A Meta-Analysis of the Relationship between Learning Agility and Leader Success

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Although the construct of learning agility is relatively new, its application by human resource professionals to identify and develop talent has been extensive. Corporate testimonials and anecdotal evidence tout repeatedly how important it is to leadership effectiveness. However, the scientific support of a linkage between learning agility and leadership seems to be scanty. The purpose of this research is to investigate learning agility scientifically. Twenty field studies examining the relationship between learning agility and leader success are reviewed. Results of a meta-analysis show it has a robust relationship with both leader performance ($\rho = 0.74$) and potential ($\rho = 0.75$).

INTRODUCTION

Perhaps, no other concept has struck a chord more loudly in the business world during the past decade than learning agility. Human resource professionals around the globe have been using it to help them identify and develop high potential talent and select organizational leaders. The accolades and testimonials espousing its virtues are impressive (De Meuse, 2017b). For example:

- The most in-demand business skill of the 21st century;
- Learning agility equals leadership success; and
- Business results depend on learning agile leaders.

Many well-known global organizations such as Novartis, Mars, GE, and Mondelez have been applying learning agility in their leadership identification and development programs for many years. It appears to be the foremost attribute that any manager or executive can possess today.

Learning agility can be defined as the ability to learn from experience, and then the willingness to apply those lessons to perform successfully in new and challenging leadership roles (De Meuse, Dai, & Hallenbeck, 2010; Lombardo & Eichinger, 2000). A recent survey found it was the most often used criterion to measure leadership potential, with 62% of the respondents citing it; whereas, cultural fit (28%), emotional intelligence (24%), personality (14%), and intelligence (13%) were identified less frequently ("Potential: Who's Doing What," 2015). Allan Church and his colleagues (2015) reported that more than one-half of the organizations they sampled used learning agility/ability as an assessment for identifying high potentials (56%) and selecting senior executives (51%). A recent Google search of learning agility registered over 40 million entries.

And yet, what hard evidence do we have that learning agility actually is related to leader performance or high potential success? While learning agility has played a noteworthy role in talent decisions for many years, scholars have begun to explore the concept only recently (De Meuse et al., 2010; DeRue, Ashford,

& Myers, 2012). It would seem that the selection of individuals for current leadership roles and the identification of whom to place into high potential programs would be some of the most important decisions organizations have to make. The future of a company largely depends on getting it right.

And maybe, it is because of this importance that organizational decision makers are reaching out to this new approach. Perhaps, they think that any additional information will help make their leadership decisions better. After all, using objective data from the administration of a standardized assessment has got to be more effective than using opinions based on hearsay, innuendo, and gut feelings. It makes sense that the application of science to manage one's high potential talent can eliminate guesswork, evaluative biases, and subjectivity from annual talent reviews and leader selection decisions.

The need for leaders to adjust their managerial style as situations change has been recognized by scholars for many decades (Fiedler, 1967; Vroom & Yetton, 1973). Moreover, it has been widely accepted in the academic community that different leadership competencies, managerial behaviors, decision styles, and supervisory approaches are required as leaders climb the organizational ladder (Brousseau, Driver, Hourihan, & Larsson, 2006; Charan, Drotter, & Noel, 2001; Tannenbaum & Schmidt, 1958). Successful leaders evolve and grow from their experiences. They are able to let go of old habits and ways of performing their jobs and latch on to new techniques and supervisory practices when it is required (Fiol & Lyles, 1985; Freedman, 1998). Successful leaders are malleable; they can recast their identities. Perhaps, it is the key reason why the application of learning agility has been so appealing in the business world.

Research on executive leadership also suggests strongly that "learning from experience" is related to leader effectiveness (McCall, Lombardo, & Morrison, 1988). In a comprehensive review of the literature on high potential talent, Silzer and Church (2009) reinforced the importance of a learning component for high potential identification. Other scholars likewise have declared that building and diversifying one's skill set and engaging in continuous learning are essential for career success in today's economy (Eby, Butts, & Lockwood, 2013). Several authors have written about the theoretical importance of learning agility during the past few years (cf. De Meuse, 2017c; De Meuse et al., 2010; DeRue et al., 2012; Hezlett & Kuncel, 2012).

