

The Influence of Leader Emotionally Intelligent Behavior on Team Effectiveness: a video-based study

Author: Don Michael van den Heuvel
S1588613
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherlands

ABSTRACT

Purpose: This research aims to provide additional and new insights on the relationship between Emotional Intelligence (EI) and team performance. The mediating roles of leadership and meeting effectiveness are used to assess in the emotional intelligence-team performance relation. The conducted research has both practical and academic relevance; it uses the EI codebook of van Gorp (2018) which was further tested on real-life traditional teams. This thesis tries to answer the research question: “*What is the influence of the behavior of Emotional Intelligence of individual team leaders on the performance of their team?*”

Design/methodology/approach: Two types of data will be used; individual questionnaires responses and team meeting video-recordings. In total, 16 leaders are measured analyzed over 1545 minutes of team meeting recordings. Meetings are recorded with cameras and different EI behaviors are coded with the use of “The Observer XT” and the EI behavioral codebook. With the use of SPSS, data is analyzed to make statistics and regressions. These findings will help answer the hypotheses described in the conceptual model, which aid the answering of the research question.

Findings: Two of the four EI behavioral categories, ‘Expressing emotions’ and ‘Regulating emotions’, influence the leader effectiveness a lot more than the other two, ‘Utilizing emotions’ and ‘Understanding emotions’. However, there is no statistical significance to signify these relations. Leadership effectiveness was positively, statistically significant related to team effectiveness, with meeting effectiveness being a positively mediator of this relationship.

Discussion: The big downside of this research is that no statistical significance was found for the influence of EI on leader effectiveness and the mediating role of meeting effectiveness. Possible reasons could be the not optimal implementation of the codebook or the power of the sample size. The leader EI and effectiveness relations The EI codebook of van Gorp should be used to further validate its content and criterion.

Graduation Committee members:

J.G.W.L. Smits, MSc.

Dr. D.H. van Dun

Keywords

Emotional Intelligence, Team Performance, Meeting Effectiveness, EI Codebook, Observational Research.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

July 3rd, 2019, Enschede, The Netherlands.

Copyright 2019, University of Twente, The Faculty of Behavioral, Management and Social sciences

1. INTRODUCTION

1.1 Foundation for the research

Working in teams is an effective implementation of organizations to meet demands, generate new products, uphold quality of services and add value to organization missions and goals (Salas, Dickinson, Converse, & Tannenbaum, 1992). Traditionally, the teams consist of two types of individuals: leaders and followers. Logically, the leader is responsible for the well-functioning of the team and assigns tasks, discusses topics and meets the organizational standards (S. J. Zaccaro, Rittman, & Marks, 2001). The competence of the leader plays a vital role in these achievements. Besides the intelligence capacity and expertise of the leader, recent practices (Antonakis, Ashkanasy, & Dasborough, 2009; Chang, Sy, & Choi, 2012; Schutte et al., 1998) imply another huge personal competence of the leaders, which becomes more and more important. Let's start talking about this ability: The Emotional Quotient (EQ). This personal trait is made measurable, which makes it more and more interesting for today's professional world (Goleman, 1998a). Questionnaires and competence tests are used to indicate whether the level of Emotional Intelligence (EI) is high or low. But, is it useful? How much EI do these leaders really have? Observational research states that video-based data can lead to more innovative questions and enlighten conclusions better, because the traditional data sources (example given, surveys) simply cannot provide (Hoozeboom & Wilderom, 2015; Waller & Kaplan, 2018). This will be the foundation of this research. The research in this paper will look at the aspect of individual contribution towards the team performance. The most important factors being Emotional Intelligence and the leader effectiveness.

1.2 The current study and objective

The main aim of this research is to find new insights on leader EI and its relation to team performance. This includes gaining additional knowledge on the known relationship and the identification of possible new relations, for example the impact on the leader effectiveness and the influence of meeting effectiveness.

Previous research showed that the relationship of EI and team performance has statistically significant predictors (Jordan & Troth, 2004; Lee & Wong, 2017). The conclusions addressed that the behavior "Dealing with own emotions" is statistically significant, whilst the "Dealing with others' emotions" was not statistically proven. Furthermore, the team's overall EI may strengthen the relationship between individual EI and performance, for example having team members with a high EI indicate you own emotions and feeling more effectively. In addition, and equally important as a foundation of this research, the limitations addressed the fact that the research sample was not optimal. The sample used consisted of undergraduate students which participated in an introduction to management class. This limitation is addressed that Jordan & Troth and further research at a professional workspace is needed to validate their conclusions of the Emotional Intelligence and team performance relationship.

An important aspect of this research is the use of the EI codebook to analyze emotional behaviors (van Gorp, 2018). This EI codebook of van Gorp (2018) will be used to bridge the gap of the practical implementation mentioned in Jordan & Troth (2004) and aid as foundation

of the observational research design. As a result, the sample of this research will be more professional and better analyzed, which could be huge factors in finding new or additional findings.

