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Emotional Intelligence and its Effect on Performance Outcomes in a Leadership Development School

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Abstract

Emotional Intelligence (EI) and its impact on performance are of paramount importance to both the corporate world and military in the realm of leadership development. The purpose of this study was to understand how specific EI skills and behaviors are exhibited by high performing graduates of an in-residence Professional Military Education school, which primarily focuses on leadership development and effectiveness. The sample consisted of 621 military officers taking part in an in-residence professional military education course. EI was measured using the Emotional Skills Assessment self-report instrument. Findings suggested that certain dimensions of EI (commitment ethic, empathy, leadership, and aggression) can predict performance outcomes, but that they only account for 8.6% of the total variance of the dependent variable (performance outcomes).

Introduction

Leadership – one of the most studied areas of organizational psychology – is a dynamic and complex process based on myriad interpersonal interactions between groups of people It involves a willing collaboration of leaders, followers, and associated stakeholders (Sosik & Jung, 2011). As such, leadership development is naturally of paramount importance to both the corporate world and the military and continues to command substantial investment.[2] But how is this course steered and leadership ultimately achieved?

Leadership and Emotional Intelligence (EI)

Leadership development and performance outcomes are often guided by emotional intelligence (EI) – another important area of interest for researchers in the field of organizational psychology. In fact, previous research has shown that EI is not only a key characteristic of leadership effectiveness, but that leaders who possess high levels of EI can effectively control their own emotions and accurately assess and predict emotional

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[1] *Authors' Note*: The research reported in this article does not reflect the views of the United States Air Force nor the Department of Defense. The article was cleared for release by the United States Air Force Public Affairs (Case #: AETC-2018-0214).

[2] U.S. companies spend almost $14 billion annually in leadership development (Gurdjian, Halbeisen, & Lane, 2014). The United States Air Force (USAF) alone spends millions of dollars in leadership development by sending over 4,200 officers per year to Squadron Officer School, the purpose of which is "to develop solution-minded, bold and courageous Airmen ready to overcome today's and tomorrow's challenges" (Welcome to Squadron Officer School, 2018). In fact, the school's stated mission is to "educate Air Force Captains to think, communicate, cooperate, and lead in the joint environment" (Welcome to Squadron Officer School, 2018).

responses of their team members (Clarke, 2010; Goleman, 1995; Mayer & Salovey, 1997; Davies, Stankov, & Roberts, 1998).

EI has been defined as an individual's "ability to monitor one's own and other's feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189). Proposed as a different category of intelligence, Goleman (1995) asserted that "academic intelligence has little to do with emotional life" (pp. 33-34). EI has also been conceptualized in other ways that have blended an awareness of behavioral consequences with cognitive abilities (Sternberg, 1996). In each case, it has been used as a framework for understanding individuals' personalities and their links to success in job performance (Goleman, 1995).

Research has found that EI is a form of intelligence rather than a set of unrelated social skills. EI can be operationalized as a set of abilities, be correlated to existing intelligence, and develop over time (Mayer, Caruso, & Salovey, 2000). A number of factors can impact the levels of an individual's EI. Antecedents of EI development have not been definitively identified outside of the EI of parents (Vernon, Petrides, Bratko, & Schermer, 2008). However, over time, it has been shown that a person's EI can increase, as it has been demonstrated to increase with age (Kafetsios, 2004; Malik & Shahid, 2016; Mayer, Caruso, & Salovey, 1999; Palmer, Gignac, Manocha, & Stough, 2005). Additionally, emotional intelligence can interact with feelings of insecurity in the workplace. Individuals experiencing job-related tension have been linked to negative coping behaviors (Jordan, Ashkansky, & Hartel, 2002).

So, while one's emotional intelligence can improve with age, it is possible that certain life events or circumstances can have negative impacts. Implications of this in occupational settings are that "EI research has increased awareness of the potential role that a wide array of emotional competencies may play in the workplace" (Matthews, Zeidner, & Roberts 2002, p. 542). As emotional intelligence involves the ability to read and comprehend the emotions of others in a social context, EI represents a critical component for effective leadership and team performance in today's dynamic organizations (Prati, Douglas, Ferris, Ammeter, & Buckley, 2003).