In addition, Carol Dweck has introduced the notion of possessing a "fixed" versus a "growth" mindset (see Dweck, 2006; Dweck & Leggett, 1988), which also relates to how people learn and develop. In her experiments with school children, Dweck observed that students who have a fixed mindset view their basic abilities, intelligence, and talents as fixed traits. They perceive individuals are born with a specific (or fixed) amount, and that it is all they ever will possess. Consequently, performance mistakes lower their self-confidence, because they attribute them to lack of ability (which they feel powerless to change). In contrast, individuals with a growth mindset posit intelligence is malleable and can be developed through education and hard work. Therefore, mistakes stem from a lack of effort or acquirable skills. Mistakes can be corrected through perseverance. They believe the brain (IQ) is a muscle that grows stronger through exercise. Paradoxically, they perceive that failure causes "learning" more than success does. People with a growth mindset do not define it as failure. Rather, it is more like "This didn't work. I'm a problem solver. What else can I try?" As Thomas Edison asserted, "I have not failed. I've just found 10,000 ways that won't work!"

Heslin, VandeWalle, and Latham (2006) found that managers who had a fixed mindset were less likely to seek or welcome feedback from their employees than were managers with a growth mindset. Presumably, managers with a growth mindset see themselves as works-in-progress and understand they need feedback to improve; whereas, leaders with a fixed mindset are more likely to perceive criticism as reflecting their underlying level of competence. In addition, those authors observed executives with a fixed mindset also were less likely to mentor their underlings, assuming that other people were not capable of changing either.

Despite those strong conceptual roots of learning agility – and despite the amount of attention given to learning agility on blog postings and consulting firm websites – there appears to be relatively few empirical studies that have investigated the relationship between learning agility and leadership

effectiveness. The scientific support of a direct linkage between learning agility and leader success seems to be scanty.

The purpose of this study is to examine learning agility more scientifically. What studies actually exist investigating the linkage between learning agility and leader performance? How many? How have they measured learning agility? How have they assessed leader performance and potential? Can those results be trusted? Thus, the goal of the present paper is two-fold. First, it is to uncover empirical-based studies that have specifically assessed the relationship between learning agility and leadership performance. Second, it is to summarize their results to derive a scientifically based conclusion with regard to the degree of relationship between learning agility and leader success.

A META-ANALYSIS OF LEARNING AGILITY FIELD STUDIES

Meta-analysis is a statistical procedure researchers apply to combine data across multiple scientific studies. The analysis integrates the findings of many studies by computing a pooled estimate of the true "effect size." The statistical results of each individual study are weighted by its respective sample size (see Hunter & Schmidt, 2004). A key advantage of this approach is the aggregation of information leading to higher statistical power and a more robust estimate than is possible from the findings derived from any one study. Meta-analyses have been used frequently in the scholarly literature to identify the scientific relationship between performance and various psychological constructs (e.g., emotional intelligence, personality traits, IQ).

Methodology

Sample

A concerted effort was made to identify all studies that had collected data to investigate the relationship between learning agility and leader success. All empirical studies were included regardless of how learning agility was assessed or leader success was measured. An extensive literature search of the *PsycINFO*, *ProQuest*, and *Google Scholar* data bases was performed. In addition, a cursory search of *Google* was conducted to capture any studies which might have been overlooked. Only field studies collecting and analyzing data were included. The objective was to locate any empirical field study – published or unpublished – examining the explicit link between learning agility and leader success.

In total, a pool of 20 field studies was identified. Seven (35%) were published in academic journals, three (15%) were doctoral dissertations, and ten (50%) appeared in technical reports and whitepapers. The degree of relationship between learning agility and leader success was measured by analyzing a study's correlation coefficient(s). The following equation was used to compute the "mean correlation coefficient" across all 20 studies:

$$\bar{r} = \sum_{i=1}^{k} r_i * n_i \div \sum_{i=1}^{k} n_i \quad (1)$$

This equation weights each study's reported correlation coefficient by the respective sample size used in the study (see Hunter & Schmidt, 2004). Consequently, the overall mean correlation coefficient ($\bar{r}$) provided a summary, meta-analytic statistic by which to evaluate the strength of relationship between learning agility and leader success. As stated previously, a key advantage of this approach is the aggregation of information leading to higher statistical power and a more robust estimate than is possible from the findings derived from any one study.