1.3 Research question

This paper aims to answer the following research question: "What is the influence of the Emotional Intelligent Behavior from individual team leaders on the performance of their team?"

To answer this research question, the following five sub questions are formulated:

1. What are known EI behaviors that influence team performance?
2. What is the impact of EI behaviors on the effectiveness of the leader?
3. How can EI be operationalized and measured?
4. What EI behaviors were seen the most and had the most impact in a meeting?
5. Does meeting effectiveness mediate the relation between leader effectiveness and team performance?

2. THEORETICAL FRAMEWORK

2.1 Emotional Intelligence

The first part of the framework illustrates the concept Emotional Intelligence. For its proper description, this thesis uses two definitions: the ability-based branches by Mayer, Salovey and Caruso (2008) and the distinct dimensions of Wong & Law (2002) First, there are four ability-based dimensions. These are individual abilities based on the Emotional Intelligence aspects of Goleman (1998). Goleman first described the level of an individual's EI based on four personal capabilities: self-awareness, self-management, social awareness and social skill (Goleman, 1998b). The role of emotions in social performative relationships, like decision making and team performance, requires a high level of emotional intelligence (Antonakis et al., 2009). In the research of Mayer and his colleagues, these four personal capabilities are described as the following abilities (Mayer, Salovey, & Caruso, 2008):

1. Using emotions (to facilitate thought)
2. Perceiving emotions (of oneself and others)
3. Understanding emotions (the language and signals), and
4. Managing emotions (of oneself and others, to attain specific goals).

These four abilities are the basis of many further studies on the EI topic. Most interesting is the analysis of these abilities described in (Wong & Law, 2002). Wong & Law (2002) rewrites the four dimensions of Mayer et al. (2008) as the following distinct skills of an individual's Emotional Intelligence level:

1. Appraisal and expression of emotion in the self (*self-emotional appraisal; SEA*). This relates to the individual's ability to understand their deep emotions and be able to express them naturally.
2. Appraisal and recognition of emotion in others (*others' emotional appraisal; OEA*). This relates to peoples' ability to understand the emotions of those people around them.
3. Regulation of emotion in the self (*regulation of emotion; ROE*). This relates to the ability of

people to regulate their emotions, which will enable a more rapid recovery from psychological distress.

4. Use of emotion to facilitate performance (*use of emotion; UOE*). This relates to the ability of individuals to make use of their emotions by directing them towards constructive activities and personal performance.

Based on both theories of Mayer, Salovey & Caruso (1998) and Wong & Law (2002), there are four main categories described in the EI codebook of van Gorp (2018) and act as the theoretical background for its practical use. These categories will be further described in the following subparagraphs, and the practical use of the codebook can be found in section 3.3.

2.1.1 *Expressing emotions (EXE)*

The first category is all about the ability to identify and express emotions and related need in oneself, others, situations and others (van Gorp, 2018). Also, it shows the understanding of needs and desires of the same entities and how the individual shows empathy, which can be described as an exceptional combination of the first two codes and expresses how the individual shares its feelings and emotions (Goleman, 1998a).

2.1.2 *Utilizing emotions (UTE)*

The second category of the coding scheme focuses on the utilizing of emotions. Most important is the effect of emotional prioritization; the drawing of attention to important information. It is hard to measure the importance of certain information, but this can be linked to the positive emotions that are shown by the individual (Palmer, Stough, Harmer, & Gignac, 2009). These emotions could indicate mood swings, which can encourage consideration of multiple points of view and see new possibilities (Schutte et al., 1998). Furthermore, it addresses the emotional memories of individuals, because these aid the emotional thinking process (Cooper & Petrides, 2010). This category looks similar to the '*expressing emotions*' category, but there is a significant difference. When emotions are utilized to prevent negative feelings, both unpleasant and pleasant emotions need to be regulated.

2.1.3 *Understanding emotions (UNE)*

This third category is based on the ability-based model of (Mayer & Salovey, 1997). Most of the coding relates to the ability to label emotions and recognize relations among the words and the emotions themselves. Also, some codes indicate the ability to distinguish between accurate / inaccurate or honest / dishonest expressions or feelings. So, these codes not only that the individuals express their emotions, but also shows how accurate and honest the emotions are. When an individual fully understands his/hers emotion, he or she also knows when and how they change or develop over time (George, 2000).

2.1.4 *Regulating emotions (REE)*

Concluding the four categories is the ability to regulate one self's and others' emotions. Mayer and Salovey (1997) described this category as 'the ability to reflectively monitor emotions in relation to oneself and others.' This includes recognizing how clear, influential and reasonable they are. This category has the most elaborate code of the codebook and is therefore the most complex as well. According to theory, this code recognizes the ability to manage emotions in oneself and others by diminishing

negative and enhancing pleasant ones (Allen, Lehmann-Willenbrock, & Rogelberg, 2015).

