are positively related to

measures of fluid and crystallized intelligence ($r \cong .30$), measures of openness, ego development and self-concept maturity ($r \cong .25$), life satisfaction ($r \cong .20$), reflection on life events ($r \cong .20$), and a judicial reasoning style ($r \cong .25$). Moreover, wisdom has been shown to be positively related to appraisal of others' emotions ($r \cong .20$), emotional reappraisal ($r \cong .20$), and mindful observation ($r \cong .40$). Perhaps even more centrally, wisdom has been found to be positively related to balanced goals ($r \cong .30$), and causal inferences ($r \cong .15$), as well as a proclivity to solve problems with others ($r \cong .25$). In addition, group comparison studies indicate that it is not age per se that determines wisdom but rather exposure to relevant events given reflection, self-appraisal, and openness (Mickler & Staudinger, 2008).

Although, the evidence accrued to date points to the potential validity of measures of wisdom, a number of questions might be raised with regard to these procedures. First, it is time consuming and costly to appraise wisdom using trained judges—a point noted by Kunzman and Baltes (2005). Second, only a small number of problems held to elicit wisdom can be presented and scored—a procedure raising questions about the generality of the appraisals of wisdom obtained. Indeed, concern with this issue has, in part, led to the development of personality-based procedures for the appraisal of wisdom (e.g., Jason, Reichler, King, Madsen, Camacho, Marchese, 2001). Third, wisdom measures formulated using this framework are inherently domain limited—typically to the persons expected life experiences. As a result, it is difficult to employ wisdom measures in settings where people might have a range of different life experiences.

In light of these problems, formulating a measure of wisdom where objective scoring using general, cross-domain wisdom tasks might prove valuable. Indeed, given the definition of wisdom commonly employed, the solution of complex, ill-defined problems in a social, value-

laden context, it might in fact prove possible to develop a set of standard problems for the appraisal of wisdom. For example, one might present short stories and ask people to evaluate actions in the story with respect to evident attributes of wisdom (Watts, Steele, & Mumford, 2019). Alternatively, one might use a set of stories, such as Aesop's fables, where the moral of the story, for example "The Tortoise and the Hare" (moral, slow and steady wins the race), reflects peoples' implicit conceptions of wisdom (Bluck & Glück, 2005). This observation led to the hypothesis underlying the present investigation.

H1: A fable story-based measure of wisdom can be developed which will display adequate construct validity as reflected in the measure's relationship with other individual difference measures.

Leadership

Wisdom, of course, might influence performance in a wide variety of domains—fields such as consulting, police work, or nursing to mention a view (Peterson et al., 2001). One domain, however, that seems especially likely to call for wisdom may be found in performance in leadership roles (Sternberg, 2020). In analysis of the key cognitive demands facing those who occupy leadership roles, Mumford, Zaccaro, Harding, Jacobs, and Fleishman (2000) argued that the problems commonly brought to leaders attention are inherently poorly-defined, or ill-structured, involving interactions among people, technologies, and systems which result in problems of unusual complexity. Thus, the problems presented to leaders evidence the three key characteristics of the cognitive tasks which call for wisdom—complexity, ill-definition, and social/life content. Moreover, in solving such problems leaders typically rely on personal experiences, case-based knowledge or tacit knowledge as demonstrated in studies by Barrett, Vessey, and Mumford (2011) and Vessey, Barrett, and Mumford (2011). Thus, there is reason to

expect that wisdom would be a key cognitive skill contributing to performance on leadership tasks (Mumford, Todd, Higgs, & McIntosh, 2017).

In fact, Mckenna, Rooney, and Boal (2009) have provided a theoretical model describing how wisdom might contribute to performance in leadership roles. More specifically, they argue in keeping with Brienza, Kung, Santos, Bobocel, and Grossmann (2018), wise leaders establish facts and analyze causes of problems in a balanced fashion. Moreover, wise leaders are held to be humane and virtuous, seeking to take into account the concerns of all stakeholders. In addition, however, they argue that wise leaders are focused on practical, day-to-day outcomes of their decisions. Finally, McKenna, Rooney, & Boal (2009) argue wise leaders seek to smooth the path of human interaction in service of a broader set of values.

Some initial evidence pointing to the impact of wisdom on performance in leadership roles has been provided by Yang (2011). In this study, peer nominations were used to identify eighty wise people. A semi-structured interview which examined conceptions of wisdom, decisions that had been made, methods used to overcome difficulties, beliefs held, and advice they would give to younger people were examined. A subsequent content analysis indicated most incidents of wisdom reported occurred in formal leadership roles. Moreover, it was found that those incidents where wisdom was evident involved the integration of multiple and often conflicting perspectives, through reasoning and creative thinking, with the intent of resolving the issue at hand to ensure positive outcomes for the institution and all parties involved.

The need for reasoning and creative thinking vis-à-vis others in incidents of wisdom suggests that wisdom may also call for self-reflection. Some support for this proposition has been provided in a study by Strange and Mumford (2005). In this study, participants were asked to assume the role of a principal of a new, experimental, secondary school where they were to

provide a curriculum plan and a speech to be given to students, parents, and teachers. Judges appraised the quality, originality, and elegance of curriculum plans and the perceived utility and affective reaction of speeches provided. As participants worked on this task, manipulations were made through "emails" from a consulting firm hired to help participants formulate their plan. Not only was it found that systematic analyses of cases and goals contributed to the production of better plans and speeches, but that reflection on past personal experience, a key component of wisdom (Sternberg, 2020), also resulted in the production of stronger plans and more impactful speeches among people working in this leadership role.

In a study examining the real-world impact of wisdom on leader performance, Greaves, Zacher, McKenna, and Rooney (2014) asked educational administrators to provide written solutions to a real-life problem calling for wisdom. Judges appraised these written problem solutions for use of factual knowledge, use of procedural knowledge, lifespan contextualism, recognition of values and priorities, and management of uncertainty (Baltes & Staudinger, 2000). In addition, two subordinates were asked to appraise the administrator's transformational leadership. It was found wisdom added to the prediction obtained from traditional individual differences measures of transformational leadership, with contextualism and management of uncertainty proving to be particularly strong predictors.

In another study along these lines, Connelly, Gilbert, Zaccaro, Threlfall, Marks, and Mumford (2000) asked 1818 army officers, ranging in grade from second lieutenant to full colonel, to complete a battery of individual differences measures. Among these measures was a wisdom measure. The wisdom measure presented a set of complex, ambiguous, work events encountered by middle-managers (Shorris, 1981). Participants were asked to indicate why the situation occurred, what was the critical mistake made by the actor in this scenario, and what

would they do if they were in the situation. Judges appraised written responses with respect to systems perception, self-reflection, sensitivity to solution fit, judgement under uncertainty, and systems commitment. The key outcome criteria examined included performance in solving military problems, performance in resolving critical incidents, and obtained rank. It was found that these wisdom attributes not only were strong predictors of all three criteria ($R^2 \cong .45$), but that they added to the prediction obtained from traditional individual differences measures such as intelligence, divergent thinking, and extraversion.

These findings are noteworthy because they point to two additional hypotheses. If a valid, and general, measure of wisdom can be developed, then

H2: A viable wisdom measure should predict performance of those acting in leadership roles.

H3: A viable wisdom measure should add to the prediction of leader performance obtained from other measures of individual differences.

Conflict and Complexity

Although it seems reasonable to expect wisdom will predict performance in leadership roles, it might also be expected that wisdom will prove especially important to leadership role performance under certain conditions. The problem presented to those acting in leadership roles are often, albeit not always, conflict laden (e.g., Fusch & Fusch, 2015; Korabik, Baril, & Watson, 1993; Saeed, Almas, Anis-ul-Haq, & Niazi, 2014). Accordingly, Grossmann (2017) and Achenbaum and Orwell (1991) have argued wisdom is especially likely to prove important to performance when balance must be maintained among competing interests.