EI has been demonstrated to significantly correlate with performance outcomes in both the corporate and academic world. Pope, Roper, and Qualter (2012) found a positive relationship between EI and academic achievement in both adolescents and adults. While they didn't find evidence of a "global" EI, they did find that five EI competencies (conscientiousness, adaptability, empathy, organizational awareness, and building bonds) did have a significant effect on performance (Pope et al., 2012). Grehan, Flanagan, and Malgady (2011) also found that EI significantly correlated with outcome performance through graduate students' GPA. Furthermore, O'Boyle, Humphrey, Pollack, Hawver, and Story's (2010) meta-analysis concluded that EI correlates with job performance.

As previously indicated, a person's EI can affect job performance and academic outcomes, but it also impacts how they lead. For example, a high EI can help a leader in generating cooperation, optimism, and enthusiasm among team members (George, 2000).

Critics of popular formulations of EI have argued that its proponents overestimate the importance that EI plays in performance outcomes and that emotional intelligence should be considered a separate form of intelligence (Ashkanasy, Hartel, & Daus, 2002). Others have

noted that while emotional intelligence may play a role in career advancement, "general intelligence has long been recognized as the single, strongest predictor of objective performance indicators, such as productivity" (Matthews, Zeidner, & Roberts, 2002, p. 77). Disagreements with regard to the constraints and definition of emotional intelligence have also rendered the construct more difficult to verify (Ashkanasy, Hartel, & Daus, 2002). Some researchers are skeptical of the ability of self-report emotional intelligence instruments to accurately predict job performance (Cherniss, 2010; Murphy, 2006). In the current research, we explored the validity and reliability of a previously established EI instrument and attempted to discern which, if any, subcomponents of EI significantly impacted performance outcomes.

Research Setting

The purpose of this research was to measure the impact of self-assessed emotional intelligence among military officers and to identify specific emotional intelligence skills that are exhibited by high performing graduates of an in-residence Professional Military Education course focused on leadership development and effectiveness. We sought to determine whether the emotional intelligence components of assertion, comfort, empathy, decision making, leadership, drive strength, time management, commitment ethic, self-esteem, and stress management correlated with performance outcomes. In the current study, performance outcomes are heavily weighted toward leadership effectiveness as measured by both the student's peers and instructor. We also sought to determine whether any of the three ESAP potential problem areas of Aggression, Deference, and Change Orientation moderated the influence of high scores in other areas of the ESAP. Results of this study are intended to inform future studies of the links between emotional intelligence and success in environments in which peer leadership is critical to mission accomplishment.

Research Questions

In this study, we sought to uncover the following:

1. *Is there empirical evidence supporting Emotional Intelligence being a predictor of performance outcomes for military officers in a peer leadership environment?*
2. *Which dimensions of Emotional Intelligence, if any, predict performance outcomes for military officers in a peer leadership environment?*

Methodology

Research Design

The study was conducted using a non-experimental quantitative research design utilizing existing data. For the purposes of this study, the researchers were simply attempting to understand the causal factors that affect change with regards to emotional intelligence and performance outcomes.

Procedures

The current study utilized existing data collected through Nelson, Low, and Vela's (2003) previously validated Emotional Skills Assessment Process (ESAP) scale. Students complete the ESAP as part of their coursework in an in-residence, Professional Military Education school. Once the students complete the assessment, they bring the results to class for further discussion and introspection on how they can become more effective leaders.

Participants

The target population for the current study was military officers in the United States Air Force. Per the Air Force Personnel Center's (AFPC) public website, current as of December 31, 2017, there are 61,254 officers in the Air Force (AFPC, 2017). Of those officers, 21.0% are female and 79.0% are male (AFPC, 2017). The sample was drawn from the larger population of Air Force officers. More specifically, the sample was drawn from students attending in-residence Professional Military Education. These students come from all career fields and have 4-7 years of experience as officers in the United States Air Force. The original sample consisted of 621 participants, but after an extensive data screening process, the final "clean" data set consisted of 562 participants. Of those participants, 22.1% (124) were female and 77.9% (438) were male (***Table 1***). When comparing the target population to the sample, a chi-square test revealed (χ^2 = .386, d*f*=1, *p* = .05, CV = 3.84, *n* = 562) that the sample was representative of the gender makeup of the larger Air Force population. When examining the sample with regard to Race/Ethnicity, a chi-square test revealed (χ^2 = 17.65, d*f*= 7, *p* = .01, CV = 18.48, *n* = 553) that the sample was also representative of the larger population of Air Force officers (***Table 2***). Finally, the average age of the sample was 30-years-old (*n* = 572) compared to 35-years-old for the general population of Air Force Officers.