Finally, the theory of Wong and Law (2002) is addressed because it is used to measure the level of EI of the coders of this research. More information of this measurement can be found in section 3.4.1. Combining both the theories of Mayer et al. (2008) and Wong & Law (2002), the EI capabilities of Goleman (1998) can be conducted as measurable abilities. These abilities contribute to better understanding of both awareness and regulation of emotions, which will contribute to the individual and team performance. It is important that these abilities can be measured, because it confirms our perceptions and theoretical models regarding EI (Mayer, Salovey, Caruso, & Sitarenios, 2003). But what is the contribution of EI towards team performance? Before this is described, the first hypotheses regarding the EI behaviors and their relation towards leader effectiveness.

2.2 **Leader effectiveness and EI**

Theories described two different types of leadership: transformational and transactional (Bass, 1990). The first focusing more on the motivating of followers towards higher performance and the latter more on rewarding and correcting types of behaviors (Avolio, Bass, & Jung, 1999). The dimensions of EI can influence this participation process. EI essentially describes the ability to effectively join emotions and reasoning (George, 2000). In his theory, George (2000) mentioned four major aspects of EI that contribute to effective leadership:

1. The appraisal and expression of emotion
2. The use of emotion to enhance cognitive processes and decision making
3. Knowledge about emotions
4. Management of emotions

To further assess the implications of these EI behaviors, George (2000) first identified key elements for the fundamental nature of effective leadership. He identified the following five essential elements that describe leader effectiveness (Conger & Kanungo, 1994; Locke, 1991; Yukl, 1998), and in which EI may contribute:

1. Development of a collective sense of goals and objectives
2. Instilling in others knowledge and appreciation of the importance of work activities and behaviors.
3. Generating and maintaining excitement, enthusiasm, confidence and optimism
4. Encouraging flexibility in decision making and change.
5. Establishing and maintaining a meaningful identity for an organization.

Furthermore, a relevant research from Jordan & Troth (2004) provides some useful insights regarding the EI and team performance relation. According to their theory, the ability-based EI is a predictor of team performance (Jordan, Ashkanasy, Härtel, & Hooper, 2002; Jordan & Troth, 2004). Emotional Intelligence is important for social situations, such as problem solving and decision making (Offermann, Bailey, Vasilopoulos, Seal, & Sass, 2004). Jordan & Troth (2004) showed that the ability '*dealing with own emotions*' is statistically proven ability that contributes to the increase of team performance, while '*dealing with other's emotions*' was unproven. The EI is categorized a bit differently, but their research did indicate that the relation is real. Both abilities came from the

construction of Mayer and Salovey (1990) and additional insights of Goleman's capabilities (1998), which is linked with the theoretical background of van Gorp (2018). An important aspect of the teams are the types of individuals. This research zooms in on the EI behaviors of team leaders, so let's look deeper into this theoretical concept and relation. The relevance of the theories regarding leader effectiveness and its relation to EI lies in their observational practicality. The EI behaviors in this research focus more on the type of EI, rather than the type of leadership. Therefore, based on sections 2.1 and 2.2, the following four hypotheses can be conducted to test the EI and leader effectiveness relation.

Hypothesis 1: The EI behavior 'Expressing Emotions' has a positive relationship with the leader effectiveness.

Hypothesis 2: The EI behavior 'Utilizing Emotions' has a positive relationship with the leader effectiveness.

Hypothesis 3: The EI behavior 'Understanding Emotions' has a positive relationship with the leader effectiveness.

Hypothesis 4: The EI behavior 'Regulating Emotions' has a positive relationship with the leader effectiveness.

2.3 Team performance and leader effectiveness

Effective team performance is based on several and fundamental characteristics. Not only are the team members and the complex work environments important factors, the team leadership is as important as well (Stephen J. Zaccaro & Klimoski, 2001; S. J. Zaccaro et al., 2001). Meetings are perceived to have a higher effectiveness when an active employee participation is warranted, especially by the leader (Meinecke, Lehmann-Willenbrock, & Kauffeld, 2017). Also, not only can there be a certain level of performance between teams, but also between the individuals within those teams or even the type of team (Mathieu, Maynard, Rapp, & Gilson, 2008). Some older studies defined this effectiveness on different

team-level and organizational scales (Kozlowski & Ilgen, 2006; Sundstrom, De Meuse, & Futrell, 1990). Most important, team effectiveness is based on an input-process-output framework (IPO) (McGrath, 1984). This is a model that distinguishes individual, team and organizational input. McGrath (1984) also states the essence of group interaction process. This involves:

- The team's structure
- The team members
- The situation of each task situations
- The team environment

These four different dimensions will describe the total team effectiveness. Team meetings are useful methods to assess and stimulate the performance of a team. The general performance of a team is displayed during the flow and effectiveness of their meetings (Engleberg & Wynn, 2007) and whether each individual has a satisfied experience during the meeting (Nixon & Littlepage, 1992). Most importantly, it can be used to measure the process of decision-making and the effective use of time (Rogelberg, Leach, Warr, & Burnfield, 2006). This assessment is individually, so the inputs of each team member are used to determine the overall team performance. To test the relations between the leader effectiveness and their team performance, the following hypotheses are conducted.