Some support for this observation has been provided by Brienza, Kung, Santos, Bobocel, and Grossmann (2018). In this study, wise reasoning was assessed by asking participants to

recall life events where conflict occurred. Participants rated their behavior with respect to these events on attributes of wisdom including intellectual humility, consideration of change, consideration of how the situation might unfold, recognition of others' perspectives, search for compromise, conflict resolution, and application of an outsider's viewpoint. In one investigation conducted in this study participants were asked to complete a set of decision-making dilemmas such as the prisoner's dilemma and the commons dilemma. It was found that scores on this wisdom measure were positively related to a search for conflict resolution in these dilemmas. In another investigation, a socio-economic conflict scenario was presented, and it was found that scores on this wisdom measure were positively related to effective reasoning about stakeholders.

When these observations are considered in light of the fact that conflict is often associated with occupancy of leadership roles, the following hypothesis is suggested:

H4: Wisdom will be more strongly related to performance in leadership roles when conflict is evident in the issue at hand than when it is not.

Conflict, of course, not only makes it more difficult for leaders to resolve issues, conflict also involves complexity in the issues leaders must address. Indeed, many scholars have noted the need for leaders to operate in, and act on, complex institutional environments (Lichtenstein, Uhl-Bien, Marion, Seers, Orton, Schreiber, 2006; Uhl-Bien, Marion, & McKelvey, 2007). As the complexity of the leadership role and/or issues arising in this role increase, however, one would expect key attributes of wisdom such as contextualism, self-reflection, depth of factual and procedural knowledge, and systems perception might prove to be especially important to performance. Accordingly, one final hypothesis seems indicated.

H5: Wisdom will be more strongly related to performance in leadership roles where the issue at hand is more, as opposed to less, complex.

Method

Sample

The sample used to address these hypotheses was drawn from a large southwestern university. Participants were recruited from undergraduate psychology classes providing extra credit for participation in experimental studies. A website provided a brief, one paragraph description of each of the available studies. Those interested in obtaining extra credit then selected the study, or studies, in which they wished to participate. Overall, 126 people consisting of 40 men and 86 women agreed to participate in the present study.

The typical sample participant was 18 years of age. Participants commonly had 1 or 2 years of work experience. And, many of the participants reported some significant experiences in leadership positions (95%). Their academic ability, as indicated by scores on either the Scholastic Attribute Test or Academic Achievement Test lay a third of a standard deviation above average for those matriculating at four-year institutions.

General Procedures

Participants were recruited to participate in a study of leader problem-solving. In the informed consent document, it was noted the study would be two and a half hours in length. During the first hour of this study participants were asked to complete a set of timed individual differences measures including the measure of wisdom being investigated in the present study. Subsequently, participants were asked to work through a low-fidelity leadership simulation exercise where they were asked to assume the role of principal of a new experimental secondary school and prepare a plan for leading this school. Additionally, they were asked to write a speech to be given to students, parents, and teachers describing their vision for the school. Following

completion of this hour-long leadership task, participants, during the last half hour of the study, were asked to complete a set of untimed individual differences measures.

Individual Differences Measures

Given the findings of prior studies of leadership (Vincent, Decker, & Mumford, 2002), and studies of wisdom (Staudinger, Lopez, & Baltes, 1997), the first measures participants were asked to complete examined intelligence and divergent thinking. To measure intelligence, participants were asked to complete the verbal reasoning measure of Employee Aptitude Survey (EAS). The 30 items included in the EAS verbal reasoning measure presents a set of five facts bearing on a problem. People are asked to indicate whether each of the five potential conclusions drawn from these facts is true, false, or uncertain. The measure yields retest reliabilities above .80. Evidence for the validity of this measure has been provided by Grimsley, Ruch, Warren, & Ford (1985) and Ruch and Ruch (1980).

To measure people's ability for creative thinking, participants were asked to complete a measure of divergent thinking. The divergent thinking measure participants were asked to complete was Merrifield, Guilford, Christensen, and Frick's (1962) Consequences measure. The Consequences measure asks people to generate ideas reflecting the outcomes of unlikely events such as "what would be the consequences if people no longer needed or wanted sleep". People are asked to list as many consequences for five such unlikely events as they can think of in ten minutes. When scored for fluency, or the number of consequences generated, this measure yields an internal consistency coefficient of above .70. Merrifield, Guilford, Christensen, and Frick (1962) and Vincent, Decker, and Mumford (2002) have provided evidence for the construct and predictive validity of this measure.

In addition, to measure task relevant expertise, when the untimed covariate measures were administered, participants were asked to complete a background data, or life history, measure (Mumford, Barrett, & Hester, 2012) developed by Scott, Lonergan, and Mumford (2005). On this measure, people are presented with set of questions bearing on their exposure to and interest in educational issues. For example, people are asked to indicate "how much time have you spent thinking about educational issues (e.g., public schools, teachers, etc.)?" or "how much time have you spent thinking about how to make schools better?". These items, when scaled, yield an internal consistency coefficient above .70. Robledo, Hester, Peterson, Barrett, Day, Hougen, and Mumford (2012) and Scott, Lonergan, and Mumford (2005) have provided evidence for the predictive validity and construct validity of this measure of educational expertise.

Because wisdom and leader problem solving also requires people to be motivated to think deeply, in the untimed portion of the study, participants were asked to complete Cacioppo, Petty, and Kao's (1984) measure of need for cognition. This 18 item self-report scale asks people to describe on a 5-point scale their engagement in intellectually challenging tasks. One item, for example, asks "the notion of abstract thinking is appealing to me". Another item asks people to indicate if "I really enjoy a task that involves coming up with new solutions to problems". The resulting scale yields internal consistency coefficients above .80. Cacioppo and Petty (1982) have provided evidence for the construct validity of this scale for appraising need for cognition.

The final untimed set of individual difference variables, in addition to a demographic information form, was intended to provide an assessment of global personality characteristics—especially openness, which has been found to be positively related to wisdom in prior studies (Ardelt, 2004). Accordingly, participants were asked to complete Gill and Hodgkinson's (2007)

measure of openness, agreeableness, conscientiousness, extraversion, and neuroticism. This measure is based on 100 adjectives (e.g., kind, critical, artistic) where people are asked to indicate on a 9-point scale the accuracy of those adjectives when describing them. The resulting scales for measuring those Big Five personality characteristics all yield internal consistency coefficients above .80. Gill and Hodgkinson (2007) and Robledo, Hester, Peterson, Barrett, Day, Hougen, and Mumford (2012) have provided evidence for the predictive and construct validity of the five scales resulting from this measure.

Wisdom

Wisdom has traditionally been measured using a limited set of real-world problems. In the present effort, a more general set of problems used to measure wisdom was drawn from Aesop's fables. Aesop's fables present short, one paragraph stories of interactions between animals, gods, or people, where conflict is embedded in the story, and, the moral of the story, although surprising, reflects a wise response to the interactions of the principal actors involved. In fact, Aesop's fables, and morals to these stories have long been held by many scholars working in a number of disciplines to reflect wisdom (e.g., Farmer, 2017; Gibbs, 2009; Short & Ketchen, 2005)

In all, Aesop's fables include some 700 fables. Although a few of these fables, for example, The Tortoise and The Hare, are familiar to many, the vast majority of those fables are unfamiliar to undergraduates. Although unfamiliar to undergraduates, these fables are typically viewed as interesting and encourage active processing of the story and its outcome. The source material used to identify the fables provided the basis for the wisdom measure administered in the present study was drawn from Townsend (1885), which in total presents 350 fables.

Development of this measure began with a review of the available fables by a psychologist familiar with both leadership and wisdom literature. Fables selected for inclusion in the wisdom measure were screened for four attributes. First, the fable, and moral, was required to be engaging to current undergraduates. Second, any fables likely to be familiar to undergraduates were eliminated. Third, the fables, and morals, were required to involve some degree of conflict. Fourth, the causes of the outcomes or moral of the story were required to be reasonably complex. Application of those screening criteria lead to the identification of 43 candidate fables that might be used to appraise wisdom.