Table 1

Frequency Table of Sample Respondents by Gender

Gender	Frequency	Percent	USAF Officer Population Frequency	USAF Officer Population Percent
Male	438	77.9%	48,391	79.0%
Female	124	22.1%	12,863	21.0%
Total	562	100.0%	61,254	100.0%

Note: USAF Demographics (AFPC, 2017)

Table 2

Frequency Table of Sample Respondents by Race/Ethnicity

Gender	Frequency	Percent	USAF Officer Population Frequency	USAF Officer Population Percent
Asian	32	5.8%	2,989	4.89%
Black	35	6.3%	3,657	5.98%
Hispanic	24	4.3%	4,232	6.92%
Native	4	0.7%	296	0.48%
White	430	77.8%	48,350	79.08%
Pacific Islander	8	1.4%	290	0.47%
Other	20	3.6%	1,620	2.65%
Total	553	100.0%	61,434	100.0%

Note: USAF Demographics (AFPC, 2018)

Instrumentation

The ESAP was developed using items from accumulative research base of behavior descriptors of effective behavior (Nelson et al., 2003). The ESAP is a self-report instrument that was developed for use in educational settings. Nelson et al. (2003) believed that the ESAP could be used to develop a student-centric approach to learning built around a student's specific behaviors. The assessment is a "positive assessment" designed to help students plan to make changes that help them more effectively understand specific behaviors that are important in helping them meet personal, academic, and career goals (Nelson et al., 2003). According to Nelson et al. (2003), "the instrument is best thought of as the beginning step to emotional learning that links intervention strategies to the 'felt' or 'perceived' needs of the individual student" (p. 10).

The ESAP is a 213 item, self-report instrument grouped under five factors (interpersonal skills, leadership skills, self-management skills, intrapersonal skills, and potential problem areas) of emotional intelligence (Nelson et al., 2003). The response for each item is independent from the other responses and provides scale specific measurement of 10 emotional intelligence behaviors (assertion, comfort, empathy, decision making, leadership, self-esteem, stress management, drive strength, time management, and commitment ethic) and three problem areas (aggression, deference, and change orientation) (Nelson et al., 2003). The ESAP is scored by taking the sum of each item for a particular scale. Each individual item contributes to only one of the 13 individual scales. The total score for each scale represents the self-assessment of current emotional intelligence skills and problem areas. The 10 emotional intelligence skills are interpreted by using the total score for each scale to place the respondent into one of three categories: develop, strengthen, and enhance (Nelson et al., 2003). The three problem areas scales are interpreted as being low, normal, and high based on the respondents total scores in each of the afore mentioned scales. Furthermore, the emotional intelligence skill scores are all positively correlated, whereas, the problem area scales are negatively correlated to emotional intelligence (Nelson et al., 2003).

The ESAP has been extensively researched and statistically validated; Stottlemeyer (2002) and Vela (2003) reported a statistically significant relationship between the ESAP and academic performance. An exploratory factor analysis (EFA) was conducted to evaluate the underlying structure of the 213 item ESAP using the data collected from students enrolled in an Air Force, in-residence, Professional Military Education Course. A principle component analysis was conducted using a Direct Oberlin rotation, since a high degree of correlation existed between the variables. The Kaisser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was .882, thus indicating that the sample size (n = 573) was of sufficient size to conduct the EFA. Furthermore, Bartlett's Test of Sphericity was $p < .001$, indicating that a patterned relationship existed within the ESAP. Results of the EFA found 4 components with eigenvalues > 1, with a total variance explained of 74.33% and 27 (34%) of non-redundant residuals with absolute values greater than .05. Field (2009) found the Kaiser Criterion to be reliable when the averaged extracted communalities are ≥ .6 and the sample size is > 250 cases. In this case, the averaged extracted communalities were .743 with a sample size > 250(n = 573), thus the Kaiser Criterion can be deemed reliable. Examination of the scree plot (***Figure 1***) indicated that two components should be retained.