Hypothesis 5: The effectiveness of the leader has a positive, indirect influence on the team performance

Hypothesis 6: The effectiveness of the leader has a positive, direct influence on the meeting effectiveness

Hypothesis 7: The meeting effectiveness mediates the relation between leader effectiveness and team performance

Completing the theoretical framework is the conceptual model, which can be found in Figure 1 at the bottom of page 4.

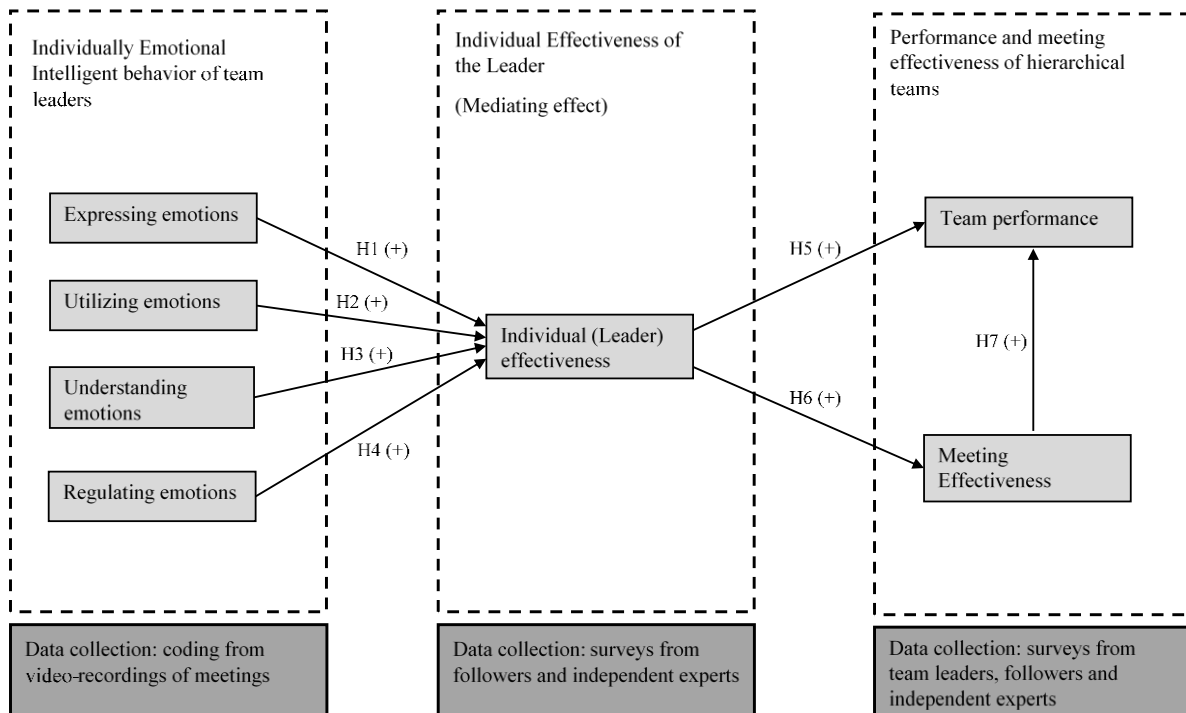


Figure 1: Conceptual model

3. METHODOLOGY

3.1 Research design

The research is based on a behavioral design type and observation research. The coding scheme of van Gorp (2018) is used to analyze the verbal EI behaviors of team leaders. The results of this research will provide new and additional insights in respect to the hypotheses and the possible relations in the conceptual model. Also, it will refine and further improve the quality and validity of the EI codebook for future implementation. This codebook was set up in 2018 and already used in one previous research, so implementing it during this research will guide as a critical evaluation, increasing the additional relevance for future implementation and improve the validity of its use. The design of the study is based on observational research, so additional insights of this non-experimental research method will be obtained.

In practice, this research attempts to use a recent innovation of the observational research design: the EI codebook (van Gorp, 2018). This framework is used to identify different emotional behaviors of individuals during team meetings. This practical tool will be combined with “The Observer XT”, a computer application that uses cameras and coding schemes to video-record and analyze team meetings. Two coders are used to analyze the EI behaviors of the leaders. By using the variety of data methods and sources, the common source bias will be reduced during this study (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003)

3.2 Sample and data collection

3.2.1 Sample

The sample of this research is based on data at a large national governmental institution. The participants in that research were traditional team members, consisting of both the team leaders and the followers. Of a total of 121 teams, meetings were recorded which involved 1611 different individuals being measured. This research focused on a sample of 16 teams including 285 individuals, of which 16 leaders and 269 followers.

These 16 teams were determined on multiple variables. The main goal was to create a sample that had a high level of representativeness of the entire population. This is a very important factor for survey-based and observational analysis (Cook, Heath, & Thompson, 2000). To achieve representativeness, the 16 leaders were equally divided in both eight male and female leaders. Of both genders, the sample was divided into two groups, based on the ratings of independent experts: the most and least effective leaders. To conclude, the sample consisted of: four teams with the *most* effective, *male* leader; four teams with the *most* effective, *female* leader; four teams with the *least* effective, *male* leader; four teams with the *least* effective, *female* leader.