Statistical Corrections

During the late-1970s, Hunter and Schmidt argued that most empirical studies' findings were attenuated by various statistical artifacts. They then devised methods for correcting such statistical problems due to sampling error, the unreliability of measures used to assess dependent variables and independent variables, and the restriction of range for both measures (Hunter, Schmidt, & Jackson, 1982; Schmidt & Hunter, 1977). The authors contended those statistical corrections resulted in a more accurate

estimate of the actual relationship between two variables in the population as a whole. The Greek symbol "ρ" or rho is the statistic used to estimate the relationship. Subsequently, Schmidt and Hunter (1998, 2004) applied those statistical corrections to evaluate the "true" relationship between IQ and job performance. A similar approach is used in this study to examine the relationship between learning agility and leader success.

Results

There was a total of 4,897 participants in the 20 field studies. The majority of them were identified clearly as managers and executives (n = 3,337; 68%). A small number of the participants appeared to be individual contributors, with occupations such as police officer, engineer, and physician (n = 138; 3%). The remaining participants were classified by the authors of the studies as a combination of both managers and non-managers (n = 1,422; 29%).

Twelve (60%) of the studies used self-assessments of learning agility; whereas, eight (40%) of the studies applied multirater approaches or asked the immediate supervisor to measure learning agility. One of the studies used a self-assessment, a multirater assessment, and an interview protocol to evaluate the construct (Dai, De Meuse, & Lambrou, 2012). As shown in Table 1, the *Choices*™ multirater survey and *viaEDGE*™ self-assessment were the most frequently used measures of learning agility. Four of the studies developed their own instruments to assess the construct.

TABLE 1
MEASURES USED TO ASSESS LEARNING AGILITY AND LEADER SUCCESS

Learning Agility Measures	Number of Studies	Leader Success Measures	Number of Studies
Choices™	7	Supervisory ratings	14
viaEDGE™	6	Objective measures [a]	2
Self-developed assessments	4	Search firm evaluations	2
TALENTx7® Assessment	2	Multirater survey ratings	1
Burke Learning Agility Inventory™	1	Self-ratings	1
Interview protocol	1	Composite promotability ratings	1
Prospector®	1		

Note. Some studies employed more than one measure of learning agility and/or leader success; therefore, totals are greater than 20.

[a] Objective measures included annual salary increases, proximity to the CEO position, number of promotions, and total compensation.

Leader success was measured in several different ways. However, nearly all – 18 of the 20 studies – used ratings of either current performance and/or potential as the criterion. The immediate supervisor provided the ratings in most cases. Two studies employed a job candidate's overall evaluation given by an executive search firm (Burke, Roloff, & Mitchinson, 2016; Smith, 2015). Objective outcomes also were used in two studies. For example, Dai, De Meuse, and Tang (2013, Study 1) analyzed managers' total compensation and proximity to the CEO position as measures of leader success. Likewise, these same authors contrasted learning agility scores with (a) the number of promotions and (b) the average annual salary increases district sales managers had been given during a 10-year period (Dai et al., 2013, Study 2).

As previously mentioned, the degree of relationship between learning agility and leader success was measured by analyzing a study's correlation coefficient(s). In total, 41 correlation coefficients were reported in the 20 field studies, ranging from r = 0.08 to 0.91. Of the 41 coefficients, 34 were statistically

significant at the $p < .05$ level or higher. The overall mean correlation coefficient across the studies was $\bar{r} = 0.47$ ($N = 10{,}402$, $p < .001$), which suggests a very strong relationship between learning agility and the success of leaders.

Thirty of the correlations investigated the specific link between learning agility and *leader performance*. Those coefficients ranged from a low of $r = 0.08$ to a high of $r = 0.78$, with the mean correlation of $\bar{r} = 0.47$ ($n = 7{,}006$, $p < .001$). With regard to *leader potential*, there were 11 correlation coefficients. They ranged from $r = 0.29$ to 0.91, with the mean coefficient of $\bar{r} = 0.48$ ($n = 3{,}396$, $p < .001$). See Table 2.