Subsequently, candidate fable content was reviewed and edited. In this review, some words in the fables were rewritten to ensure each fable could be readily understood by undergraduates. It is of note this editing operation was conducted in such a way as to ensure no change in the content or implications of the fable. In addition, the wording of the story morals, the correct answer on the final wisdom measure, were rewritten to ensure the moral could be easily understood.

After editing fable content, a psychologist subsequently formulated four alternative morals to each fable. These alternative morals were incorrect answers. Alternative morals were required to be plausible given fable content. In addition, the alternative, incorrect, morals were required to have a reasonable range of relevance—some more, some less, to the targeted fable and moral at hand. The resulting fables, moral (correct answer), and alternative morals (incorrect answers) were reviewed by a second psychologist for content relevance and appropriateness with respect to the target fable and clarity. Appendix A presents four wisdom items resulting from this revision and review process.

After a set of candidate items had been developed, they were reviewed by a panel of three psychologists using the five components of leader wisdom identified by Mckenna, Rooney, and Boal (2009). Panel members were first familiarized with the definition of these five attributes: 1) careful observation, 2) allowing for subjective attributes, 3) virtuous/tolerant decisions, 4) practical day-to-day life decisions, and 5) decisions contributing to a good life. Panel members were asked to review each fable and the associated response options with respect to these five dimensions and rate each items relevance to wisdom on a five-point scale ranging from 1) not wise to 5) very wise. Only those items where all three judges agreed, providing ratings of three or above, that the fable and correct response reflected wisdom were included in the final measure. In all, 22 fables/items were retained for the final wisdom measure following this review.

Scoring of the measure was based on the number of correct (actual) story morals selected from the five potential response alternatives. Subsequently, overall wisdom sores were obtained by summing the number of actual fable morals correctly identified. The reliability of this scale, estimated using coefficient alpha, was .68.

Experimental task

The impact of wisdom on performance in leadership roles was assessed using a low fidelity simulation exercise (Motowidlo, Dunnette, & Carter, 1990). This simulation task, which required participants to act as the principal of a new experimental secondary school, was drawn from prior work by Partlow, Medeiros, and Mumford (2015), Scott, Lonergan, and Mumford (2005) and Strange and Mumford (2005). Use of this low fidelity simulation task was based on prior studies indicating not only undergraduates had the expertise needed to perform this task but they found this leadership task realistic and engaging.

On this task, participants were asked to assume the role of principal of a new experimental secondary school called Oklahoma Excel. As this new principal, they were to take on the challenge of improving the student's academic success by creating a new school curriculum. Initially, participants were presented with a description of the school. This description began by noting the school had been established by the State Department of Education based on funds allocated by the "National Education Agency" to establish experimental secondary schools in each state. These experimental secondary schools were to formulate and execute educational programs that would result in improved student academic performance. At the end of the academic year, each experimental school's performance would be assessed in relation to other schools in other states participating in this national program. These evaluations would be conducted using standardized tests administered in a pre-post format examining writing skills, reading comprehension, mathematical skills, and analytical skills along with a set of tests examining student performance in content domains such as the sciences, social sciences, and foreign languages. The schools which proved most effective in improving students test scores would receive additional funding the next year and be asked to disseminate their program of instruction. It is of note that the issues presented was drawn from a prior review of the educational literature conducted by Scott, Lonergan, and Mumford (2005) to identify key issues influencing school performance.

Following this introductory material, the school was described. Participants were told that current problems in the state's educational system has resulted in the state's schools being ranked 47th nationally in academic performance with school funding ranked 49th . The school was described as having 400 students drawn from a variety of ethnic groups. The school also was described as having special education programs for both the gifted and disabled. The student

faculty ratio was 20:1. Teachers in the school were to be paid somewhat above average salaries for participation in this special program. As a result, it was possible to recruit high caliber teachers.

After reading through this description of the school, participants were informed a panel of teachers and a panel of parents had already been working to identify initial concerns for their stakeholder group—for example classroom climate and resources (teachers) or parental involvement and rate of college attendance (parents). Participants were asked to review the list of issues of concern to teachers and parents prior to preparing their two to three-page curriculum and plan and writing a two to three-page speech they would give to the students' parents and teachers describing their vision for the school.

Manipulations

The manipulations of conflict and complexity were embedded into the task as well as the issues of concern for parents and teachers. In the low conflict condition, parents' and teachers' issues were consistent. In the high conflict condition 8 of the issues presented in the parent and teacher list of concerns did not coincide in that they would indicate a participant could not readily formulate a plan which would satisfy the concerns of both the teachers and parents. Thus, in the parent list, less teaching autonomy, process-oriented classrooms, more parent involvement, diverse socioeconomic classrooms, more student autonomy, higher focus on college preparation, more within-school advancement opportunities for teachers, and larger class sizes were noted as issues. In the teacher list more teacher autonomy, achievement-oriented classrooms, less parent involvement, having higher SES students, structured curriculums, higher focus on technical skills education, more diverse teaching experiences encouraging mobility to other programs, and

smaller class sizes were noted as issues. It is of note that these issue conflicts were identified based on findings in the educational literature (Scott, Lonergan, & Mumford, 2005).

The complexity manipulation was based on the amount and disjointedness of the information that participants were asked to consider. First, in the high complexity condition participants were asked to consider 23 teacher issues and 7 parent issues while in the low complexity participants were asked to consider 28 teacher issues. In addition to the amount of information in the high complexity condition, an additional paragraph was added (high complexity), or not added (low complexity), to the description of the school which noted attention should be given to special education programs (disabled, gifted) and that teacher turnover due to a lack of developmental opportunities, limited autonomy, and burnout resulting in both parents and teachers becoming dissatisfied.

Dependent Variables

The first set of dependent variables were intended to assess the production of viable curriculum plans for the school by those acting in the role of school principal. Based on the observation of Christiaans (2002) and Mumford, Mecca, and Watts (2015) plans were appraised for quality, originality, and elegance. In accordance with prior studies (e.g., Scott, Lonergan, & Mumford, 2005; Vessey, Barrett, & Mumford 2011) quality was defined as a complete, coherent, useful plan, originality was defined as an unexpected and clever plan, and elegance was defined a plan where the parts flowed well together. Speeches were appraised with respect to two key attributes of effective visionary leader speeches identified by Strange and Mumford (2005)—perceived utility and affective reaction. Perceived utility was defined as whether the speech would lead to successful institutional change without undue effort. Affective reaction was

defined as whether the speech presented an image that the school students, parents, and teachers would find attractive and would lead people to want to attend this school.

Plan quality, originality, and elegance along with speech perceived utility and affective reaction were appraised using a set of benchmark rating scales. Benchmark rating scales were used to appraise these plan and speech attributed based on the findings of Redmond, Mumford, and Teach (1993), indicating that more valid and reliable appraisals are made with respect to a set of example products. To develop these benchmark rating scales, three judges, all doctoral students in industrial and organizational psychology familiar with both the educational and leadership literature were asked to rate a set of sample products, plans, and speeches, on a 5-point scale using the attribute definitions provided above. Based on these ratings, products near the high, medium, and low scale point which evidenced low standard deviations were identified. These product solutions were then abstracted and used to form scale anchors. Appendix B illustrates the quality, originality, and elegance benchmarking scales. Appendix C illustrates the perceived utility and affective reaction benchmarking scales.

Three judges, again doctoral students in industrial and organizational psychology familiar with the educational and leadership literature, were asked to evaluate participants plans and speeches prepared by participants acting as leaders of the Oklahoma Excel school. Prior to making these ratings all judges were required to participate in a rater training program. In this program judges were familiarized with the rating scales, the operational definitions underlying development of the rating scales and the ways each plan and speech attributes might be reflected in participants' written answers. Subsequently, the judges practiced applying these rating scales to a set of sample products. They then met to discuss their ratings and resolve discrepancies. Following this training, the inter-rater agreement coefficients obtained for quality, originality,

and elegance of plans were .83, .73, and .76. The inter-rater agreement coefficients obtained for perceived utility and affective reaction of speeches were .80 and .79.