Overall, the results from the EFA were fairly consistent with the findings reported in the Emotional Skills Assessment Process: Interpretation and Intervention Guide (Nelson et al., 2003). While the scree plot did not precisely match Nelson et al.'s. (2003) findings, the EFA indicated that four components should be retained using the Kaiser Criterion, which is exactly the same as Nelson et al. (2003) found. Finally, when examining reliability, Cronbach's coefficient alpha for the ESAP using data collected from 573 Air Force in-residence Professional Military Education students was .905 compared to .91 as reported in Nelson et al. (2003).

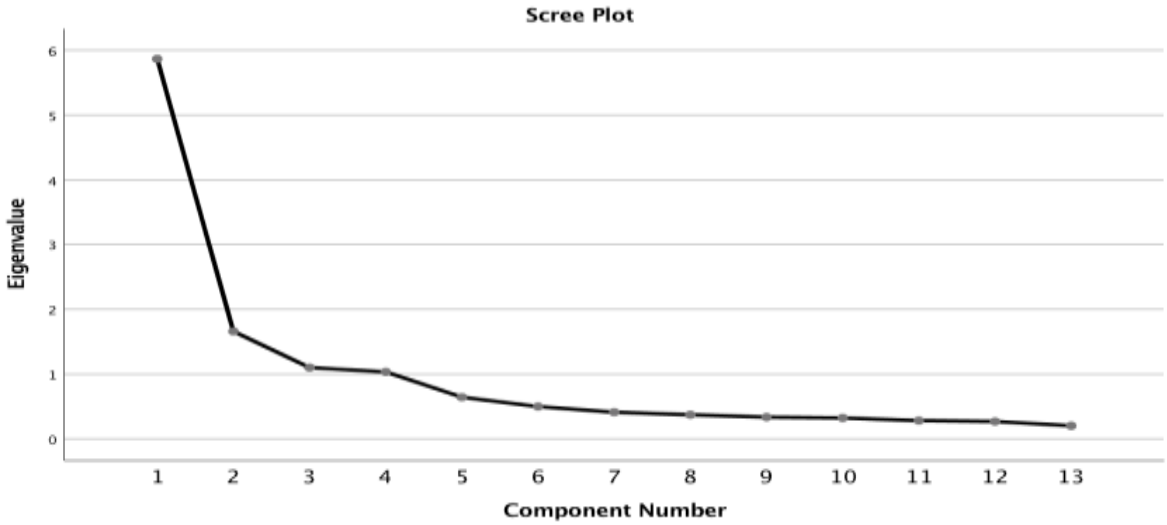

Figure 1: Scree Plot for ESAP

Analysis and Results

SPSS Version 25 was used to complete all analyses for the current study. Descriptive statistics including mean, skewness, and kurtosis for all ESAP variables and the dependent variable DG score 1 are presented in *Table 2*.

Table 3
Descriptive Statistics for All Variables (N = 573)

Measure	Minimum	Maximum	*M*	Std. Dev	Skewness	Kurtosis
ASSN_Total1	7.00	36.00	25.18	5.27	-0.33	-0.37
AGG_Total1	0.00	16.00	6.20	4.66	0.65	-0.55
DF_Total1	0.00	36.00	12.77	7.71	0.60	-0.13
CMFT_total1	6.00	24.00	19.02	3.80	-0.77	0.06
EMP_Total1	3.00	24.00	17.92	5.10	-0.84	0.04
DM_Total1	7.00	24.00	17.05	3.95	-0.43	-0.28
LD_Total1	3.00	24.00	17.58	4.48	-0.62	-0.21