TABLE 2
PARTICIPANT CHARACTERISTICS AND RESULTS OF THE 20 FIELD STUDIES

		Results	
Field Study Author(s)	Participants	Leader Performance	Leader Potential
Bedford (2011)	294 I.C.s, supervisors, and managers	$r = .78$ ($p < .01$)	$r = .77$ ($p < .01$)
Burke, Roloff, & Mitchinson (2016)	130 executive candidates		$r = .42$ ($p < .05$)
Clark (2014)	20 vice presidents	$r = .27$ (*ns*)	
Connolly (2001)	107 police officers	$r = .40$ ($p < .001$)	$r = .37$ ($p < .001$)
Dai, De Meuse, Clark, & Cross (2011)	1,713 managers	$r = .34$ ($p < .001$)	$r = .40$ ($p < .001$)
– Study 1	76 managers	$r = .49$ ($p < .01$)	$r = .45$ ($p < .01$)
Dai, De Meuse, Clark, & Cross (2011)	451 employees	$r = .37$ ($p < .001$)	
– Study 2			
Dai, De Meuse, & Lambrou (2012)	12 physicians		$r = .36$ (*ns*)
			$r = .36$ (*ns*)
			$r = .91$ ($p < .01$)
Dai, De Meuse, & Tang (2013) – Study 1	101 managers	$r = .25$ ($p < .05$)	
		$r = .29$ ($p < .01$)	
		$r = .38$ ($p < .01$)	
Dai, De Meuse, & Tang (2013) – Study 2	83 managers	$r = .35$ ($p < .01$)	
		$r = .44$ ($p < .01$)	
De Meuse (2016)	28 managers	$r = .31$ ($p < .10$)	
De Meuse (2017a)	43 supervisors/managers	$r = .62$ ($p < .001$)	
De Meuse, Dai, & Marshall (2012)	19 engineers	$r = .12$ (*ns*)	
	17 project managers	$r = .35$ ($p < .10$)	
Dries, Vantilborgh, & Pepermans (2012)	32 managers/executives [a]	$r = .35$ ($p < .01$)	
	31 managers/executives [b]	$r = .59$ ($p < .001$)	
Eichinger & Lombardo (2004)	140 I.C.s and managers	$r = .31$ ($p < .001$)	
Feil & Dai (2013)	116 managers	$r = .37$ ($p < .01$)	$r = .29$ ($p < .01$)
Juhdi, Pa'wan, & Milah (2012)	320 I.C.s and managers	$r = .08$ (*ns*)	
		$r = .38$ ($p < .01$)	
		$r = .49$ ($p < .01$)	
		$r = .55$ ($p < .01$)	
		$r = .61$ ($p < .01$)	
Lombardo & Eichinger (2000)	217 employees	$r = .55$ ($p < .001$) [c]	
Miklos, Herb, & Forbringer (2015)	23 executives	ß = 0.37 ($p < .05$)	
		ß = 0.44 ($p < .05$)	
		ß = 0.46 ($p < .05$)	
Smith (2015)	142 executive candidates		$r = .43$ ($p < .05$)
Spreitzer, McCall, & Mahoney (1997)	782 managers/executives	$r = .70$ ($p < .001$)	$r = .59$ ($p < .001$)
		$r = .73$ ($p < .001$)	

Note. I. C.s denote individual contributors (i.e., a non-managers).
[a] These managers and executives were identified as "high potentials" by their organizations.
[b] These managers and executives were identified as "non-high potentials" by their organizations.
[c] Technically, the authors stated that they measured leader success by rating performance *and* potential.

In an attempt to estimate the "true relationship" between learning agility and leader success in the population, the statistical corrections recommended by Schmidt and Hunter (1998, 2004) were applied. When the corrections were made, the correlation coefficient between learning agility and *leader performance* increased to $\rho = 0.74$ and between learning agility and *leader potential* to $\rho = 0.75$.