Analysis

Initially, the means and standard deviations for each variable were obtained along with the correlations among those variables. Subsequently, a series of stepwise regressions were conducted where plan quality, originality, and elegance, as well as speech perceived utility and affective reaction, were regressed first on relevant individual differences variables, and second on the wisdom variable along with the interactions of wisdom with conflict and complexity manipulations.

Results

Table one presents the correlations of the wisdom scale with the various individual differences and leader performance measures. As may be seen, scores on the wisdom scale were positively related to intelligence ($r = .40$, $p \leq .01$), need for cognition ($r = .42$, $p \leq .01$) and openness ($r = .18$, $p \leq .05$). Given the findings obtained in prior studies (e.g., Staudinger, Lopez, & Baltes, 1997), these relationships provide some evidence for use of Aesop's fables as a potential measure of wisdom.

More centrally, scores on the wisdom scale proved to be positively related to the measures of leader performance. Wisdom was found to be positively related to the production of high quality ($r = .28$, $p < .01$), original ($r = .31$, $p \leq .01$), and elegant ($r = .21$, $p \leq .05$) plans for leading the experimental secondary school. Not only was wisdom positively related to the production of viable curriculum plans, it was also positively related to the perceived utility ($r = .26$, $p \leq .01$) and affective impact ($r = .27$, $p \leq .01$) of leader speeches. In keeping with the earlier findings of Zaccaro et al. (2015) it was also found that divergent thinking was positively related

Table 1.

Correlations of individual differences and criteria with wisdom scale

		M	*SD*	1	2	3	4	5	6	7	8
1	Wisdom	10.41	3.77	1							
2	Age	18.89	1.55	.11	1						
3	Gender	.68	.47	.05	.01	1					
4	Intelligence	11.01	6.14	.40**	-.11	.00	1				
5	Divergent thinking	32.68	10.05	-.04	-.12	.12	.14	1			
6	Total leadership positions	3.92	2.87	-.14	-.13	.10	.00	.12	1		
7	Current leadership positions	.80	1.16	-.15	.02	.03	.05	.11	.66**	1	
8	Educational interest	16.14	4.76	.15	.09	.16	.13	.00	.11	.23*	1
9	Need for cognition	3.22	.70	.42**	.11	-.15	.19*	-.04	-.07	.03	.20*
10	Extraversion	121.24	22.05	-.13	-.12	.07	-.29**	.11	.18*	.12	.01
11	Agreeableness	143.61	15.96	.13	-.07	.19*	.00	-.06	.13	.12	.16
12	Conscientiousness	130.71	19.49	.16	.03	.16	.15	.01	.08	.09	-.02
13	Neuroticism	92.87	19.29	-.04	.05	-.03	-.07	-.06	.00	.09	.04
14	Openness	130.20	17.32	.18*	-.01	.06	.04	-.06	.07	.07	.05
15	Plan quality	2.92	.84	.28**	-.08	.23**	.16	.19*	.13	.08	.08
16	Plan originality	2.32	.87	.31**	-.05	.23*	.05	.12	.23*	.18	.06
17	Plan elegance	3.00	.80	.21*	-.07	.21*	.09	.26**	.19*	.14	.04
18	Speech perceived utility	2.78	.85	.26**	.06	.25**	-.01	.02	-.04	.12	.08
19	Speech affective reaction	2.62	.89	.27**	.03	.12	.18*	.21*	.03	.06	.04

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 1.
Continued

		9	10	11	12	13	14	15	16	17	18	19
9	Need for cognition	1										
10	Extraversion	-.07	1									
11	Agreeableness	.05	.15	1								
12	Conscientiousness	.20*	.06	.33**	1							
13	Neuroticism	.03	.18*	.12	.14	1						
14	Openness	.33**	.12	.35**	.19*	-.10	1					
15	Plan quality	.02	-.25**	.09	.09	.01	.02	1				
16	Plan originality	.14	-.08	.16	.08	.01	.17	.65**	1			
17	Plan elegance	.00	-.12	.06	.10	.02	.06	.84**	.53**	1		
18	Speech perceived utility	-.07	-.18*	.16	.19*	.03	.09	.26**	.23*	.22*	1	
19	Speech affective reaction	.00	-.07	.08	.08	-.02	.18*	.20*	.21*	.23**	.48**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

to production of high quality ($r = .19$, $p \leq .05$) and elegant ($r = .26$, $p \leq .01$) plans as well as speeches with affective impact ($r = .21$, $p \leq .05$). Although these findings point to the construct validity of the leadership task, it appears wisdom may be as powerful, if not more powerful, of a predictor of performance in leadership roles than divergent thinking.

Some additional evidence pointing to the construct validity of the leadership task may be found in the positive correlation of conscientiousness with speech perceived utility ($r = .19$, $p \leq .05$). More centrally, the total number of leadership positions held was positively related to plan originality ($r = .23$, $p < .05$) and plan elegance ($r = .19$, $p \leq .05$). Moreover, while plan attributes ($\bar{r} = .66$, $p \leq .01$), quality, originality, elegance, and speech attributes ($\bar{r} = .48$, $p \leq .01$) were positively correlated, the relationship between plans and speeches ($\bar{r} = .23$, $p \leq .01$) indicates each element of the leadership task evidenced some unique value.

Curriculum plans

Table two presents the results obtained when the quality, originality, and elegance of curriculum plans were regressed on the wisdom scale and significant individual differences variables. In aggregate, the individual differences variables and the wisdom scale proved to be effective predictors of plan quality ($R = .54$), plan originality ($R = .53$), and plan elegance ($R = .49$). Across analyses, the strongest predictors were found to be wisdom ($\beta = .35$, $p \leq .01$), divergent thinking ($\beta = .20$, $p \leq .05$), gender ($\beta = .17$, $p \leq .05$), and extraversion ($\beta = -.24$, $p \leq .05$). It is of note, women ($M = .15$, $SD = .94$), as opposed to men ($M = -.32$, $SD = .66$), produced stronger plans $t(124) = -2.85$, $p < .01$.

Table 2.

Regressions of quality, originality, and elegance on predictors

	Quality			Originality			Elegance		
Predictor	β	*SE*	*p*	β	SE	*p*	β	SE	*p*
Intelligence	-	-	-	-.10	.01	.28	-	-	-
Divergent thinking	.21	.01	.013*	-	-	-	.26	.01	.002**
Gender	.21	.15	.011*	.22	.16	.011*	.18	.14	.039*
Extraversion	-.24	.00	.004**	-.09	.00	.331	-.11	.00	.181
Wisdom	.27	.02	.001**	.31	.02	.001**	.22	.02	.010**
R	.48	-	-	.38	-	-	.41	-	-
R^2	.23	-	-	.15	-	-	.17	-	-
Intelligence	-	-	-	-.11	.01	.258	-	-	-
Divergent thinking	.16	.01	.050*	-	-	-	.22	.01	.010**
Gender	.20	.14	.012*	.21	.15	.011*	.17	.14	.039*
Extraversion	-.22	.00	.008**	-.07	.00	.399	-.10	.00	.252
Wisdom	.28	.03	.016*	.40	.03	.002**	.27	.03	.027*
Conflict	.33	.39	.153	.54	.43	.029*	.39	.39	.111
Wisdom * Conflict	-.10	.04	.688	-.33	.04	.217	-.20	.04	.45
R	.53	-	-	.47	-	-	.47	-	-
R^2	.28	-	-	.22	-	-	.22	-	-
Intelligence	-	-	-	-.12	.01	.238	-	-	-
Divergent thinking	.20	.01	.018*	-	-	-	.28	.01	.002**
Gender	.21	.15	.012*	.22	.16	.012*	.18	.14	.039*
Extraversion	-.25	.00	.003**	-.10	.00	.261	-.12	.00	.164
Wisdom	.23	.03	.040*	.31	.03	.011*	.30	.02	.009**
Complexity	-.19	.41	.436	-.08	.44	.744	.26	.4	.299
Wisdom * Complexity	.12	.04	.652	.01	.04	.986	-.29	.04	.277
R	.49	-	-	.39	-	-	.42	-	-
R^2	.23	-	-	.15	-	-	.18	-	-

*Note. ** indicates significance at the .01 level, * indicates significance at the .05 level.*

When wisdom was examined only with respect to significant individual differences variable, the multiple correlations obtained for quality (R = .48), originality (R = .38), and elegance (R = .41) remained sizable. More centrally, against all three criteria wisdom scores again proved to be a significant predictor (β = .26, $p \leq .01$) of leader performance.