To determine the highest and lowest effective leaders, the independent expert ratings are used. These are used because the expert ratings are a stronger predictor of team effectiveness ($\beta = .62, p < 0.01$) than the followers' ratings ($\beta = .36, p < 0.01$). Leader effectiveness is based on multiple variables, which are further described in section 3.3. The team leaders averaged an age of 50.63 years (ranging from 34 to 64: $SD = 9.12$), with years of employment at the institution ranging from .5 to 43 years ($M = 22.10, SD = 16.34$) and with an average of 12.28 years (ranging from 3 to 32: $SD = 8.89$) of experience in leadership.

3.2.2 Data collection

Besides the existing data from the institution, this research will obtain new data of the sample. Data is collected during the team meetings, where three cameras are placed to record both video and sound. During these meetings, one camera is faced on the leader only. These specific recordings will be analyzed. The EI behaviors of the team leaders will be collected with an innovative video-analysis technology, “The Observer XT”. This is an interface that combines the EI behavior codebook (van Gorp, 2018) and the video-recording in one, integrated tool. Therefore, the physical and verbal EI behaviors can be coded in real-time. These timed-event coding provides the most thorough representation of the behavior (Chorney, McMurtry, Chambers, & Bakeman, 2015). This results in two types of data from each EI behavior: the frequency and duration. The primary focus lies on the frequency of specific EI behavior, because these provide better statistical indications during the analysis than durations.

3.3 Measures

3.3.1 Leadership effectiveness

For the measurement of leadership effectiveness, each follower and expert answered a four item Multilevel Leadership Questionnaire (MLQ), to capture their perspective on the effectiveness of their team leader. A leader that leads an effective group addresses the followers' job-related needs and meets organizational standards (Avolio & Bass, 1995). The scores of the followers were given on a Likert-type scale ranging from 1 (*Completely disagree*) to 7 (*Completely agree*). A sample of one of the items is “My leader leads a group that is effective”. The Cronbach's alpha that is obtained is .89. The intraclass correlation coefficients are ICC1: .15 ($p < .01$) and ICC2: .66 ($p < .01$), which indicate a good within-group agreement of the followers and that the data can be aggregated to team level (Van Mierlo, Vermunt, & Rutte, 2009).

3.3.2 Meeting effectiveness

Using a three-item survey, the meetings are scored on the overall effectiveness by each follower (Engleberg & Wynn, 2007; Nixon & Littlepage, 1992; Rogelberg et al., 2006). The scores range from a seven-point Likert scale from 1 (*Completely disagree*) to 7 (*Completely agree*). A sample item is “The meetings I attend to are worth my time”. The obtained Cronbach's alpha is .88. The intraclass correlation coefficients are ICC1: .10 ($p < 0.05$) and ICC2: .58 ($p < .57$), indicating a fairly good within-group agreement, so the data of the followers can be aggregated to team level (Van Mierlo et al., 2009). This variable is not measured by the experts, so analysis is solely based on the followers' ratings.

3.3.3 Team effectiveness

To capture the overall concept of team effectiveness, four items on a specific scale are used (Gibson, Cooper, & Conger, 2009). This implies that a high level of team effectiveness accomplishes its tasks on time and very satisfactorily. The scores are both given by followers and experts, on a Likert-type scale ranging from 1 (*Completely disagree*) to 7 (*Completely agree*). A sample item is “This team does high quality work”. The obtained Cronbach's alpha is .90, and the intraclass correlation coefficients are ICC1: .15 ($p < 0.01$) and ICC2: .67 ($p < .01$). This indicates a good within-group agreement, which allows the data to be aggregated to team level (Van Mierlo et al., 2009). The correlation between the followers' and the

expert's ratings is .45, but not statistically significant ($p = .084$). Therefore, the scores of the followers are used in further analysis.

3.3.4 The EI codebook

The EI codebook of van Gorp (2018) will be used as the overall bridge between the previous mentioned theories. This new method to measure and analyze behaviors is a unique method in the world of observational research. Not only does it help improve the direct observation, it also makes EI research less reliable on self-tests and questionnaires (van Gorp, 2018). This is a highly demanded solution to aid and support conclusions, the observation of EI behaviors and its contribution towards team performance, of many scientific papers. Not only for Jordan & Troth (2004) that is mentioned before, but for many more scientific research papers (Chang et al., 2012; Chrusciel, 2006; Macht, Nembhard, & Leicht, 2019). So, in the end, it is the practical relevance that makes this coding scheme the most needed and useful measurement tool.

The coding scheme of van Gorp is used to observe direct and analyze real-time behaviors of EI, which helps improve the measurement of this concept (Wysocki, 2015). A brief overview of the EI codebook can be found below.

Table 1. A concise overview of the EI codebook of van Gorp.

