

Emotional intelligence, transformational leadership and transactional leadership: the effect on leader effectiveness

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ABSTRACT,

This research aims at reassessing the relationships between emotional intelligence (EI), transactional leadership, transformational leadership and leader effectiveness. The ground for reassessment is the recently developed codebook by van Gorp (2018). The codebook delivers a method for measuring verbal emotionally intelligent behaviours without relying on the use of self-assessment. Research is performed on the relationship between EI and transactional leadership, as well as on the relationship between EI and transformational leadership. Next to this, research is conducted on the effect of the augmentation hypothesis on leader effectiveness. The direct relationship between EI and leader effectiveness is also reassessed. Transactional leadership, transformational leadership and leader effectiveness was assessed using the Multifactor Leadership Questionnaire developed by Bass and Avolio (1995). The present study found no significant relationship between EI and transactional leadership, and EI and transformational leadership. In addition, there was found to be no significant relationship between the augmentation hypothesis and leader effectiveness. The relationship between EI and leader effectiveness was also not significant.

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Keywords

Leader, transformational leadership, transactional leadership, emotional intelligence, leader effectiveness, augmentation thesis, video-based behavioural coding.

1. INTRODUCTION

“Leadership is concerned with direction setting, with novelty and is essentially linked to change, movement and persuasion” (Storey, Hartley, Denis, t Hart, & Ulrich, 2017, p. 3). A few decades ago, transactional leadership was the dominant leadership style in business organizations (Bass, 1999). Changes in the marketplace and workforce, however, have urged leaders to move towards a more transformational leadership style, “if they were to remain effective” (Bass, 1999, p. 9). Transactional leadership can be defined as “a clear exchange relationship between the leader and follower, facilitated by the use of contingent rewards and sanctions” (Deichmann & Stam, 2015; Podsakoff, Bommer, Podsakoff, & MacKenzie, 2006; Jensen et al., 2019), whereas transformational leadership refers to the systematic effort exercised by the leader, aimed at developing individuals to internally reflect the organizational goals (Jensen et al., 2019). In other words, a transformational leadership style enables leaders to motivate their followers to go the extra mile, instead of focussing solely on the “mutually beneficial exchange relationship” that characterises transactional leadership (Whittington, Coker, Goodwin, & Ickes, 2009, p. 1861). This increased motivation is able to be achieved by raising follower’s awareness of the significance of organizational goals, getting followers to go beyond their self-interests for the good of the organization, or by augmenting follower’s needs on Maslow’s hierarchy of needs (Bass, 1985; Whittington et al., 2009; Maslow, 1954). Although transformational leadership is very effective in the current business environment, the research by Whittington et al. (2009) supports Burns (1978), when stating that transactional leadership is “an important dimension of leadership”, with benefits for both the followers and the organization (Whittington et al., 2009, p. 1861). In addition, Whittington et al. (2009) cites Avolio (1999) by stating that transformational leadership is built upon a foundation of transactional leadership and that “effective leaders engage in a full range of behaviors that encompass elements of both transactional and transformational leadership” (Whittington et al., 2009, p. 1863). Thus, transactional leadership and transformational leadership are both able to contribute to leader effectiveness.

The degree to which a leader is considered to be effective depends on four dimensions, namely the degree to which the group he or she is leading is considered to be effective, the degree to which the leader is effective in meeting the job-related needs of followers, the degree to which the leader is effective in meeting organizational requirements and the extent to which the leader is effective in representing his or her followers to higher authority (Bass & Avolio, 1995). Thus, an effective leader leads an effective group of individuals, of whom he or she satisfies the job-related needs, successfully represents these individuals to higher authority and is also able to meet the relevant organizational requirements. The above mentioned statement by Avolio (1999) forms the augmentation hypothesis of effective leadership, which states that a combination of transactional leadership and transformational leadership leads to increased leader effectiveness.

Moreover, EI is mentioned as a possible predictor of transformational leadership and transactional leadership several times in the academic literature (e.g. Mandell, 2003; Harms & Credé, 2010; Barling, Slater, & Kelloway, 2000; Goleman, Boyatzis, & McKee, 2002). In addition, Rosete and Ciarrochi (2005) found that leaders scoring higher on EI are proven to be more effective (Rosete & Ciarrochi, 2005). EI can be defined as: “the ability of a leader to deal with external factors by being able to control his or her own emotions and the

emotions of others” (Van Rooy & Viswesvaran, 2004; Mandell, 2003; Harms & Credé, 2010).

Current research involving the measurement of EI heavily relies on the use of self-testing (van Gorp, 2018; Harms & Credé, 2010). The latter has given rise to “elaborate discussion and criticism on the validity of the theoretical basis and empirical evidence of EI” (Antonakis, 2004; Locke, 2005; van Gorp, 2018, p. 2). The recent development and testing of an EI codebook, provides a coding schema for verbal emotionally intelligent leadership behaviours (van Gorp, 2018). The development of this codebook leads to the reconsideration of the significance of the relationship between EI and transformational leadership or transactional leadership. Next to this, the relationship between EI and leader effectiveness also needs to be reassessed.

Next to the measurement issue related to EI, to the best of my knowledge, the research that is performed on the relationship between EI and transformational leadership or transactional leadership is focussed on other contexts than the context of the present study, which is a public sector work context. The same being true for the relationship between the augmentation hypothesis and leader effectiveness and the relationship between EI and leader effectiveness. The new methodology for the measurement of the leader’s verbal emotionally intelligent behaviour via video-observations of regular staff meeting, applied within a public sector context, provide a solution to the gap in the academic literature.

The purpose of this paper is to be able to answer the following research question: *To what extent is there a relationship between leader’s emotionally intelligent behaviour, transformational leadership or transactional leadership, and what is the effect of the augmentation hypothesis on leader effectiveness, in a public sector work context?*

The structure of this report is as follows. Firstly, there is performed a literature review on the possible relationship between leader’s emotionally intelligent behaviour, transformational leadership, transactional leadership and leader effectiveness. Then, the methodology of this research is described, after which the results are specified and analysed. Lastly, the discussion and conclusion of this research will follow, together with a review of the limitations and future research directions.

2. THEORY AND HYPOTHESES DEVELOPMENT

In the following section, the theory that is relevant for this thesis is discussed (Figure 1). First, there will be looked at the full range leadership theory. Then, the theoretical relationship between EI, transactional leadership and transformational leadership is described, after which the augmentation hypothesis is elaborated on. Lastly, the relationship between EI and leader effectiveness is described.