In the next set of analyses, all significant individual differences variables along with wisdom, the dummy coded manipulation, and the interaction of wisdom and the manipulation were examined regardless of the significance of wisdom and the manipulation or the interaction. In the case of plan quality, scores on the wisdom measure proved to be a significant predictor (β = .26, $p \leq .05$). However, neither the conflict or complexity manipulation, and interactions with the wisdom scale, proved to be significant.

For plan originality, scores on the wisdom scale again proved to be a significant predictor (β = .34, $p \leq .05$). A significant regression weight (β = .54, $p \leq .05$) was also obtained for the conflict manipulation with wisdom proving more important to production of high-originality plans under conditions of high conflict. However, the interaction of conflict and wisdom was not significant. Moreover, the complexity manipulation and the interaction of the complexity manipulation and wisdom proved insignificant.

In examining plan elegance, again it was found scores on the wisdom measure (β = .26, $p \leq .05$), proved to be significant predictors of performance. However, neither the complexity nor the conflict manipulations proved to be significant predictors of performance. And, the interaction of the wisdom scale with those manipulations were not significant.

Speeches

Table three presents the results obtained when speech perceived utility and affective impact were regressed on significant individual differences measures and scores on the wisdom

scale. In the case of perceived utility, the obtained multiple correlation when all variables were entered as predictors was .57. The significant predictors were intelligence (β = -.29, $p \leq .01$), need for cognition (β = -.24, $p \leq .01$), extraversion (β = -.34, $p \leq .01$), conscientiousness (β = .19, $p \leq .05$), gender (β = .17, $p \leq .05$) and number of leadership positions held currently (β = .34, $p \leq .01$), as well as total number of leadership experiences (β = -.24, $p \leq .05$). Thus, current experience and conscientiousness appear critical to crafting speeches where others perceive their utility. Notably, however, wisdom scores again, proved to be strongly, positively, related (β = .33, $p \leq .01$) to the perceived utility of speeches. With regard to the affective impact of these speeches, however, divergent thinking (β = .23, $p \leq .05$) and openness (β = .23, $p \leq .05$) proved significant predictors of performance along with scores of the wisdom scale (β = .25, $p \leq .05$) yielding a multiple correlation of .42.

When wisdom was examined with respect only to significant individual differences variables, the resulting multiple correlation obtained for perceived utility was .55 while the multiple correlation obtained for affective impact was .38. In the case of perceived utility, scores on the wisdom scale proved to be positively related to the perceived utility of speeches (β = .34, $p \leq .01$). Similarly, for affective impact scores on the wisdom scale proved to be positively related to the affective impact of speeches (β = .25, $p \leq .01$).

In the next set of analyses, the impact of scores on the wisdom scale, significant individual differences variables, the dummy coded manipulation, and the interaction of wisdom and the manipulation were examined. In the case of perceived utility, wisdom, again, produced a significant (β = .32, $p \leq .01$) regression weight. However, neither the conflict and complexity manipulations, or the interaction of these manipulations with wisdom, proved significant.

Table 3.

Regressions of perceived utility and affective reaction on predictors

	Perceived Utility			Affective Reaction		
Predictor	β	*SE*	*p*	β	SE	*p*
Intelligence	-.26	.01	.005**	-	-	-
Divergent thinking	-	-	-	.23	.01	.006**
Gender	.19	.15	.026*	-	-	-
Number of leadership positions	-.22	.03	.040*	-	-	-
Current leadership positions	.36	.08	.001**	-	-	-
Need for cognition	-.20	.11	.030*	-	-	-
Extraversion	-.30	.00	.001**	-	-	-
Conscientiousness	.20	.00	.017*	-	-	-
Openness	-	-	-	.15	0	.090
Wisdom	.34	.02	.001**	.25	.02	.004**
R	.55	-	-	.38	-	-
R^2	.30	-	-	.14	-	-
Intelligence	-.26	.01	.006**			
Divergent thinking	-	-	-	.23	.01	.007**
Gender	.18	.15	.032*	-	-	-
Number of leadership positions	-.21	.03	0.064	-	-	-
Current leadership positions	.36	.08	.001**	-	-	-
Need for cognition	-.20	.11	.030*	-	-	-
Extraversion	-.30	.00	.001**	-	-	-
Conscientiousness	.20	.00	.019*	-	-	-
Openness	-	-	-	.15	.00	.075
Wisdom	.30	.03	.024*	.10	.03	.411
Conflict	-.13	.42	.598	-.39	.44	.120
Wisdom * Conflict	.14	.04	.622	.45	.04	.106
R	.55	-	-	.40	-	-
R^2	.31	-	-	.16	-	-
Intelligence	-.26	.01	.005**	-	-	-
Divergent thinking	-	-	-	.26	.01	.003**
Gender	.19	.15	.027*	-	-	-
Number of leadership positions	-.23	.03	.040*	-	-	-
Current leadership positions	.36	.08	.002**	-	-	-
Need for cognition	-.21	.11	.030*	-	-	-
Extraversion	-.30	.00	.001**	-	-	-
Conscientiousness	.20	.00	.021*	-	-	-
Openness	-	-	-	.14	.00	.094

*Note. ** indicates significance at the .01 level, * indicates significance at the .05 level.*

Table 3.
(continued)

	Perceived Utility			Affective Reaction		
Predictor	β	*SE*	*p*	β	*SE*	*p*
Wisdom	.34	.03	.01**	.40	.03	.001**
Complexity	-.03	.41	.907	.49	.44	.051*
Wisdom * Complexity	.00	.04	.993	-.49	.04	.062
R	.55	-	-	.41	-	-
R^2	.31	-	-	.17	-	-

*Note. ** indicates significance at the .01 level, * indicates significance at the .05 level.*

With regard to affective impact, however, a somewhat different pattern of findings emerged. Neither scores on the wisdom measure nor the manipulation of conflict and its interaction with wisdom proved to be significant. In contrast, scores on the wisdom ($\beta = .40$, $p \leq .01$) measure along with the complexity ($\beta = .49$, $p \leq .05$) manipulation proved significant. Again, wisdom contributed to affective impact while complexity seemed to positively contribute to speeches of high affective impact.

Discussion

Before turning to the broader implications of the present study, certain limitations should be noted. To begin, in the present study we examined the impact of wisdom on leadership performance in an undergraduate sample. Although many of those who agreed to participate in the present study held, or previously held leadership positions, the question remains as to whether similar findings would be obtained in a sample of more experienced leaders.

It should also be recognized that our appraisal of performance in leadership roles occurred in the context of a single leadership task. Although this experimental secondary school task has proven to be an appropriate, engaging, and valid low fidelity simulation exercise in prior studies (Partlow, Medeiros, & Mumford, 2015; Scott, Lonergan, & Mumford, 2005; Strange &

Mumford, 2005), in part due to participants' familiarity with secondary school educational practices, the question does remain if similar findings concerning the relationship between wisdom and leader performance would be obtained on another type of leadership task.

Along related lines, in keeping with earlier studies (e.g., Strange & Mumford, 2005), performance in this leadership role, specifically principal of the experimental secondary school, was assessed with the respect to quality, originality, and elegance of the curriculum plans and the perceived utility and affective impact of speeches to be given to students, parents, and teachers describing these plans. Although these measures of leader performance evidenced good construct validity, and prior studies have shown congruence across judges (e.g., doctoral students, teachers, students) in appraisal of plans and speeches (Strange & Mumford, 2005), it is open to question whether similar findings would have emerged if other measures of performance in leadership roles had been employed.