DS_Total1	22.00	50.00	38.43	6.38	-0.69	-0.13
TM_Total1	5.00	24.00	17.65	4.56	-0.68	-0.22
CE_Total1	12.00	24.00	20.33	2.96	-1.11	0.69
CO_Total1	0.00	24.00	7.17	4.99	0.70	0.08
SE_Total1	17.00	50.00	37.51	7.24	-0.75	0.08
SM_Total1	15.00	50.00	36.23	8.32	-0.82	0.06
DG_Score1	38.49	99.17	69.15	15.08	-0.03	-1.03

Of the 14 variables studied, the dependent variable concerning performance outcomes, DG_score1, had a significant amount of missing data (6.6%). The cases with missing performance outcome data (DG_Score1) were removed from further analyses. All 580 remaining cases were evaluated for univariate outliers, linearity, and normality. With regards to univariate normality, Kolmogorov-Smirnov was significant, ($p \leq .001$) indicating non-normality for all 14 variables. However, kurtosis and skewness were less than ± 1.00 for 12 of the 14 variables examined. The only two that exceeded ± 1.00 were CE_Total1 with a skewness = -1.110 and DG_Score1 with a kurtosis = -1.025. Hancock and Mueller (2010) found that the assumption of univariate normality could be maintained with absolute skewness values less than 2.0 and absolute values for kurtosis less than 7.0, because little to no distortion should occur. Additionally, examination of the Q-Q plots also revealed that univariate normality could be assumed. Multivariate outliers were addressed and removed by analyzing the mean scores of the ESAP inventory/performance outcomes and calculating the Mahalanobis distance (χ^2 = 36.12, d*f*= 14, p< .001). Multivariate linearity, normality, and homoscedasticity were also examined by comparing standardized residuals to the predicted value of the dependent variable (DG_score1). The graphical representation indicated a fairly uniform pattern throughout the plot with a concentration of scores at the center. Since extreme clustering of scores at the top and bottom of the plot was not present, assumptions of linearity, normality, and homoscedasticity can be maintained. Finally, when examining multicollinearity, VIF values ranged from a low of 1.09 to a maximum of 1.60 for the predictor values, which is well below the cutoff of 10.0 (Stevens, 2001).

In an effort to find a more parsimonious method of predicting the dependent variable (performance outcomes), a stepwise multiple regression was conducted to determine which independent variables from the ESAP inventory (Assertion [Assn_total1], Aggression [AGG_Total1], Deference [DF_Total1], Comfort [CMFT_Total1], Empathy [EMP_Total1], Decision Making [DM_Total1], Leadership [LD_Total1], Self-Esteem [SE_Total1], Stress Management [SM_Total1], Drive Strength [DS_Total1], Time Management [TM_Total1], Commitment Ethic [CE_Total1], Change Orientation [CO_Total1]) were predictors of performance outcomes (DG_Score1). The stepwise multiple regression resulted in a model with 4 of the 13 ESAP inventory predictors (CE_Total1, AGG_Total1, EMP_Total1, and LD_Total1) included in the model that significantly predicted performance outcomes (DG_Total1) [R^2 = .086, R^2_{adj} = .079, F(4,568) = 13.303, p< .001]. With regard to the individual relationship between each predictor variable included in the final model and the dependent variable and performance outcomes, the following relationships were found: Commitment Ethic (t = 3.17, p = .002), Aggression (t = 2.47, p = .014), Empathy (t = -3.52, p = <.001), Leadership (t = 3.45, p = .001). ***Table 3*** depicts the unstandardized coefficients

(B), intercepts, and standardized regression coefficients (β) of the four predictor variables included in the model.

Table 4
Predictors of Performance Outcomes

Variable	B	Std Error	β	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound	VIF
(Constant)	50.01	4.63		10.81	0.00	40.92	59.09	
CE_Total1	0.76	0.24	0.15	3.17	0.00	0.29	1.22	1.36
AGG_Total1	0.34	0.14	0.10	2.47	0.01	0.07	0.60	1.09
EMP_Total1	-0.48	0.14	-0.16	-3.52	0.00	-0.75	-0.21	1.34
LD_Total1	0.59	0.17	0.18	3.45	0.00	0.25	0.92	1.60

Note: *N* = 573. Stepwise regression with DG_Score1 as predictor variable.