2.1 The full range leadership theory

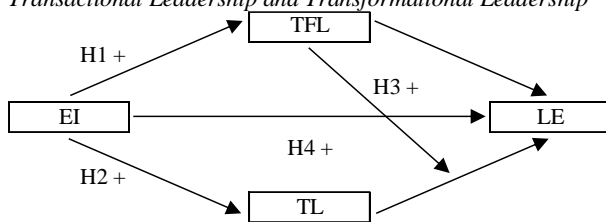
Transformational leadership is one leadership style that is mentioned in the “full range leadership theory” developed by Bass and Avolio (1997). The full range leadership theory is used for conceptualizing and measuring the different leadership styles that are able to be exercised by leaders (Bass & Avolio, 1997). The latter, because the theory of Bass and Avolio (1997) is cited multiple times by relatively recent papers, among which the papers by Mandell and Pherwani (2003) and Harms and Credé (2010). Next to this, the Multifactor Leadership Questionnaire by Bass and Avolio (1995), which is based upon

this leadership theory, is still being used for academic research today (e.g. van Jaarsveld, Mentz, & Ellis, 2019).

The full range leadership theory describes three distinct leadership styles, namely transformational leadership, transactional leadership and laissez-faire leadership (Bass & Avolio, 1997; Harms & Credé, 2010). This research focusses on transformational leadership and transactional leadership, since the laissez-faire leadership style can be defined as the absence of leadership (Harms & Credé, 2010). The latter ‘‘resulting in a lack of action even when correction is needed’’ (Harms & Credé, 2010, p. 6). As a result of this, laissez-faire leadership is not considered to be relevant in this research.

In the next paragraph, a discussion of the main constructs and their possible relationships is presented. The data from this literature research is used to develop hypotheses related to the research question of this thesis.

Figure 1
An overview of this research’s examination of EI, Transactional Leadership and Transformational Leadership



EI = emotional intelligence. TL = transactional leadership. TFL = transformational leadership. LE = leader effectiveness.

2.2 Transformational leadership and EI

Transformational leadership, as a construct, can be conceptualized using five dimensions, being (1) idealized influence (attributed), (2) idealized influence (behavioural), (3) individual consideration, (4) inspirational motivation, and (5) intellectual stimulation (Bass & Avolio, 1997). All these dimensions determine the extent to which a leader exhibits a transformational leadership style. For all dimensions, when a leader scores higher it means that his or her leadership style is relatively more transformational in nature, opposed to a transactional or laissez-faire leadership style. The first dimension, idealized influence (attributed), can be described as ‘‘the socialized charisma of the leader and whether or not he or she is perceived as being confident and committed to high-order ideals’’ (Harms & Credé, 2010, p. 6). This dimension thus describes the attitude of a transformational leader, as perceived by the social environment. The idealized influence, related to the behaviour of the leader, is about the charismatic actions carried out by the leader based on values, beliefs, or ideals (Harms & Credé, 2010), meaning the influence a transformational leader is able to exert on its followers by acting charismatically. Individualized consideration is the extent to which a leader considers the needs and concerns of the followers by providing support on social and emotional level (Harms & Credé, 2010). The latter describes the extent to which a transformational leader individually supports its followers. The dimension that is about inspirational motivation aims to inspire followers to the achievement of challenging goals, set by the leader, by showing optimism related to this goal achievement (Harms & Credé, 2010). This dimension states that a transformational leader motivates its followers to achieve a specific and challenging goal. The last dimension of transformational leadership discussed here is intellectual stimulation, which ‘‘refers to the extent to which leaders engage in behaviours that cause followers to challenge their assumptions, think creatively, take risks, and participate

intellectually’’ (Harms & Credé, 2010, p. 6). This means that a transformational leader stimulates its followers to challenge the status quo.

In performing research on the possible relationship between EI and transformational leadership, the review by Kim and Kim (2017) took 20 empirical studies into account. The majority, being 15 out of 20 reviewed studies, of this research concluded that EI is positively related to transformational leadership. The other 5 studies are sceptical about the relationship between EI and transformational leadership, ‘‘not fundamentally denying the relationship, but commonly pointing out the problem with EI measures and emphasizing the need for more valid and reliable assessment tools’’ (Kim & Kim, 2017, p. 1).

First of all, a few of the studies that found a significant relationship between EI and transformational leadership are elaborated on. The study performed by Sivanathan and Fekken (2002) found that transformational leadership is positively correlated with EI, in the context of higher education in Ontario. Hur, van den Berg, and Wilderom (2011) found that EI is positively related with transformational leadership, in the public sector in South-Korea, after controlling for the leader’s age, level of education and the team size (Hur et al., 2011). Another study that reported a relationship between EI and transformational leadership was conducted by Ugoani, Amu, and Kalu (2015). They concluded that EI is strongly and positively correlated with transformational leadership, in Nigeria.

Despite the convincing empirical evidence in a relatively high amount of studies performed on the topic, scepticism still remains about the significance of the relationship between EI and transformational leadership (Kim & Kim, 2017). The study by Barbuto and Burbach (2006) found a moderate correlation of EI with transformational leadership, in the public sector in the United States. They also found, however, that there was a difference between the leader’s self-reported and employees’ rater-reported results of emotional intelligence and transformational leadership (Barbuto & Burbach, 2006; Kim & Kim, 2017). The studies by Harms and Credé (2010) and Kim and Kim (2017) also stated their concern about the validity of the tools for EI measurement and are not fully behind the claims that have been made by the EI proponents. The research by Føllesdal and Hagtvet (2013), concluded that EI was not able to predict transformational leadership (in Norway) when there was controlled for leaders’ age, general cognitive ability and personality factors. The studies in the review by Kim and Kim (2017) that challenged the relationship between EI and transformational leadership used different measures of EI, but they all expressed their concern about the validity of the measurement of EI.

Regardless of the scepticism about the relationship between EI and transformational leadership, the studies supporting the relationship are better represented. Therefore, the following hypothesis can be formed:

H1: EI of the leader is positively related to the leader’s transformational leadership in a public sector work context.

2.3 Transactional leadership and EI

As a construct, transactional leadership consist of three dimensions, namely contingent reward, and passive and active management-by-exception (Harms & Credé, 2010). Contingent reward ‘‘refers to the degree that leaders operate according to economic and emotional exchange principles with followers’’ (Harms & Credé, 2010, p. 6). Active management-by-exception can be described as the ‘‘extent to which a leader actively monitors followers for mistakes and tries to correct

them” (Harms & Credé, 2010, p. 6). Passive management-by-exception “refers to leaders who wait for mistakes to occur before acting to correct them” (Harms & Credé, 2010, p. 6). Transactional leadership thus describes the exchange relationship between the leader and follower. In this relationship, the leader can be both active as well as passive towards the discovery of mistakes.

In this thesis it is chosen to only focus on two dimensions of transactional leadership, being contingent reward and active management-by-exception. This choice is made, because passive management-by-exception is conceptually similar to *laissez-faire* leadership, and thus also to the absence of leadership (Harms & Credé, 2010). Next to this, there is no data on the passive management-by-exception that was possibly exhibited by the leaders in the used sample.