One of the studies examined the efficacy of learning agility *relative* to performance for predicting leader potential. Dries, Vantilborgh, and Pepermans (2012) contrasted a group of 32 managers and executives identified as high potentials in seven different organizations with a carefully matched control group of 31 non-high potential employees from those same companies. Each of the individual's immediate supervisors rated them independently on learning agility using the *Choices*™ assessment. Performance appraisal ratings from the previous year also were collected. Not surprisingly, the authors observed high performers were three times more likely to be classified as high potentials than their low performing counterparts. The authors also observed, however, that being high on learning agility increased an employee's likelihood of being classified as a high potential by a factor of 18. These authors asserted that learning agility was the "overriding criterion for separating high potentials from non-high potentials" (Dries et al., 2012, p. 351) and recommended that "organizations should do well to incorporate measures of learning agility into their high potential identification and development processes" (p. 340).

Overall, the meta-analysis revealed a very strong relationship between learning agility and leader success. Whether one is focusing on the linkage between leader performance and learning agility or the linkage between leader potential and learning agility, the findings appear clear. Learning agility is significantly related to leader success. This finding generally occurred regardless of how leader success was measured or what instrument was employed to assess learning agility.

DISCUSSION

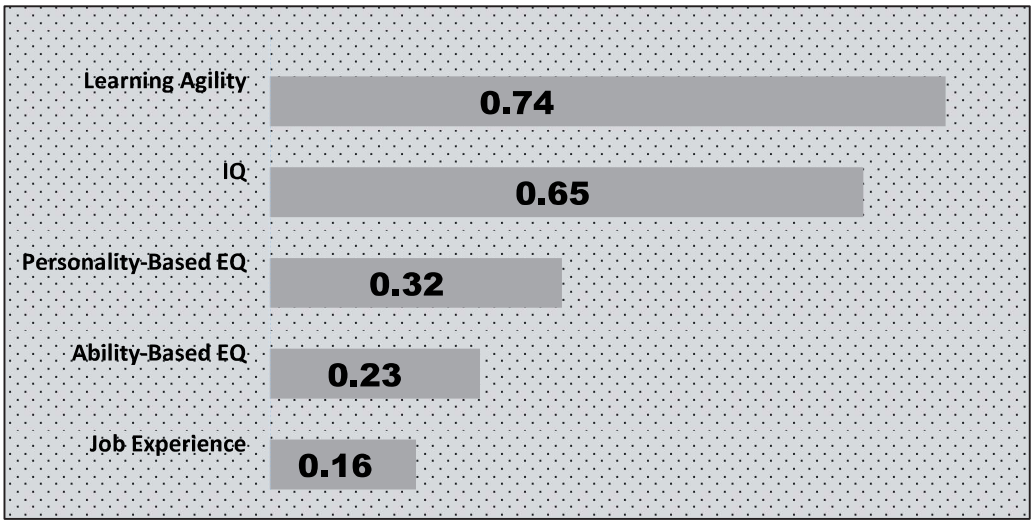
Talent management practitioners around the globe have been using learning agility to help them identify and develop high potential talent and select organizational leaders for many years. Blog postings, training websites, and consulting firms continually laud the virtues of its importance to leadership effectiveness. Ironically, it appears that they have been doing so based largely on the testimonials of highly vocal proponents. The purpose of this paper was to investigate the veracity of such claims. Rather than continue to promulgate the importance of learning agility from anecdotal sources, a scientific procedure called meta-analysis enabled us to derive an answer from the accumulation of hard data from empirically conducted studies.

The body of scientific evidence reviewed in this study revealed clearly that learning agility is highly related to *both* leader performance ($\rho = 0.74$) and leader potential ($\rho = 0.75$). These findings indicate that the importance of learning agility to leader success is not simply hyperbole. Effective leaders possess higher levels of learning agility than their low-learning agile counterparts. Certainly, additional research needs to be performed. Longitudinal studies tracking the success of learning agile high potential talent who are placed into emerging leader programs should be conducted. Are the individuals successful 2, 3, and 4 years later? What percentage? Did the assessment of learning agility increase the company's talent identification and management efforts?