It should also be noted that no item analysis using methods such as item response theory (IRT) was used in the present effort to assess the wisdom measure that was developed. Thus, individual item characteristics such as discrimination or difficulty were not examined but should be in future studies. Finally, the battery of individual measures employed was not only task relevant, it also tapped into individual differences variables found to be relevant to wisdom in earlier studies (Staudinger, Lopez, & Baltes, 1997). By the same token, however, it should be noted we did not measure every individual difference variable that might be relevant either to wisdom or performance in leadership roles. As a result, the question remains as to the findings that might emerge if other, additional, variables had been considered when examining the relationship between wisdom and leader performance.

With this said, we believe the present study does have some noteworthy implications. The measures traditionally used to appraise individual differences in wisdom have proven costly and time consuming due to the need for trained judges to appraise the wisdom evident in peoples' responses to real life problems (Kunzmann & Baltes, 2005). Moreover, assessments of wisdom were tied to a specific, life, performance domain, and employed only for a few (two or three) problems. As a result, the generality of conclusions drawn from such measures is suspect and the measures may prove too expensive and time consuming to routinely employ (Brienza, Kung, Santos, Bobocel, & Grossmann, 2018).

In the present effort, wisdom was measured using a twenty-two-item scale based on participants' capacity to identify the true "moral of the story" implied by Aesop's fables—all fables people are generally not familiar with. Use of Aesop's fables provided a set of content valid tasks for appraising wisdom (Gibbs, 2009; Short & Ketchen, 2005). When scored for participants' capability to identify the actual moral of the story from four incorrect alternatives, the resulting internal consistency of .68, suggesting adequate reliability. More centrally, the positive correlations evidenced by this scale with respect to intelligence and openness point to the construct validity of this measure of wisdom given the findings obtained in prior studies (e.g., Staudinger, Maciel, Smith, & Baltes, 1998). As a result, it does appear possible to formulate reliable and valid, generalizable, objectively scorable, measure of differential wisdom. Thus, some evidence has been provided for our first hypothesis that Aesop's fables might provide a plausible basis for the appraisal of individual differences in wisdom.

Our second and third hypotheses held that a valid measure of wisdom would predict performance in leadership roles and would add to the prediction obtained from other individual differences measures. In fact, in the present study, support, strong support, was obtained for both

these hypotheses. Scores on the wisdom measure were found to be correlated in the mid-twenties with both the plans participates formulated in leadership roles and the viability of the speeches formulated for key constituents in which they articulated their plans. Moreover, in the regression analyses it was found that scores on the wisdom measure were amongst the best predictors of leader performance even when other predictors were taken into account. Accordingly, strong support was obtained for ours second and third hypotheses.

At a substantive level these findings have some important implications for understanding leader performance. Leadership roles present people with complex, ill-defined, real world problems –-the type of problems held to call for wisdom (Ardelt, 2004). Leaders, moreover, must consider the needs of multiple stakeholder groups (Friedrich , Vessey, Schuelke, Ruark, & Mumford, 2009), and how decisions made might unfold over time (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000)—often under conditions where risk is substantial (Mumford, Fredrick, Caughron, & Byrne, 2007). The demands made on those who occupy leadership roles led McKenna, Rooney, and Boal (2009) and Mumford, Higgs, Todd, and McIntosh (2017) to argue wisdom will prove to be a key skill underling effective performance in leadership roles. In fact, the findings obtained in the present study along with the findings obtained in earlier studies by Connelly, Gilbert, Zaccaro, Threlfall, Marks, and Mumford (2000) and Greaves, Zacher, McKenna, and Rooney (2014) provide rather compelling support for the notion that those who occupy leadership roles need wisdom.

Our fourth and fifth hypotheses held that the impact of wisdom on leadership roles would become stronger as conflict among key stakeholders increased as well as the complexity of the task. Although the conflict manipulation did influence plan originality and the complexity manipulation did influence the affective impact of speeches, findings suggesting the

manipulations were, in fact, viable, they did not interact with wisdom in shaping leader performance as reflected in the quality, originality and elegance of leader plans, or the perceived utility and affective impact of speeches to be given describing those plans.

Of course, one explanation for these finding is the manipulations, while viable, were simply not powerful enough to result it interactions with wisdom in determining performance in leadership roles. It is possible, however, given the demands made by leadership roles are such that wisdom, regardless of the conditions shaping performance, is always an important skill contributing to effective role performance (Mumford, Higgs, Todd, & McIntosh, 2017). Although the present study cannot fully resolve this issue, we hope it provides an impetus for further work intended to understand how wisdom acts to contribute to the performance of those who occupy leadership roles.

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Appendix A

Example Wisdom Items

The Ass and His Shadow
A Traveler hired an Ass to take him to a distant place. The day being intensely hot, and the sun shining in its strength, the traveler stopped to rest, and sought shelter from the heat under the shadow of the Ass. As this afforded only protection for one, and as the traveler and the owner of the Ass both claimed it, a violent dispute arose between them as to which of them had the right to it. The owner maintained that he had leased out the ass only, and not his shadow. The Traveler asserted that he had, with the hire of the ass, hired his shadow also. The quarrel proceeded from words to blows, and while the men fought the Ass galloped off.

1. Those who are selfish will often lose what is important to them.
2. In quarreling about the shadow, we often lose the substance.**
3. Contracts must be thorough in order to avoid later dispute.
4. Two wrongs don't make a right.
5. Come well prepared for the worst—better to be safe than to be sorry.

The Ass, The Cock, and The Lion
An ass and a Cock were in a straw-yard together, when a Lion, desperate from hunger, approached the spot. He was about to spring upon the Ass, when the Cock (the Lion, it is said, has a singular aversion to its sound) crowed loudly, and the Lion fled away as fast as he could. The Ass, observing his fright at the mere crowing of the Cock, summoned courage to attack him, and galloped after him for that purpose. He had run no long distance, when the Lion turning about, seized him and tore him to pieces.

1. False confidence often leads to danger.**
2. It is often the strongest on the outside, who are the weakest on the inside.
3. One must be in good shape if they are to be successful in life and avoid danger.
4. Truly powerful individuals are not afraid of anything.
5. Confidence gained from another's abilities is always useful.

The Sick Stag
A sick stag lay down in a quiet corner of its pasture ground. His companions came in great numbers to inquire after his health, and each one helped himself to a share of the food which had been placed for his use; so that he died, not from his sickness, but from the failure of the means of living.

1. Wise men will choose carefully who they share with.
2. Evil companions bring more hurt than profit. **
3. Those who are too generous are eventually left with nothing for themselves.
4. One should be suspicious of the anterior motives of those who seem too concerned with the wellbeing of others.
5. Nothing can interfere with one's true fate.

The Widow and the Sheep

A certain poor Widow had one solitary sheep. At shearing time, wishing to take his fleece, and to avoid expense, she sheared him herself, but used the shears so unskillfully, that with the fleece she sheared the flesh. The Sheep, writhing with pain, said "Why do you hurt me so, Mistress?" What weight can my blood add to the wool? If you want my flesh, there is the butcher, who will kill me in a trice; but if you want my fleece and wool, there is the shearer, who will shear and not hurt me."

1. Those who are foolish will exaggerate their levels of expertise.
2. The least outlay is not always the greatest gain.**
3. Do not trust a novice with potentially dangerous tasks.
4. The option with the least outlay is only successfully executed by the clever.
5. Those who are frugal will always suffer from misfortunes.

Appendix B

School Plan Ratings

1. Quality

Definition: the overall quality of the participant's plan.

Things to look for:

- **Completeness:** Did the participant understand the critical issues? Did he/she address all of the most relevant information at hand?
- **Coherence:** Was the response coherent? Was it well thought out and logical?
- **Usefulness:** Is the response actually feasible and appropriate for addressing the problem?

Rating Scale

1 – Poor quality. The plan is haphazard and fragmented and does not address any of the key issues; it does not provide key information in a logical manner.

Block Schedule – 4 classes, 2 hours a day per semester

Students with D or F not allowed parking at school

cha-ching – Reward System based on good merits, redeemable for excuse from

Homework

Attendance – 3 tardies = 1 absent 3 absences = call to parents & detention

2 – Poor to average quality. A few key issues may be addressed; however, a clear plan is still not presented; key parts of the plan are unclear.