With regard to the possible relationship between EI and transactional leadership, Barling et al. (2000) stated that “to provide the effective and equitable exchanges characteristics of contingent reward behaviors, leaders should have abilities and traits associated with elevated EI” (Harms & Credé, 2010, p. 7). The latter implying a positive relationship between EI and contingent reward (Harms & Credé, 2010). The leadership behaviours that are necessary for an active management-by-exception leadership style are reactive and routine behaviours and are therefore not expected to have a relationship with EI (Barling et al., 2000; Harms & Credé, 2010). Passive management-by-exception is expected to have a negative relationship with EI, since leaders with an elevated EI are expected to score higher on initiative and self-efficacy than is inherent in this leadership style (Goleman et al., 2002). However, as mentioned and reasoned earlier on in this thesis, passive management-by-exception is not included in this research. The latter implies a positive relationship between EI and transactional leadership, because of the non-existing relationship between active management-by-exception and EI and the positive relationship between EI and contingent reward. Based upon the section above, the following hypothesis can be formed:

H2: EI of the leader is positively related to the leader’s transactional leadership in a public sector work context.

2.4 The augmentation hypothesis

According to Howell and Avolio (1993), Avolio (1999) and Whittington et al. (2009), effective leaders often use transformational leadership in combination with transactional leadership. The augmentation hypothesis builds on this theory by stating that the relationship between transactional leadership and leader effectiveness is able to be moderated by transformational leadership (Bass, 1985). Transactional leadership facilitates the exhibition of transformational leadership, according to Avolio (1999). However, the validity of transactional leadership was called into question by Bycio, Hackett, and Allen (1995). They interpreted the augmentation hypothesis as transformational leadership adding beyond transactional leadership, but not the other way around (Bycio et al., 1995; Judge & Piccolo, 2004). This would implicate that transactional leadership is only valid “due to its association with transformational leadership” (Judge & Piccolo, 2004, p. 756). Bass (1998) added to the discussion by supporting the possibility that “the positive effects of transactional leadership are simple by-products of transformational leadership” (Bass, 1998; Judge & Piccolo, 2004, p. 756). The research by Judge and Piccolo (2004) concluded that “transformational and transactional leadership are so highly related that it makes it difficult to separate their unique effects” (Judge & Piccolo, 2004, p. 765). The latter implicating that transactional

leadership is able to exert a unique effect, although it is difficult to determine what this effect is exactly. Therefore, transactional leadership is seen as contributing to leader effectiveness. In addition, transformational leadership is expected to augment this influence. Based upon this information, the following hypothesis can be formed:

H3: The augmentation hypothesis is positively related to leader effectiveness in a public sector work context.

2.5 EI and leader effectiveness

The study by Edelman and van Knippenberg (2018) performed research on the relationship between EI and leader effectiveness, controlling for the influence of cognitive ability, the Big Five personality traits, gender and age. The research was performed using the data obtained from a consultancy firm in the Netherlands. A positive relationship was found between EI and leader effectiveness. In line with the previous study, the study by Kerr, Garvin, Heaton, and Boyle (2006) reported that the follower’s perception of supervisor effectiveness is strongly related to the EI of the supervisor in the context of a large manufacturing organization. Lastly, the study by Rosete and Ciarrochi (2005) was performed in the context of a large Australian public service organization and also supported the positive relationship between EI and leader effectiveness. The study by Weinberger (2009), however, did not find a significant positive correlation between the dimensions of EI and leader effectiveness. The study was conducted in the context of a single manufacturing organization, only studying the North-American employees. Since the evidence of a significant positive relationship between EI and leader effectiveness is better represented than the absence of this relationship, in the current research performed on this relationship, the following hypothesis can be formed:

H4: EI of the leader is positively related to the leader’s effectiveness in a public sector work context.

3. METHODS

In this section, the methodology that is used for this research is described. First, the research design is discussed. Then, there is taken a look at the used sample, the coders of EI and the relevant control variables.

3.1 Research design

The relationship between EI, transactional leadership, transformational leadership and leader effectiveness is assessed by performing multiple regression analysis. There is performed a multiple regression analysis four times, namely to assess the relationship between EI (independent variable) and transactional leadership (dependent variable), to assess the relationship between EI (independent variable) and transformational leadership (dependent variable), to assess the possible moderating effect of transformational leadership (mediator variable) on transactional leadership (independent variable) when predicting leader effectiveness (dependent variable) and to assess the relationship between EI (independent variable) and leader effectiveness (dependent variable). When the multiple regression analysis is performed, the statistical significance of the variables in the model is assessed, together with the amount of variance in the dependent variable that is able to be explained by the independent variables. Below, follows a discussion about the data collection on the variables that are included in the multiple regression analysis, namely transformational leadership, transactional leadership, EI and leader effectiveness.

Firstly, transformational leadership was measured. The data on transformational leadership in a public organization was already available in the form of the answers to a Multifactor Leadership Questionnaire (MLQ), developed by Bass and Avolio (Bass & Avolio, 1995). Transformational leadership was assessed by followers rating their leader. The variables used to measure transformational leadership, together with an explanation can be found in Appendix A. An example of a variable that was used to measure transformational leadership is ‘IA1’, which measured part of the idealized influence (attributed) with the following item from the MLQ: ‘The person I’m rating instils pride in me for being associated with him/her’. The variables included in Appendix A were measured using an ordinal scale ranging from one to seven, with one meaning ‘entirely disagree’ and seven meaning ‘entirely agree’.

Secondly, data on transactional leadership was needed. As with the variable transformational leadership, the data on transactional leadership in the same public organization was also already available in the form of answers to the Multifactor Leadership Questionnaire (MLQ) by Bass and Avolio (1995). Transactional leadership was assessed by followers rating their leader. As mentioned above, only contingent reward and active management-by-exception were used to assess the degree of transactional leadership. The variables used to measure these two dimensions of transactional leadership, together with an explanation, can be found in Appendix B. The variables included in Appendix B were measured using an ordinal scale ranging from one to seven, with one meaning ‘entirely disagree’ and seven meaning ‘entirely agree’.

Thirdly, EI was measured using the codebook for verbal emotionally intelligent leadership behaviours, developed by van Gorp (2018). The codebook has four dimensions, namely expressing emotions, utilizing emotions, understanding emotions and regulating emotions (van Gorp, 2018). Each of the dimensions is now illustrated, using an example from the codebook. First, expressing emotions can be that the leader mentions that ‘someone sounds, looks or behaves very happy, or discussing that a picture looks really happy’ (van Gorp, 2018, p. 14). An example of utilizing emotions can be ‘expressing the importance of finishing tasks so that positive emotions keep emerging’ (van Gorp, 2018, p. 14). A leader can show understanding of emotions by, for example, ‘asking if another lost something, because sadness is expressed’ (van Gorp, 2018, p. 15). Finally, the regulation of emotions can be a leader whom ‘expresses caution for an atmosphere which is not conjunctive to productivity’ (van Gorp, 2018, p. 15).

The codebook was used by directly observing the behaviour of the team leader during staff meetings in a governmental organization. The observation took place by watching videos of these staff meetings and systematically coding the four EI behaviours as described in the EI coding manual. After the coding of these four EI behaviours, they were combined into one variable that measures the frequency of leader’s verbal emotionally intelligent behaviour. The behaviours were coded using the software program ‘Observer’.