Up until this time, the prevailing belief has been that general mental ability (i.e., intelligence, IQ) was the best predictor of job performance. In 2004, Frank Schmidt and John Hunter asserted after their meta-analysis of the scientific evidence that general mental ability predicted performance "better than any other ability, trait, or disposition" (p. 162). More recently, Schmidt, Oh, and Shaffer (2016) found the relationship between IQ and job performance was $\rho = 0.65$ after pooling the results of eight separate meta-analyses published in the literature. They likewise observed emotional intelligence (EQ) had a

relationship of ρ = 0.23 or ρ = 0.32, depending on whether the construct was measured primarily as an ability or personality, respectively. See Figure 1. Further, note the very low relationship between job experience and performance (ρ = 0.16). This finding suggests that experience alone is insufficient. Learning from that experience, behavioral flexibility, and managerial growth – which is the essence of learning agility – are needed to perform well.

FIGURE 1
RELATIONSHIP BETWEEN JOB PERFORMANCE AND OTHER INDIVIDUAL ATTRIBUTES



Several other points with regard to utilizing IQ as a selection method are notable. First, the meta-analyses in the literature examining the relationship between IQ and performance included all jobs, most of which were non-managerial in nature (e.g., accountant, lawyer, teacher, draftsman, reporter, sales clerk, auto mechanic, plumber). In contrast, primarily managers and executives were included in the 20 field studies included in this meta-analysis of learning agility. Only 3% of the participants were classified specifically as individual contributors, such as physician, engineer, or police officer.

Second, many studies have observed an adverse impact when using IQ tests as selection tools (cf. Murphy, 2002). Minorities as a group have a strong tendency to perform worse on such assessments than majority candidates. In contrast, studies measuring the construct of learning agility have found virtually no subgroup differences (De Meuse et al., 2011; De Meuse & Feng, 2017).

Third, many senior managers and executives are reluctant to take an IQ test. They perceive such an assessment as intrusive, unnecessary (since they have performed successfully in other leadership roles), and potentially embarrassing. Candidate reactions to a learning agility assessment seldom are negative. Moreover, one's ability to increase intelligence in adulthood is limited (Bouchard, 1998); whereas, the capacity to develop one's learning agility throughout life appears much more likely.

One other point with regard to emotional intelligence and learning agility is important. Dai et al. (2013) explored the impact of these two attributes on the following two performance outcomes over a 10-year period: (a) annual salary increases and (b) number of promotions. They discovered through a series of regression analyses that when one accounts for EQ, learning agility continued to explain a significant portion of variance in those outcomes. However, when one accounts for learning agility, EQ explained no further variance. Thus, the construct of learning agility included whatever explanatory power EQ measured, but the reverse was not true. For illustration, the *TALENTx7® Assessment* of learning agility measures facets such as "interpersonal acumen," "environmental mindfulness," "self-insight," and "feedback responsiveness." All of them likely are components related to emotional intelligence. If one has

to choose between a measure of EQ versus learning agility, it probably would be prudent to choose the latter.

CONCLUSION

Ultimately, professionals making decisions regarding their leadership talent will need to determine whether an assessment of learning agility is right for their company. While the use of such phrases as "learning agility equals leadership success" or "the most in-demand business skill of the 21st century" to describe learning agility are inappropriate, the results of this meta-analytic study endorse the importance of it in leader success. Certainly, the application of a well-developed measure of learning agility is substantially more grounded in science than simply basing talent decisions on innuendo, limited interactions, and subjective evaluations.

When contrasted with other longer standing job selection methods such as IQ and EQ, learning agility was substantially more related to performance. Further, the measurement of learning agility as opposed to IQ has the benefits of (a) avoiding adverse impact, (b) decreasing the likelihood of candidates reacting defensively at being given an "intelligence test," and (c) being provided a diagnostic overview of behaviors individuals can develop. In addition, an assessment of learning agility appears to capture the fundamental characteristics of EQ. Although additional research needs to be conducted to support these findings, the relevance and significance of this construct to the discipline of talent management and leadership development appears undeniable.

ENDNOTES

1. Earlier versions of this research paper were presented at the Society for Industrial and Organizational Psychology Conference in Chicago (2018, April) and at the Society for Industrial and Organizational Psychology of South Africa Conference in Pretoria (2018, July).
2. *Denotes an empirical field study included in the meta-analysis.

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