3 – Average quality. The plan is presented in a logical form; a number of key issues may still be missing or vague, but overall the plan addresses some of the major issues of the problem and is presented clearly and coherently.

After reading all of the strategies and ideas, I realized how important each one plays a role within a school. It is most important to think about the kids and the resources being offered to them. It is also important to consider their happiness to have the most successful students possible. As principal, the first part of my plan would be to look into the school climate. The environment the students will be learning in and how this is being done reflects directly on to their drive. Next, I would try to focus on obtaining small classrooms, so every student receives the full attention they deserve. I will make sure the

students were offered many resources and extra-curriculums so that they are getting a full fledge education. The teachers will work to motivate the student but also ensure that they are happy within their social and home life. I will hire the best teachers that will work to make sure the students are receiving the best education possible. This all will be done through proper funding and from having a list of goals to obtain throughout the year. To have a completely involved community is the best way to accomplish a succesful learning facility.

4 – Average to excellent quality. Many of the key issues are addressed in the plan and plan is feasible; however, some information may seem unimportant to the plan or is not completely thought out.

5 – Excellent quality. The plan is presented so that is exceptionally coherent and clear and addresses the key issues in a manner that is feasible.

At Oklahoma Excel, students will begin each school year by taking a general curriculum test to compare skills at the beginning of the year to skills gained at the end of the year. Each student will meet biweekly with a counselor to discuss goals, processes to achieve those goals, and goals reached. This should keep students on a motivated path throughout the year. Students with disabilities will be assessed and accommodated accordingly in order to customize each student's education with regards to their individual needs. Class size will be relatively small to encourage more engagement in learning, asking questions, and assistance from teachers. Classroom climate will foster good behavior, high self esteem, motivation, and interaction. Teachers will be given a list of structured objectives to cover and the choice as to how they want to cover them. Regular teacher meetings will be held to discuss issues as well as ways curriculum, discipline, and environment are to be improved. Teachers will be offered tenure with advancement in education. Parents will be given multiple opportunities to participate in their child's education with parent-teacher conferences/PTA meetings, extracurricular activities, and a parent forum that will allow parents to make suggestions about improving the school.

2. Originality

Definition: the extent to which the plan is original and creative.

Things to look for:

- **Unexpected:** Did the participant approach the problem in a novel, imaginative, unpredictable, or innovative manner?
- **Elaborative/Descriptive:** Did the participant provide a rich answer—one that helps the reader to visualize the solution for addressing the problem?

Rating Scale

1 – Poor originality. The plan is very predictable and is given in basic terms with no elaboration. The plan only uses bare ideas and is commonplace and ordinary.

> At this school, a strong emphasis on academic success should be implemented to give the students a goal to reach and something to motivate them. Bad behavior will be strictly taken care of because it distracts and also is a bad influence on students that are actually trying to succeed in school. The staff at Excel must be "all in" and really want to be there every single day. Their importance is very high on the list. If the teachers want to be there, the students will want to be there more too. A mix of small + big classes will be beneficial, providing time for more one on one time w/teachers in small classes. Attendance is very important to the school's success + graduation rate, and also parent satisfaction. Good attendance will make us look good for the public and will also lead to better GPAs, which is the most important thing.

2 – Poor to average originality. The plan presents ideas in a slightly unique manner. The plan mostly provides common ideas that do not reflect much elaboration or description.

3 – Average originality. The plan contains something that makes it different from the typical plan. The approach is original and contains some descriptive information. Description and elaboration are present but not entirely complete.

- More College like atmosphere
  - Gives students freedom\responsibility
  - Requires higher standards
- Teachers with Master's only
  - Provide students w\better teachers
- Attendance or lack hereof will result in grade being lowered
- Everyone is equal and will be treated as such
- Teachers are required to have office hours
- Student's must attend a tutoring or office hour once a week & if not then lunch will be spent in class doing work\studying for class in which you are doing the worst in.
- Parents will get weekly emails w\ students grades to help stay involved
- Self-esteem\recognition will be earned not given
- Some sort of team sport will be required for at least one year.

4 – Average to excellent originality. The plan contains something that makes it different from the typical solution. The approach is original and contains some descriptive information. Description and elaboration are present but not entirely complete.

5 – Excellent originality. The plan is exceptionally unique. The participant includes characteristics or details that make the plan unique to him/her. The plan clearly reflects an unexpected understanding approach to the problem and goes beyond the norm and presents new ideas that are highly descriptive.

> I think the first step in creating change at Excel High School starts with faculty and staff. As a school we must all be equipped and united under one cause, and that is to ultimately create an equal and excellent learning environment for our students. I plan to achieve this by implementing teacher workshops that equip our staff in the areas we are currently lacking such as gifted students and academically disabled students. This program would help teacher learn how to identify these students and walk alongside them in their educational journey. Along with equipping staff, we must provide resources to our students in need.
> For those who are especially gifted we will have outside programs that further their education in areas they are interested in. For example, students interested in the medical field can join a medical club that gives them hands on experiences and prepared them for everything they will need for medical school. Students with disabilities are just as important and deserve equal opportunity to succeed. They can attend an outside tutoring program that gives them one on one time with a teacher or succeeding student who can walk them through and areas they are struggling.

3. Elegance

Definition: the degree to which the participant's plan is articulately arranged in a succinct way.

Things to look for:

- **Flow**: Do all parts of the plan fit together smoothly? Does it flow seamlessly?
- **Refinement**: Is the plan easy to follow and well-refined? Is the plan focused well so that it uses the minimal number of elements to operate?
- **Clever**: Was the plan well-designed and cleverly put together?

Rating Scale

1 – Poor elegance. The plan lacks flow and focus. There are a number of ideas gathered together without order. Plan is very difficult to follow.

- Teaching strategies
- Improvement ideas
- Special activities
- Special programs
- Teachers education
- Students learning style

2 – Poor to average elegance. The plan reflects some organization of ideas, but at times is difficult to follow due to lack of focus.

3 – Average elegance. The plan shows good organization of ideas and they mostly fit together and are orderly. There may be too many unnecessary details regarding some ideas while other critical things are neglected.

> Any school should contain a major academic emphasis then an athletic emphasis. Ways to promote an academic emphasis are to establish clubs and opportunities for students to have fun with friends while studying. Keep parental involvement at the minimum and have a teaching staff that has a good academic influence on the students. Also, in classes its important to not only cover a topic of the class but to also explain why things happen and provide an understanding that these high school students understand. As principle of this school I strive to improve our academic success as soon as possible. We need to promote a high self-esteem and work ethic to ensure these kids stay on top and interested in their subjects. Student motivation comes from parent satisfaction, it they are being congratulated at home its more likely the behavior of good grades continues to happen.

4 – Average to excellent elegance. The plan is easy to read and follow. The flow and focus of the plan make it easy to comprehend and it seems to fit well together. However it is not flawless, there are unnecessary ideas or missed points.

5 – Excellent elegance. The plan is easy to read and follow. The ideas flow together smoothly, are directly related to the problem and cover the critical elements of the plan. The adequate amount of detail is provided without being over the top. The plan is well thought out and organized.

Entrance exam to create a better classroom environment:
Before the students begin classes at Oklahoma Excel, they will take a test to determine the level of their prior knowledge, and to find our if they have any learning proficiencies or disabilities. The results will group students into different classes, allowing for smaller class sizes and a more individualized teaching strategy, in order for the student's progress to be more closely monitored.

Teacher characteristics:
It is important that teachers at this school care greatly about each student's well-being and their education. They will create a structured, yet supportive learning environment for the students. There will be checkpoints throughout the year when I talk with parents and student about their level of satisfaction with the teachers. Before hiring, I will make sure the teachers are properly qualified, caring, motivational, disciplined, and kind.

Goal Setting:
One specific program I will implement is individualized goal setting. At the beginning of the tear, each student will set a number of goals for themselves to achieve that year. Halfway through the semester, they will meet with a counselor to review those goals and make a plan to stay on track to achieving them. At the end of the year, they will be able to check off all the goals they accomplished. I believe this will lead to higher student motivation, self esteem, increased attendance, high parental satisfaction, and an increase in graduation rates.