Finally, the effectiveness of the team leader was necessary for data analysis. This data was also already available in the same public organization, as answers to the Multifactor Leadership Questionnaire by Bass and Avolio (1995). Leader effectiveness was measured by followers rating their leader, leaders rating themselves and experts rating leaders. Here, it was chosen to use the data that was gathered on followers rating their leaders, because of consistency. Transactional leadership and transformational leadership were namely only measured

using the follower’s ratings. The variables used to measure leader effectiveness can be found in Appendix C, together with an explanation. The variables included in Appendix C were measured using an ordinal scale ranging from one to seven, with one meaning ‘entirely disagree’ and seven meaning ‘entirely agree’.

3.2 Sample

The data on EI was the only data that was still to be gathered. Due to the nature of this research, it was not considered to be feasible to review the videos of all the meetings. It was chosen to review 16 videotaped meetings, to assess the extent to which leaders exert emotionally intelligent behaviour. These meetings were chosen based on gender and leader effectiveness. Gender was considered to be an important inclusion criteria, because ‘females are socially more accepted to show emotions and could therefore more easily be analysed with verbal EI codes’ (Parkins, 2012; van Gorp, 2018, p. 3). There was chosen to review 8 videos with female leaders and 8 videos with male leaders to be able to observe the potential difference between males and females. The leader effectiveness was taken into account, since there is proven that leaders with a higher EI tend to be more effective. To be able to choose the videos based on leader effectiveness, the general leader effectiveness rating of expert 1 was used. The expert rating was chosen as an inclusion criterion, instead of using the variables that measure the leader effectiveness from a follower’s point of view, because there had to be somewhat adjusted to the needs of the other coder. As can be seen in Table 1, the sample size from the ratings of expert 1 is 108, which is considerably higher than the sample sizes of expert 2 and 3, 68 and 27 respectively. Therefore, it was chosen to pick the videos based on the leader effectiveness ratings of expert 1. Practically, this means that 4 out of the 10 videos with a male leader, and 4 out of the 10 videos with a female leader were chosen based on the most effective leaders. The opposite is also true. Thus, 4 out of the 10 videos with a male leader, and 4 out of the 10 videos with a female leader were chosen based on the least effective leaders. The third and last criteria that was used to select the videos had to do with the audio quality of the videos.

Table 1
General Leader Effectiveness, Expert Ratings: Descriptive Statistics

	N	Range	M	SD
Expert 1	108	4 - 9	7.25	0.98
Expert 2	68	5 - 9	7.18	0.99
Expert 3	27	5 - 9	7.11	0.89

M = mean of the grades attributed by expert 1, 2 and 3 respectively.

The audio quality had to be high enough as to be able to easily understand the verbal emotionally intelligent behaviour of the leaders and to avoid differences in interpretation between the two coders.

Multiple linear regression can be performed when four assumptions are met. These assumptions are as follows: the dependent variable has a linear relationship with the predictors of the regression model, there is no multicollinearity between the predictors (meaning independent errors), the variance of the error terms is similar across the values of the independent variables (homoscedasticity) and the residuals are normally distributed. The linearity assumption was tested by looking at a Normal P-P Plot of the standardized residuals from the regression, together with a review of the partial regression

plots of the dependent variable (y-axis) and the independent variables (x-axis) and a scatterplot of the standardized residuals and standardized predicted values. The same was done to check the homoscedasticity and normality assumptions, except the review of the Normal P-P Plot of the standardized residuals. The data points on the Normal P-P Plot had to fit the linear line displayed in the Normal P-P Plot, which was the case for all four performed regressions. The data points on the partial regression plots and the scatterplots of the standardized residuals and standardized predicted values were randomly distributed, which indicated normally distributed residuals and homoscedasticity. The last assumption that had to be checked was the independence of errors. This was done by performing a Variance Inflation Factor (VIF) analysis. To fulfil this assumption all variables had to have a VIF of 5 or lower (Henseler, 2015), which was the case for all variables in the four regressions. Therefore, there was concluded that all assumptions were fulfilled and the results from multiple linear regression were able to be used for interpretation.

Table 2
Leader Effectiveness, Transactional Leadership, Transformational Leadership, EI, Team Size and Leader Demographic Variables: Descriptive Statistics (N=16)

	M	SD	Range
Leader effectiveness	5.17	0.72	3.60 - 6.25
TFL	5.28	0.48	4.04 - 5.90
TL	5.28	0.36	4.70 - 5.80
Leader age	50.63	9.12	34 - 64
Team size	14.06	7.21	6 - 29
Leader gender ^a	1.5	0.52	1 - 2
Leader education ^b	1.73	0.46	1 - 2
Leader EI	5.41	4.42	.83 - 17.16

^aGender: 1 = male, 2 = female. ^bEducation: 1 = low – average, 2 = high. TL = transactional leadership. TFL = transformational leadership. EI = emotional intelligence.

The duration of the videos chosen for observation was not taken into account, because of the diversity in the meeting duration in the sample.

Possible differences in the measured frequency of leader's emotionally intelligent behaviour were corrected by standardizing the frequency of leader's emotionally intelligent behaviour.

3.3 Coders

The videos that were chosen for observation were coded for emotionally intelligent behaviour by two coders, one male and one female. Both coders scored high on the dimension deemed the most important by the developer of the used EI codebook, namely being able to understand emotions (van Gorp, 2018). This was measured using a questionnaire (self-assessment). The coders were also familiar with EI and comprehensively studied the codebook before starting the observations. Next to this, both coders followed a training related to the used software program for observation, namely "Observer". Therefore, the coders were seen as to be able to give a reliable observation of leader's emotionally intelligent behaviour.

3.4 Control variables

The control variables in this research were the leader's age, the team size, the leader's highest level of education and the leader's gender. These control variables are chosen based on the research by Hur et al. (2011), Føllesdal and Hagtvat (2013) and Lopez-Zafra, Garcia-Retamero, and Martos (2012) and van

Gorp (2018). The control variables mitigated the influence of demographics and team size.

4. RESULTS

In this section, the results from the research are described. First, the results from the multiple regression analysis are summarized. Multiple regression analysis is performed on the relationship between EI and transactional leadership, EI and transformational leadership, the effect of the augmentation hypothesis on leader effectiveness and on the relationship between EI and leader effectiveness.

4.1 EI, transactional leadership and transformational leadership

First, the results of the relationship between EI and transactional leadership are summarized. Then the results for the relationship between EI and transformational leadership will follow.

H1: EI of the leader is positively related to the leader's transformational leadership in a public sector work context.

A multiple linear regression model was fitted to the data (Table 3). The regression assessed the degree to which leader's EI predicts the exhibition of the transformational leadership style, controlling for the effects of the leader's gender, leader's education level, leader's age and the size of the team. The regression equation (step 2) was found not to be significant ($R^2=.26$, $F(5,9)=.62$, $p=.69$).