Category of EI behavior	Examples of coded behaviors
Expressing emotions	1. Expressing emotions
	2. expressing related needs
	3. empathizing
Utilizing emotions	4. preventing negative emotions
	5. considering multiple views
	6. emotional memories
	7. understand of complex emotions
Understanding emotions	8. knowing that emotions may convey
	9. interpreting the degree of accuracy of emotions
	10. evolution of emotions over time
Regulating emotions	11. mentioning the influence of emotions
	12. moderating emotions

The four different types of EI behaviors are measured by the individual coders on a frequency basis. For example: the leader says the words 'I am disappointed that this was not fixed in time.', then this behavior is coded under the label 'Expressing emotions' (in the codebook; 1). The duration of such behavior is for example 2.4 seconds, which equals a frequency of 1. For each category (EXE, UTE, UNE and REE), this method is applied. As a result, each meeting has a value for all twelve labels (a zero is allowed). All four categories will be combined in a fifth EI behavior measurable; Total Emotional Intelligent Behaviors (TEB). The following statistics are measured of each variable:

3.3.5 Control variables

These are variables that are held constant during analysis, in order to assess the relationship between multiple other variables. Since these variables are not of primarily

Table 2. Descriptive statistics of the frequency of the coded Emotional Intelligent behaviors.

	N	M	SD	Minimum	Maximum
Expressing emotions	16	2.13	1.59	.00	5.90
Utilizing emotions	16	.63	.69	.00	2.36
Understanding emotions	16	1.12	1.36	.00	4.13
Regulating emotions	16	1.53	1.59	.00	6.44
Total Emotional Intelligent behaviors	16	5.41	4.42	.83	17.16

concern, they are kept the same in order to validate the other correlation of the independent and dependent variables. In this analysis, the leader's gender ($M = 1.5$; $SD = .52$, leader's age ($M = 50.63$; $SD = 9.12$) and team size ($M = 14.06$; $SD = 7.21$) are used as control variables.

3.4 Data analysis

3.4.1 The Observer XT

To make sure that data analysis is reliable and validated, the coding was done in pairs. Both coders trained with "The Observer XT" tool on some video-recordings of team meetings in order to make the coding feel more natural and understandable. All data from these recordings are not used in the analysis and results, there were solely used to understand the system and coding scheme. Furthermore, the coders looked at the coding and recordings of van Gorp's research (2018), to understand the feeling of when to use which code. This makes the judgement of the coders more accurate and reliable.

The level of Emotional Intelligence of both coders is measured with the theory of Wong & Law (2002). This is done to indicate what level of EI the coders have. It makes sense for the coders to have a high level of EI, in order to recognize these behaviors during coding. The coders of this thesis scored on average the following levels of EI:

1. Self-emotional appraisal (SEA): **22.5/28**
2. Others' emotional appraisal (OEA): **23.5/28**
3. Regulation of emotion (ROE): **20/28**
4. Use of emotion (UOE): **21/28**

Each of the four categories had a four-item Likert scale ranging from 1 to 7, and all scores were added together/. Each question per category was therefore equally contributing to the total score of 28. The highest score was achieved on the OEA, which indicates the understanding of other's emotions. This is an essential skill to have for the correct implementation of the EI codebook of van Gorp (2018). The average of both coders was 22.5/28 and 21/28, including the highest category being the OEA for both coders. Based on the scores, it is assumed that the coders have a significant level of EI for the practical use of the codebook.

Finally, the reason why the coding is done in pairs is because it creates internal validity and reliability of the results. Both coders coded a video-recording independently. When finished, both measurements were compared with each other, which indicate both equal and wrong types of coded behaviors. After the 16 coded video-recordings, the Inter-Rater Reliability (IRR) was 39.2% and had a kappa-value of .14. Every coding which differs will be discussed and revised together, until one convinces the other. This process is repeated until all irregularities are undone. The result is one final, correct measurement of coding, named the 'definitive version' of that certain meeting.

3.4.2 Standardization

After all meetings have their own 'definitive version', the data is transferred into the IBM program SPSS Statistics, which is a software package used for interactive or batched statistical analysis. This will be the prime analysis tool for this quantitative data. The software uses descriptive statistics, regression, correlations and statistical tests to measure its variables and possible relations (Field, 2017). To make the data ready for analysis, certain variables need to be standardized. This is to make sure that all data is internally consistent; for example, each data type has the same format. Prior study of applied behavior analysis indicated the importance of this effective data collection and standardization (Elswick, 2017). For this analysis, all five variables of the coded EI behaviors are standardized based on the duration of the meeting. All values are scaled on the shortest meeting time, which was 49.35 minutes. The longest meeting was 152.02 minutes, so it is easy to assume that this longer meeting would have more emotional behaviors shown by the leader. Therefore, the standardization was applied to keep this assumption outside the analyses and make the data more internally consistent.

4. RESULTS

Before all variables and relations can be analyzed and the hypotheses can be tested, the descriptive statistics of each variable has to be conducted. Table 3 shows the Mean, Standard deviations and their zero-order correlations of all key variables of the hypothesized model and can be found at the bottom of page 7.