Appendix C

School Speech Ratings

1. Perceived Utility

Definition: the extent to which the vision is realistic and useful for this particular domain.

Things to look for:

- How well do you think the ideas in this plan would work?
- Would people do extra work to implement the ideas in this plan?
- Would this plan cause change?
- Will this school be successful?
- Will this school provide students with opportunities for social and academic success?

Rating Scale

1 – Poor plan utility. The plan has very low utility, would not cause change, and would not be successful. The ideas are very unrealistic. No focus on encouraging followers to participate in implementation of the plan. Students attending this school would not find social or academic success.

> Highschool should be more closely related to how colleges are set up. High school should deff not start as early as it does bc in adolescent students tend to stay up later giving their brain/body not fully develop to its full potential. In college a student can leave/come to class when they please in high school it was up to the teacher. This difference puts an anchor on high school students, while it may cause less students to stay in class it will allow those being distracted w/the need to leave to come back and illustrate their full performance. It would be the students who are less present that consistently leave. Further, attendance should not be mandatory, by high school students are fully aware to tell right from wrong thus if they choose not to go to class that is a decision of their own. However, grades do matter; like wise it should be treated the way it is in college. There should be no specific dress code. In college people can wear whatever they want so why put a limitation on those just a couple years young; it puts a social barrier between group thus holding no good significant limiting style.

2 – Poor to average plan utility. The plan has some utility, but ideas are mostly unrealistic and most likely unsuccessful causing minimal change. The plan would potentially encourage followers, but most likely would not result in any active help of implementing the participant's plan. Students attending this school would find little to average academic and social success in this school.

3 – Average plan utility. The ideas are logical and somewhat realistic; a number of key issues may still be missing or vague and the plan may cause some change and be somewhat successful.

The plan would probably encourage followers to minimally engage in implementing the plan, but encouragement would have a medium impact on followers. Students attending this school would find average academic and social success in this school.

> My plan will include making the classroom and school have a better climate. Make students feel accepted and liked. If we do this it will increase attendance and increase students learning. I will provide the proper resources that the students and teachers need in order to be successful in the classroom. Teachers will go to specific training to learn the teaching styles of adaptive teaching and structured teaching. I also want to encourage more involvement from the parents. Will all of these factors, will we strive for success in our school.

4 – Average to excellent plan utility. Many of the ideas presented are realistic and logical; however some ideas are unrealistic or poorly thought out but would probably result in a good amount of change and be successful generally. The plan would most likely result in motivated followers who would actively engage in implementing the plan. Students attending this school would find good academic and social success in this school.

5 – Excellent plan utility. The plan is very realistic and useful presented in a well-thought out manner, would cause a great deal of change, and be very successful. The encouragement is exceptionally convincing and would most likely result in motivated, active followers. Students attending this school would find high levels of academic and social success in this school.

> Hello Parents, Students, and Teachers,
>
> Our state is currently ranked 47th nationally on standardized testing; and 49th nationally on educational funding. Despite these numbers we have been awarded an opportunity to increase our rankings through the Oklahoma "Excel" High School and show how smart and strong-willed our great state can be. My program is meant to benefit our faculty, students, and of course our parents who we know always have the student's best interest in mind.
>
> So, I recommend that we begin by making our teachers as great as they can be. A monthly workshop for all teachers within our district will allow teachers the opportunity to share Learning/teaching styles and ideas to maximize both class moral and student and teacher engagement. A monthly meeting within each department (Math, English, Science, Social studies) will also allow for a layout of goals for the following month to take place. This way all of our faculty is on the same page as others within their departments. With collaboration like this our state education department will be more likely to fund more resources for a school that presents itself as an organized, united front.
>
> Next, I hope to tackle student motivation. By implementing more project-based learning styles we allow the students to engage more hands on and be creative with their learning. I also propose that we begin promoting student-led organizations on campus. Also having programs and extracurriculars added that aid directly towards the needs of gifted-talented students and students with special-needs will create a more accommodating and open-minded environment with less discrimination.
>
> I also propose that we remove distracting children from the classroom that take away from both teaching and learning through a 3-strike policy. After 3 office referrals in

a semester a student will have to part take in in school suspension. Trouble beyond that will involve parents meeting with school officials and possible out of school suspension. To limit the amount of referrals I propose hiring counselors/mediators that teachers may call when a student is getting out of hand to try and settle the situation before a referral is made.

Parents, to make all of this happen I need your voices and participation as well. More PTA led events and fundraisers that help parents get associated with the school will increase both school/community moral.

2. Affective Reaction

Definition: the degree of attractiveness of the plan. Attractiveness represents the extent to which a follower would likely be intrigued, appealed, or interested in the ideas presented in the plan.

Things to look for:

- Would people find this plan attractive and exciting?
- Do you think most people would want to attend this school?
- Would most people consider this school better than the average high school?

Rating Scale

1 – Very low affective reaction. People would not be attracted or excited by this plan. People would not consider this school more attractive than the average school. People would not want to attend the school described in this plan.

> Hello faculty, students, and parents. Today I will elaborate more on the outlay for "Oklahoma Excel." Teachers will not have an increased salary which they can incorporate into teaching their students in ways that they learn best. Teachers will also be required to understand their material extremely well. A new program will be initiated for all special needs and learning disability students that will consist of mandatory tutoring sessions with select tutors knowledgeable in the subject. All students will also be screened for learning disabilities. Parents, you will be given detailed course descriptions so you can help your children if they have questions; you are not to complete homework for them. Courses will follow general education standards, and students will meet with a counselor once a week to enhance mental wellbeing. I suggest the parents do so as well and stay actively engaged in your child's life. A perfect high school Is not possible, but I will do everything in my power to get close.

2 –Low affective reaction. People would be very minimally attracted or excited by this plan. People would mostly consider this school less attractive than the average school. People would most likely not want to attend the school described in this plan.

3 – Moderate affective reaction. People would be somewhat attracted or excited by this plan. People would consider this school about as attractive as the average school. People would be somewhat interested in attending the school described in this plan.

> Hello students, teachers, and peers. I thank you for coming here today to listen to me speak about my plan and why it needs to be implemented. I have come up with this plan which would make Oklahoma Excel among the most successful high school across the country. My plan will help out students, + your children grow into people who are sought after by every university there is. Our new staff will help push your children into becoming better and move sucessful students. Our new resources will help students stay motivated, and allow them to complete their work move efficiently and accurately. With limiting class sizes to 30 people, they will still be able to experience social situations while still being able to focus on their students. Among the students we will ensure a

diverse environment to help the children become as well rounded and accepting as possible. Our goal at Oklahoma Excel is to produce top notch students who can adapt to any situation life throws at them. I hope you approve of my new plan. Thank you for your time!

4 – High affective reaction. People would be attracted or excited by this plan. People would consider this school more attractive than the average school. People would be interested in attending the school described in this plan.

5 – Very high affective reaction. People would be very attracted or excited by this plan. People would consider this school much more attractive than the average school. People would be very interested in attending the school described in this plan.

Parents and teachers of Oklahoma, today I stand before you to give you a speech on why you should feel better about the excel program and what I can do to make sure that you can be happy with is school program. this, I feel, however, is counterproductive to the reason this school should be established in the first place. Parents, you want to feel that your child's future is secure. Teachers, you would have to be crazy to get in this profession if you did not have a passion for educating the young minds of today. This program is about what is best for our children and our future leaders. With my plan I know that we will be raising up strong individuals who will know the answers to questions we never had when we were their age. They will not say that these are the best days of their lives because they will know that they are capable of so much more. They will enter into their futures with their eyes opened to the possibilities that they bring. My program will not only encourage higher education but also will strengthen the back bone of this country which is so often overworked. Our technical studies program will open up doors that many children have thought would never be accessible to them. No one can care as much about these needs as the people in this room so please, help me not only create a better future for them but for the future country and the world.