Table 3
Summary for Multiple Regression Analysis Predicting Transformational Leadership and Transactional leadership (N=16)

Model	Transformational leadership		Transactional leadership	
	Step 1	Step 2	Step 1	Step 2
Leader age	-.12	-.25	.35	.19
Leader gender ^a	-.01	.04	.47	.52
Leader education ^b	.46	.31	-.01	-.18
Leader EI		-.45		-.52
R ²	.11	.26	.18	.38
ΔR^2		.15		.20

^aGender: 1 = male, 2 = female. ^bEducation: 1 = low – average, 2 = high. Standardized regression coefficients are displayed. EI = emotional intelligence.

The latter indicating that 26% of the variation in the degree of exhibited transformational leadership can be explained by this regression model, which is rather low. EI was not able to significantly predict the degree of transformational leadership ($\beta=-.45$, $p=.21$). This is also the case for the other predictors in this model, namely the leader's age ($\beta=-.25$, $p=.53$), leader's education ($\beta=.31$, $p=.50$), team size ($\beta=.16$, $p=.75$) and leader's gender ($\beta=.04$, $p=.93$). Based on this multiple regression analysis, there can be concluded that hypothesis 1 is not supported. The latter meaning that there is no evidence of a significant relationship between the leader's emotionally intelligent behavior and transformational leadership in a public sector work context.

H2: EI of the leader is positively related to the leader's transactional leadership in a public sector work context.

A multiple linear regression model was fitted to the data (Table 3). The regression assessed the degree to which leader's EI predicts the exhibition of the transactional leadership style, controlling for the effects of the leader's gender, leader's

education level, leader's age and the size of the team. The regression equation was found not to be significant ($R^2=.38$, $F(5,9)=1.12$, $p=.42$). The latter indicating that 38% of the variation in the degree of exhibited transactional leadership can be explained by this regression model. This, in contrast with the 26% of explained variance in the model that predicts transformational leadership with EI, indicating that EI is a better predictor of transactional leadership than transformational leadership. Then, relating to the coefficients that are included in the regression, EI was not able to significantly predict the degree of transactional leadership ($\beta=-.52$, $p=.12$). This is also the case for the other predictors in this model, namely the leader's age ($\beta=.19$, $p=.60$), leader's education ($\beta=-.18$, $p=.66$), team size ($\beta=-.72$, $p=.14$) and leader's gender ($\beta=.52$, $p=.18$).

Based on this multiple regression analysis, there can be concluded that hypothesis 2 is not supported. The latter meaning that there is no evidence of a significant relationship between the leader's emotionally intelligent behavior and transactional leadership in a public sector work context.

4.2 Transactional leadership, transformational leadership and leader effectiveness

H3: The augmentation hypothesis is positively related to leader effectiveness in a public sector work context.

A multiple linear regression model was fitted to the data (Table 4). The regression in step 3 assessed the degree to which transactional and transformational leadership are able to predict the leader's effectiveness. The regression equation was found to be significant ($R^2=.84$, $F(6,8)=7.06$, $p<0.05$). The latter indicating that 84% of the variation in the degree of leader effectiveness can be explained by this regression model. Transactional leadership was not able to significantly predict leader effectiveness ($\beta=.29$, $p=.23$). This was also the case for the leader's education ($\beta=-.12$, $p=.64$), team size ($\beta=-.12$, $p=.69$), leader's gender ($\beta=.21$, $p=.35$) and the leader's age ($\beta=-.01$, $p=.96$). Transformational leadership, however, was able to significantly predict leader effectiveness ($\beta=.69$, $p<.05$).

To be able to answer hypothesis 3, the moderating effect of transformational leadership on the relationship between transactional leadership and leader effectiveness needed to be assessed. The first step included calculating the uncentered interaction term and using this term in a second multiple regression analysis (step 4). The model in step 4 is significant ($R^2=.85$, $F(7,7)=5.58$, $p<0.05$). The latter indicates that 85% of the variation in the degree of leader effectiveness is able to be explained by this regression model. The regression model from step 4 did not account for significantly more variance than the regression model from step 3. This was concluded after reviewing the insignificant change in R^2 that equals .01 or 1%. The interaction term of transactional leadership and transformational leadership is also not significant ($\beta=-3.09$, $p=.59$), which indicates that there is no significant moderation effect of transformational leadership on transactional leadership. Since there is no potentially significant moderation effect, there was considered to be no need to run the regression on the centered terms to examine the moderation effect of transformational leadership on transactional leadership. Based on the above mentioned, there can be stated that hypothesis 3 is not supported by this research. The latter meaning that there is no evidence of a significant relationship between the augmentation hypothesis and leader effectiveness in a public sector work context.

To test the outcomes of the regression analysis in Table 4, a robustness test was conducted by repeating the regression analysis for the whole available sample of 113 leaders. It was not possible, however, to include team size as a control variable in the robustness analysis. The latter, because the team size was not reported in the available research data and due to time constraints, it was not possible to report this for all teams. The results from the robustness test are displayed in Table 5 and explained below.

Table 4
Summary for Multiple Regression Analysis Predicting Leader Effectiveness ($N=16$)

Model	Leader effectiveness			
	Step 1	Step 2	Step 3	Step 4
Leader age	.01**	-.27	-.01	-.03
Leader gender ^a	.34	-.03	.21	.20
Leader education ^b	.20	.21	-.12	-.14
Team size	.01**	.39	-.12	-.15
TL		.81	.29	1.79
TFL			.69	2.65
TL*TFL				-3.09
R^2	.11	.64	.84*	.85**
ΔR^2		.53*	.21**	.01

*=Significant at the 0.01 level. **=Significant at the 0.05 level.
^aGender: 1 = male, 2 = female. ^bEducation: 1 = low – average, 2 = high. Standardized regression coefficients are displayed. TL = transactional leadership. TFL = transformational leadership.

Table 5
Summary for Multiple Regression Analysis Predicting Leader Effectiveness ($N=113$)

Model	Leader effectiveness			
	Step 1	Step 2	Step 3	Step 4
Leader age	-0.18	-.14**	-.11**	-0.09
Leader gender ^a	0.03	0	-0.06	-0.06
Leader education ^b	-0.07	-0.05	-0.06	-0.04
TL		.73*	.22*	1.26**
TFL			.69*	1.57*
TL*TFL				-1.8
R^2	0.04	.56*	.76*	.77*
ΔR^2		.52*	.20*	0.01

*=Significant at the 0.01 level. **=Significant at the 0.05 level.
^aGender: 1 = male, 2 = female. ^bEducation: 1 = low – average, 2 = high. Standardized regression coefficients are displayed. TL = transactional leadership. TFL = transformational leadership.