Before further analysis could be done, these values are further checked upon. For each dependent variable (DV), the scatter plots of the expected vs. observed values have been checked. In all these P-P plots (example can be found in Appendix A), the assumptions for a normal distribution have been met, which indicates linear regression can be conducted.

Table 4. Standardized Means and Standard Deviations of the frequency of Total Emotional Intelligent Behaviors (TEB).

	Male leaders		Female leaders	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Most effective	5.16	2.37	5.48	4.08
Least effective	5.47	2.82	8.02	6.95

4.1 Main analyses

In total, 168 EI behaviors (unstandardized frequency) were coded during the 16 meetings and at least all twelve EI behaviors were coded at least once. For further analysis, the standardized values will be used (Total = 86.56, $M = 5.41$, $SD = 4.42$). The distribution of these behaviors in categories is:

- Expressing emotions: 34.11 (39.40%)
- Utilizing emotions: 10.15 (11.73%)
- Understanding emotions: 17.87 (20.64%)
- Regulating emotions: 24.44 (28.23%)

Also, there is some difference between male and female leaders. Female leaders show more EI behaviors ($M = 6.75$) than male leaders ($M = 4.07$). The means and standard deviation of these emotional behaviors, distributed over leader effectiveness and gender, can be found in Table 4.

There are also some interesting results outside the conceptual model. The possible relation between leader gender and total emotional behaviors lacks statistical significance, according to Table 3. ($\beta = .31$, $p = .24$). A more in-depth analysis is needed to test if the differences in Table 3. An independent means t-test is used to analyze the difference between the two samples. This is allowed the samples are independent and selected from a population that is approximately normally distributed. The results of the t-test are not significant ($t(14) = 1.23$, $p = .24$), but the t-value does indicate a positive difference. In

Table 3. Means, Standard deviations and Correlation coefficients of the key variables from the conceptual model.

	<i>M</i>	<i>SD</i>	Minimum	Maximum	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Team performance (Experts)	6.71	1.18	3.67	8.00													
2. Leader effectiveness (Experts)	7.11	1.01	5.20	8.50	.89 [*]	---											
3. Team performance (Followers)	4.68	0.78	2.87	5.89	.45	.30	---										
4. Meeting effectiveness (Followers)	5.17	0.72	3.60	6.25	.32	.33	.66 ^{**}	---									
5. Leader effectiveness (Followers)	4.98	0.61	4.21	6.23	.31	.30	.59 [*]	.85 ^{**}	---								
6. Expressing emotions	2.13	1.59	0.00	5.90	-.07	.07	-.58 [*]	-.36	-.33	---							
7. Utilizing emotions	0.63	0.69	0.00	2.36	.26	.29	-.15	.02	.11	.48	---						
8. Understanding emotions	1.12	1.36	0.00	4.13	.06	.18	-.10	.14	.08	.48	.69 ^{**}	---					
9. Regulating emotions	1.53	1.59	0.00	6.44	.22	.38	-.24	-.02	.09	.80 ^{**}	.50 [*]	.59 [*]	---				
10. Total EI behaviors	5.41	4.42	0.83	17.16	.11	.27	-.35	-.09	-.04	.87 ^{**}	.72 ^{**}	.80 ^{**}	.91 ^{**}	---			
11. Leader gender	1.50	0.52	---	---	-.06	.22	-.26	.30	.30	.29	.38	.29	.17	.31	---		
12. Leader age	50.63	9.12	34.00	64.00	.20	-.01	.00	-.25	-.14	-.04	-.03	-.50 [*]	-.06	-.20	-.44	---	
13. Team Size	14.06	7.21	6.00	29.00	-.52 [*]	-.44	-.60 [*]	-.18	-.03	-.06	-.14	-.33	-.27	-.24	.31	.17	---

Note. $N = 16$. Gender is coded by values "1" = Male, "2" = Female. Variables 6,7,8,9 and 10 are based on frequency of shown behaviors. * $p < .05$ ** $p < .01$

section 5, a further discussion regarding the lack of significance will try to explain this possible relation.

4.2 Testing the hypotheses

Since the assumptions of normal distribution are met and the scatterplots do not show weird outliers, hierarchical linear regression is used to assess if variables explain a statistically significant amount of variance on the dependent variables (Ajzen & Madden, 1986). The main purpose of hierarchical regression is that within its framework, multiple linear regressions are conducted in a series of steps. During each step, one additional variable is added in respect to the previous step. Applying this method correctly, it can determine whether the newly added variables show significant improvement in R^2 (the proportion of explained variance of the dependent variable). This research conducts two different hierarchical regressions. The first one describes the regression of the DV 'Leadership effectiveness', the second of DV 'Team effectiveness'. The assumptions of reliable p-values of these regressions is met. This is due to the low values of VIF (Variance Inflation Factor), which indicate a low level of collinearity between variables. All values of $VIF < 5$, indicating the assumption to uphold. The results of the hierarchical regressions can be found in Table 5 at the bottom of page 8.