Ultimately, the more parsimonious model significantly predicted 8.6% of the total variance of performance outcomes.

Discussion

The findings presented in the current study lend further support to the ESAP as an instrument capable of predicting performance outcomes. Jin and Wang (2002) found that the skills of Drive Strength, Time Management, and Commitment Ethic were good predictors of higher academic achievement. The current study found that high levels of commitment ethic, empathy, and leadership and low levels of aggression were predictors of higher outcome performance in a peer leadership environment. Furthermore, while much of the discussion and studies of EI had been focused on undergraduate students, this study examined subjects who were typically 10-years older than the average undergraduate student.

This study lends further support to the notion that Commitment Ethic has positive links to performance outcomes. It also reveals that Empathy and Leadership are areas of Emotional Intelligence that are positively linked to performance in a peer leadership setting. While this finding may not necessarily be surprising, it is noteworthy that the ESAP is able to discern that an individual is more likely to succeed in a peer leadership setting solely due to his or her responses to certain items in the assessment.

Effective leadership is dependent upon the ability to interact well with others; a tendency to be overly dominant in interpersonal interactions can be deleterious to one's leadership capacity. Our finding that Aggression was negatively correlated with performance outcomes is also reflective of extant literature of the subject of EI. While one may think of aggression as being helpful to a military member, in the context of emotional intelligence, aggression in the context of EI portends an inability to converse effectively with others due to communicating in an overpowering and overly strong manner. It is noteworthy that military members are equally likely to experience worse performance outcomes in an environment in which they interact with military peers if their Aggression level is high as measured by the ESAP.

Limitations and Areas for Further Study

While the findings in this study demonstrated that certain areas of EI can be predictive of a person's performance in a peer leadership environment, it accounted for only 8.6% of the variance of performance outcomes. Therefore, other variables are likely to be more predictive of performance outcomes than an individual's EI levels. Future research should be conducted to explore how variables such as general intelligence, physical fitness, and EI interact and affect performance outcomes. Furthermore, due to the nature of the analyses being performed, we cannot infer causation between EI and performance outcomes.

Additionally, the ESAP being a self-assessment, could skew the results due to a variety of factors, including a bias toward social desirability. A person's levels of EI may, in fact, cloud his or her ability to accurately assess themselves, which could induce error into their overall EI assessment.

As this study examined participants in the military sector, future research could also determine if individuals with high levels of EI in specific dimensions tend to be more likely to enter certain career fields. If particular dimensions of EI are antecedents of entry into certain careers, this could have profound ramifications for placement and advancement within these industries. Moreover, it could inform hiring managers seeking a particular type of candidate with heightened levels of EI in specific dimensions to meet specific performance outcomes and ultimately a higher level of leadership effectiveness

Conclusions

The purpose of the study was to understand how EI impacted performance outcomes and which dimensions of EI played the biggest role for a sample of military officers in a peer leadership environment. Results indicated that certain dimensions of EI can predict performance outcomes, but that they only account for 8.6% of the total variance of the dependent variable.

Educating students on leadership has enhanced students' communication and commitment to serving, among other benefits, and impacts the way in which leadership is understood and practiced (McKim and Velez 2017). However, the study results have the most immediate impact for senior leaders by understanding how a new manager/leader's varying levels of EI affect performance outcomes in a peer leadership environment.

The study revealed that of all the dimensions measured by the ESAP, the only ones that make a statistically significant impact are the EI dimensions of commitment ethic, empathy, leadership, and aggression. As such, senior leaders looking to maximize leadership effectiveness should look to build an organization that attracts individuals that have ESAP high scores in commitment ethic, empathy, leadership and low ESAP scores in aggression. Thus, using the ESAP Interpretation and Intervention Guide (2003), organizations should look for individuals who exhibit the ability to positively influence and persuade others to make positive impacts to both their organization and subordinates. They should also be individuals who successfully demonstrate the ability to complete assignments in a timely manner. Furthermore, they should be able to demonstrate the ability to provide subordinates with non-judgmental, compassionate, and honest communication. Finally, they should be individuals who do not dominate or overpower peers' and subordinates' thoughts, words, and deeds in an effort to squelch diversity of thought within their organizations.

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