The regression equation from the regression in step 3 is significant ($R^2=.76$, $F(5,100)=64.70$, $p<0.01$). The additional explained variance in leader effectiveness that is able to be explained by the model that includes transformational leadership in addition to only transactional leadership (step 2), is significant and is equal to 0.20 or 20%. The regression in step 4, that includes the interaction term of transactional leadership and transformational leadership is not able to significantly predict additional variance beyond the model in step 3. However, the model in step 4 is significant ($R^2=.77$, $F(6,99)=55.73$, $p<0.01$). The interaction term is not significant and therefore there is concluded that hypothesis 3 is also not supported by the robustness test including the whole available sample. This means that the sample size does not change the outcome of this research, related to hypothesis 3.

4.3 EI and leader effectiveness

H4: EI of the leader is positively related to the leader's effectiveness in a public sector work context.

A multiple linear regression model was fitted to the data (Table 6). The regression assessed the degree to which EI is able to predict the leader's effectiveness. The regression equation was found to be insignificant ($R^2=.23$, $F(5,9)=.54$, $p=.75$). The latter indicates that 23% of the variation in the degree of leader effectiveness can be explained by this regression model. EI was not able to significantly predict leader effectiveness ($\beta=-.41$, $p=.26$). This was also the case for the leader's education ($\beta=.06$, $p=.89$), team size ($\beta=-.19$, $p=.71$), leader's gender ($\beta=.38$, $p=.36$) and the leader's age ($\beta=-.11$, $p=.78$).

Based on this multiple regression analysis, there can be concluded that hypothesis 4 is not supported. The latter meaning that there is no evidence of a significant relationship between the leader's emotionally intelligent behavior and the leader's effectiveness in a public sector work context.

Table 6
Summary for Multiple Regression Analysis Predicting Leader Effectiveness (N=16)

Model	Leader effectiveness	
	Step 1	Step 2
Leader age	.01	-.11
Leader gender ^a	.34	.38
Leader education ^b	.20	.06
Team size	.01	-.19
Leader EI		-.41
R ²	.11	.23
ΔR^2		.12

^aGender: 1 = male, 2 = female. ^bEducation: 1 = low – average, 2 = high. Standardized regression coefficients are displayed. EI = emotional intelligence.

5. DISCUSSION

In this section, the results from the present study are described. Firstly, the results and implications of the relationship between EI, transactional leadership and transformational leadership are discussed, after which the relationship between transactional leadership, transformational leadership and leader effectiveness is reviewed. Lastly, the relationship between EI and leader effectiveness is discussed.

5.1 EI, transactional leadership and transformational leadership

On the basis of this research, there cannot be concluded that the relationship between EI and transformational leadership is significant, when controlling for the leader's age, the leader's highest level of education, the team size and the leader's gender. The same applies to the relationship between EI and transactional leadership. This means that hypothesis 1 and 2 are both not supported by this research, which means that EI does not predict transactional leadership or transformational leadership. The latter implicates that EI is not seen as being essential to develop, in order to cause leaders to exhibit the transformational leadership style, which is very effective in today's business environment. The findings from the present study, related to the relationship between EI and transformational leadership, unexpectedly support the sceptical school of thought that exists within the available literature on the relationship. The study by Føllesdal and Hagtvet (2013) is one of the five studies reported by Kim and Kim (2017) that

does not necessarily deny the relationship between EI and transformational leadership, but points out the problem with the validity of EI measurement. This study attempted to improve this validity by relying on the newly developed codebook by van Gorp (2018) to measure EI. Therefore, there can be stated that, on the basis of the present study, the measurement of EI without relying on self-assessment does not support the relationship between EI and transformational leadership. The latter able to imply that the sceptical school of thought is right to question the relationship between EI and transformational leadership in the face of the measurement of EI that so heavily relies on self-assessment. Then, related to the relationship between EI and transactional leadership. Not much research has been performed on the relationship between EI and transactional leadership, making it more difficult to link the results from the present study to the already existing literature on the relationship. The existing theory supports a positive relationship between EI and contingent reward, while a neutral relationship is reported between EI and active management-by-exception (Barling et al., 2000; Harms & Credé, 2010). Passive management-by-exception is reported to have a negative relationship with EI (Goleman et al., 2002). Passive management-by-exception is not included in this research, on the basis of which a positive relationship was expected between EI and transactional leadership. The latter, because contingent reward is then the only dimension of transactional leadership expected to have a relationship with EI, which was expected to be positive. The reported non-significant relationship between EI and transactional leadership (contingent reward and active management-by-exception) in the present study, therefore, does not support the existing literature.

The unexpected insignificance of the relationship between EI and transactional leadership or transformational leadership is able to be caused due to context dependence or measurement bias, both are explained in more detail below.

This research is conducted with a sample obtained from a public organization in the Netherlands. It could be the case that the public nature of the sample is able to explain the reported relationship. The research by Hur et al. (2011), however, reported a positive relationship between EI and transformational leadership, in a public sector work context in South-Korea. The contextual difference of this study with the present study is the country of interest, not the private or public nature of the study. This would implicate that not the public context, but the country is able to make a difference in the reported relationship, at least in the relationship between EI and transformational leadership. This could also be the case for the relationship between EI and transactional leadership.

The insignificant relationship can also be caused by measurement bias, which could be caused by the size and nature of the used sample, among others. Related to the nature of the sample, there was attempted to choose a sample as diverse as possible. Still, the criterium for choosing the sample, namely the leader effectiveness (expert rated), was able to cause bias in the measurement of EI, transactional leadership and/or transformational leadership. Then, when reviewing the implications of the chosen sample size, in order to obtain a statistical power of 0.80 when using multiple regression, a sample size of minimal 50 meetings has to be used (Henseler, 2015). Due to time constraints it was not possible to observe more than 16 videos. This caused a constraint on the sample size of this research. The used sample size of 16 is rather low compared to the minimum amount of 50. Therefore, the lack of significance in the relationship between EI and transactional leadership or transformational leadership can be caused by the used sample size. Next to the nature and size of the sample, it is possible that the coders were not able to interpret the

emotionally intelligent behaviours exactly as was prescribed by the codebook developed by van Gorp (2018), possibly leading to invalid measurement of emotionally intelligent behaviours. Alternatively, the codebook is not yet validated, which is able to lead to the invalid measurement of emotionally intelligent behaviours. Furthermore, the reliability of the reported observations cannot be considered as being optimal, since human beings are not able to be completely rational in their thinking and acting. Both the suboptimal reliability and validity in measuring the emotionally intelligent behaviours would be able to lead to a lower or higher reported frequency of these behaviours than would be the case from a pure rational point of view. The latter resulting in measurement bias. Another factor that can explain the insignificant relationship between EI and transformational leadership or transactional leadership is the measurement bias that is able to be inherent in the measuring of transformational leadership and transactional leadership. The two leadership styles are measured on the basis of the Multifactor Leadership Questionnaire, which makes use of the follower's, possibly unreliable and invalid, judgement. Expert ratings of these two constructs were not obtained, so it was not possible to use more objective or accurate methods of measurement for transactional and transformational leadership. If the expert ratings were obtained, a combination of the follower's ratings and expert ratings could have been used in the regression analyses, which would probably have led to a more accurate measurement of transactional and transformational leadership. The latter, because the combination of the objectivity from the experts with the knowledge about the leader and his or her usual behaviours from the followers, is likely to be optimal in measuring transactional and transformational leadership.

The last subject of discussion in the relationship between EI, transactional leadership and transformational leadership is the difference in the ability of EI to explain the variance in transactional leadership and transformational leadership respectively. EI is able to explain 20% of the variance in transactional leadership, compared to only 15% of the variance in transformational leadership (Table 3). Based on hypothesis 1 and hypothesis 2, there was assumed a significant and positive relationship between EI and transactional leadership or transformational leadership. Looking at the results of this research, however, there can be concluded that EI is able to explain more variance in transactional leadership than in transformational leadership (Table 3).

5.2 Transactional leadership, transformational leadership and leader effectiveness

On the basis of this research, there can be concluded several things. First of all, the relationship between transactional leadership and leader effectiveness is not significant, when controlling for the leader's age, the leader's highest level of education, the team size and the leader's gender (Table 4). Including transactional leadership in the regression equation does cause a significant difference in the explained variance, meaning that transactional leadership is able to explain a significant amount of variance in leader effectiveness beyond the effect of the control variables. The second conclusion that can be drawn is that transactional leadership and transformational leadership are also not able to significantly predict leader effectiveness (Table 4). The latter because the regression model is significant, but the regression coefficients are not significant, indicating that the relationship between transactional leadership, transformational leadership and leader effectiveness is not significant. The additional explained variance after adding transformational leadership to the

regression, is significant however, meaning that adding transformational leadership to the regression (Step 3 of Table 4) leads to a better model for the prediction of leader effectiveness. Lastly, the inclusion of the interaction effect between transactional leadership and transformational leadership (Step 4 of Table 4) is not able to explain a significant amount of additional variance in leader effectiveness. The coefficient of the interaction term is also not significant, indicating that the augmentation hypothesis does not lead to a significant increase in leader effectiveness. On the basis of the above mentioned, there can be concluded that the augmentation hypothesis is not positively related to leader effectiveness. This means that the present study does not support hypothesis 3, which was based on the already existing literature on the relationship that reports a positive relationship between the augmentation hypothesis and leader effectiveness (Avolio, 1999; Bass, 1985; Howell & Avolio, 1993; Whittington et al., 2009). Based on the available literature on the relationship between the augmentation hypothesis and leader effectiveness, no plausible explanation can be found for the absence of a significance relationship. The unexpected insignificant relationship between the augmentation hypothesis and leader effectiveness can be caused by measurement bias and could also be context dependent. This will be discussed in more detail below.

First, relating to the context dependence of the aforementioned relationship. The research on the relationship between the augmentation hypothesis and leader effectiveness is not as extensively researched as is the relationship between EI, transactional leadership or transformational leadership. Therefore, no conclusions are made here about the possible contextual dependence of this relationship. It remains possible, however, that both the country and the public or private nature of the work context exert an influence on the relationship between the augmentation hypothesis and leader effectiveness.

Then, related to the possible measurement bias that could be inherent in the relationship between the augmentation hypothesis and leader effectiveness. As was mentioned before, the measurement of transformational leadership and transactional leadership are both able to be subject to measurement bias, unreliability as well as invalidity. Leader effectiveness in the used sample was measured in three ways, namely by using the leader's own judgement, the judgement of his or her followers and the opinion of experts on the subject. Since the measurement of transactional and transformational leadership was only done by surveying the follower's opinions, the measure of leader effectiveness for use in the multiple regression analysis also had to be based on follower's judgement, in order to remain consistent in the regression analysis. Therefore, it was not possible to use a probably more reliable and valid measure of leader effectiveness, composed of a combination of the follower's judgement and expert rating. The latter meaning that the measurement of leader effectiveness could be subject to the possibly unreliable and invalid judgement of the followers, causing measurement bias.

The last thing that has to be mentioned is the nature of the sample size and the restriction in sample size that applies to all measured constructs. The restriction in sample size was able to be tested related to the relationship between the augmentation hypothesis and leader effectiveness. The robustness analysis that was performed to test the influence of the relatively small sample size led to the same conclusions as mentioned above and therefore there can be concluded that the restriction in sample size did not affect the outcomes of the regression analysis for hypothesis 3. There has to be noted here, however, that team size was not able to be included in the robustness analysis, as was mentioned before. This means that the

conclusion about the influence of the restriction in sample size on the regression analysis in Table 4, on the basis of the performed robustness analysis, has to be read with this critical side note.

5.3 EI and leader effectiveness

On the basis of this research, there cannot be concluded that the relationship between EI and leader effectiveness is significant, when controlling for the leader's age, the leader's highest level of education, the team size and the leader's gender. This means that hypothesis 4 is not supported by this research, which means that EI does not predict leader effectiveness, according to the present study. The latter implicates that developing leader's EI does not contribute to increasing their effectiveness. Against expectations, this study's reported findings related to the relationship between EI and leader effectiveness support the study performed by Weinberger (2009). The latter was not able to find a significant positive correlation between EI and leader effectiveness. Looking at the existing literature on the topic, no feasible reason can be thought of, that is able to explain the insignificant relationship between EI and leader effectiveness. The unexpected insignificance of the relationship between EI and leader effectiveness is also able to be caused due to context dependence or measurement bias, which are both explained in more detail below.

First, relating to the possible contextual dependence of the relationship. The study by Edelman and van Knippenberg (2018) reported a significant positive relationship between EI and leader effectiveness in the Netherlands. The sample was obtained from a consultancy firm, however. Therefore, there is concluded that the public nature of this study is able to explain the insignificance of the relationship between EI and leader effectiveness.

Then, related to the possible measurement bias that could be inherent in the relationship between EI and leader effectiveness. As was mentioned before, the measurement of EI is subject to measurement bias, related to reliability and validity, which is able to lead to a lower or higher reported frequency of emotionally intelligent behaviours than would be the case from a pure rational point of view. The measurement of leader effectiveness is also able to be influenced by measurement bias. As mentioned, leader effectiveness is namely measured using the follower's judgement, in order to remain consistent. The follower's judgement could be unreliable and invalid, leading to possible measurement bias. Also mentioned before are the consequences of the nature and size of the sample used for the purpose of this research.

6. CONCLUSION

In the next section the findings from the present study are summarized and concluded. First, the limitations of this research are described, after which the directions for future research are elaborated on. Lastly, the conclusion follows.

6.1 Limitations

This research has several limitations. First of all, the sample size. The statistical power of this research is considered as being limited, since the minimum sample size to obtain a statistical power of 0.80 in multiple regression, is equal to 50 (Henseler, 2015). In the present study, the sample size comprised only 16 leaders. Next to the limited sample size is the measurement of EI. The codebook developed by van Gorp (2018) only measures verbal EI. The non-verbal emotionally intelligent behaviours are not studied and therefore the EI of leaders could be underestimated in this thesis. The last limitation that is mentioned is the measurement of transactional

leadership, transformational leadership and leader effectiveness. All constructs are measured using the MLQ and are therefore based on the judgement of the followers, which can be unreliable and/or invalid.

6.2 Future research

First of all, future research can elaborate on the findings of the present study by performing the same multiple regression analyses, but then separately for the different dimensions of EI, transactional leadership, transformational leadership and leader effectiveness. This can lead to reported significant relationships that are not found by performing the multiple regression analyses on the construct level.

Related to the used codebook developed by van Gorp (2018), there are two recommendations for future research. First of all, the codebook is not yet validated. Validating the codebook is able to improve the measurement validity of EI. Secondly, the number of examples for every verbal emotionally intelligent behaviour in the codebook is limited. The reliability of the codebook can be improved by increasing the number of examples, since this makes the interpretation of the codebook clearer and less prone to errors in interpretation of the verbal emotionally intelligent behaviours.

In addition, future research can reassess the relationship between EI and transactional leadership or transformational leadership and the relationship between EI and leader effectiveness, by developing an additional method for non-verbal EI that also does not rely on self-assessment. The latter, since the present study solely focusses on verbal emotionally intelligent behaviours, which leads to the exclusion of relevant non-verbal emotionally intelligent behaviour. Developing such a measure would complete the more objective method of EI measurement.

Next to this, the relationship between EI and transactional leadership or transformational leadership, the relationship between the augmentation hypothesis and leader effectiveness and the relationship between EI and leader effectiveness can be reassessed. The latter, by using a combination of expert rating and follower rating when measuring transactional leadership, transformational leadership and leader effectiveness. This can lead to a more accurate, and thus valid, measurement of these constructs.

Lastly, further research can be performed on the contextual dependence of the relationship between EI and transformational leadership or transactional leadership, the relationship between the augmentation hypothesis and leader effectiveness and the relationship between EI and leader effectiveness.

6.3 Conclusion

This research aimed at answering the following question:

To what extent is there a relationship between leader's emotionally intelligent behaviour, transformational leadership or transactional leadership, and what is the effect of the augmentation hypothesis on leader effectiveness, in a public sector work context?

The relationship between EI, transactional leadership or transformational leadership was found to be insignificant. The same is true for the relationship between the augmentation hypothesis and leader effectiveness and the relationship between EI and leader effectiveness. Therefore, there can be concluded that, in a public sector work context, EI is not able to significantly predict transactional leadership or transformational leadership and that the augmentation hypothesis is not able to significantly predict leader

effectiveness. Lastly, there can be concluded that EI is not able to significantly predict leader effectiveness.

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9. APPENDICES

9.1 Appendix A Measuring transformational leadership

Variable Name in SPSS	Reference	Label in SPSS	Dimension
IA1	Bass & Avolio (1995) MLQ	MLQ The person I'm rating instils pride in me for being associated with him/her	Idealized influence (attributed)
IA2	Bass & Avolio (1995) MLQ	MLQ Goes beyond the self-interest for the good of the group	Idealized influence (attributed)
IA3	Bass & Avolio (1995) MLQ	MLQ Acts in ways that builds my respect	Idealized influence (attributed)
IA4	Bass & Avolio (1995) MLQ	MLQ Displays a sense of power and confidence	Idealized influence (attributed)
IB1	Bass & Avolio (1995) MLQ	MLQ Talks about their most important values and beliefs	Idealized influence (behavioural)
IB2	Bass & Avolio (1995) MLQ	MLQ Specifies the importance of having a strong sense of purpose	Idealized influence (behavioural)
IB3	Bass & Avolio (1995) MLQ	MLQ Considers the moral and ethical consequences of decisions	Idealized influence (behavioural)
IB4	Bass & Avolio (1995) MLQ	MLQ Emphasizes the importance of having a collective sense of mission	Idealized influence (behavioural)
IM1	Bass & Avolio (1995) MLQ	MLQ Talks optimistically about the future	Inspirational motivation
IM2	Bass & Avolio (1995) MLQ	MLQ Talks enthusiastic about what's need to be accomplished	Inspirational motivation
IM3	Bass & Avolio (1995) MLQ	MLQ Articulates a compelling vision of the future	Inspirational motivation
IM4	Bass & Avolio (1995) MLQ	MLQ Expresses confidence that goals will be achieved	Inspirational motivation
IS1	Bass & Avolio (1995) MLQ	MLQ Re-examines critical assumption to question whether they are appropriate	Intellectual stimulation
IS2	Bass & Avolio (1995) MLQ	MLQ Seeks differing perspectives when solving problems	Intellectual stimulation
IS3	Bass & Avolio (1995) MLQ	MLQ Gets me to look at my problems form many different angles	Intellectual stimulation
IS4	Bass & Avolio (1995) MLQ	MLQ Suggests new ways of looking at how to complete assignments	Intellectual stimulation
Indcon1	Bass & Avolio (1995) MLQ	MLQ Spends time teaching and coaching	Individualized consideration
Indcon2	Bass & Avolio (1995) MLQ	MLQ Threats me as an individual rather than just as a member of a group	Individualized consideration
Indcon3	Bass & Avolio (1995) MLQ	MLQ Considers me as having different needs, abilities, and aspirations from others	Individualized consideration
Indcon4	Bass & Avolio (1995) MLQ	MLQ Helps me to develop my strength's	Individualized consideration

9.2 Appendix B Measuring transactional leadership

Variable Name in SPSS	Reference	Label in SPSS	Dimension
CR1	Bass & Avolio (1995) MLQ	MLQ Provides me with assistance in exchange for my efforts	Contingent reward
CR2	Bass & Avolio (1995) MLQ	MLQ Discusses in specific terms who is responsible for achieving performance targets	Contingent reward
CR3	Bass & Avolio (1995) MLQ	MLQ Makes clear what one can expect to receive when performance goals are achieved	Contingent reward
CR4	Bass & Avolio (1995) MLQ	MLQ Expresses confidence when I meet expectations	Contingent reward
MBEA1	Bass & Avolio (1995) MLQ	MLQ Concentrate his/her full attention on dealing with mistakes, complaints and failures	Active management-by-exception
MBEA2	Bass & Avolio (1995) MLQ	MLQ Focus attention on irregularities, mistakes, exceptions, and deviations from standards	Active management-by-exception
MBEA3	Bass & Avolio (1995) MLQ	MLQ Keeps track of all mistakes	Active management-by-exception
MBEA4	Bass & Avolio (1995) MLQ	MLQ Direct my attention toward failures to meet standards	Active management-by-exception

9.3 Appendix C Measuring leader effectiveness

Variable Name in SPSS	Reference	Label in SPSS
LeEff1	Bass & Avolio (1995) MLQ	MLQ Lead a group that is effective
LeEff2	Bass & Avolio (1995) MLQ	MLQ Is effective in meeting my job-related needs
LeEff3	Bass & Avolio (1995) MLQ	MLQ Is effective in meeting organizational requirements
LeEff4	Bass & Avolio (1995) MLQ	MLQ Is effective in representing me to higher authority