Hypothesis 1 does not have enough support. Based on the correlations, a small negative value of $\beta = -.36$ was concluded, but there was no statistical significance. The hierarchical regression analysis indicated a slightly stronger, but still negative relation ($\beta = -.23, p = .09(ns)$: Model 2 for Leader effectiveness), but this statistic was not significant ($F = 1.38, df = 8, p = .09(ns)$). Besides the hypotheses, the 'expressing emotions' variable did have a significant correlation with the team effectiveness, found in Table 3 ($\beta = -.58, p < .05$). This is however not further assessed, because this variable is not used as a direct

indicator of team performance (as described in the conceptual model).

Hypothesis 2, stated that utilizing emotions has a positive influence on the leader effectiveness, found no significant support as well. This individual category of the EI behaviors did not significantly predict leadership effectiveness ($\beta = .15, p = .66 (ns)$: Model 3 for leadership effectiveness).

There is also no statistical significance for Hypothesis 3. This stated that understanding emotions will positively influence the leadership effectiveness. The results of the first hierarchical regression analysis indicates a value of $\beta = .20 (p = ns)$.

The final EI behavior category, addressed in Hypothesis 4, found no statistically significant support. The positive influence of regulating emotions on the leadership effectiveness did not uphold ($\beta = .48, p = ns$: Model 5 for Leadership effectiveness).

However, what is still interesting is the level of adjustment in R^2 in this hierarchical regression analysis. Even though the ANOVA values (F) are not significant, the proportion of explained variance changes a lot during Model 2 (Expressing emotions: R^2 change = .22) and Model 5 (Regulating emotions: R^2 change = .30). It could be argued that these two EI behavior have more potential significance for the prediction of better leadership effectiveness. But., for this sample, it is more likely to assume that these behaviors simply occur more often than the others. These statistics will be addressed in section 4.2.

The second hierarchical regression analysis was used to test Hypotheses 5 and 6. For Hypothesis 5, the correlation matrix indicates a positive, statistically significant relation ($\beta = .59, p < .05$). This possible relation is tested during the hierarchical regression. No significant support was found for this indirect, positive influence on team effectiveness ($\beta = .44, p = ns$: Model 3 for team

Table 5. Results of Hierarchical Regression Analyses ($N = 16$).

	Leader effectiveness					Team effectiveness			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4
Control variables									
Leader gender	.51	.82	.72	.87	.77	-.03	.31	.01	-.05
Leader age	.00	.01	.01	.03	.01	.01	.01	.01	.01
Team size	-.02	-.03	-.02	-.02	.00	-.05	-.07	-.06	-.05
Independent variables									
Expressing emotions		-.23	-.25	-.29	-.60				
Utilizing emotions			.15	-.11	.01				
Understanding emotions				.20	-.01				
Regulating emotions					.48				
Total emotional intelligent behaviors							-.08	-.07	-.06
Dependent variables									
Leader effectiveness								.44	.24
Meeting effectiveness									.25
R^2	.11	.33	.35	.38	.68	.61	.81	.94	.95
ΔR^2		.22	.03	.03	.30		.20	.13	.01
F	.50	1.38	1.06	.91	2.47	2.32	5.12	14.47	13.52

R^2 = R-squared (the proportion of explained variance of the dependent variable), ΔR^2 = adjusted R-squared (compared to the previous model) and F = critical value of the regression.

effectiveness). The difference of the explained variance looks promising ($\Delta R^2 = .13$, $F = 14.47$, $df = 10$), but also lacks statistical significance. Hypothesis 6 stated that meeting effectiveness has a positive, direct influence on the team effectiveness. The correlation matrix indicated a statistically significant relation between the two ($\beta = .66$, $p < .01$: Model 4 for team effectiveness), but the regression found no support ($\Delta R^2 = .01$, $F = 13.52$, $df = 9$).

The final Hypothesis, Hypothesis 7, stated that the meeting effectiveness mediates the relation between leadership effectiveness and team effectiveness. For this hypothesis, a different analysis is used: Mediating Analysis, based on regression analysis and the Process Macro of Hayes and the Sobel test.

An important aspect before correct mediating analysis can be done, is the danger of common source bias (Alfes, Truss, Soane, Rees, & Gatenby, 2013; Podsakoff et al., 2003). Table 2 shows correlations of leader-, meeting- and team effectiveness based from only one type of data source; the followers. These values are based on questionnaires and have a potential danger for common source bias, if only the follower ratings are used for analysis. To reduce the common source bias, extra data sources are needed. However, before mediating analysis is possible, the three coefficients of leader-, meeting- and team effectiveness of different data sources should be significant with each other (Hayes & Preacher, 2013). In the correlation matrix, the followers' and leaders' ratings have a statistically significant relation, but the expert ratings have with neither other data sources a significance relation. With this extra data source, the mediating analysis can be conducted with a reduced common source bias. After three linear regression analyses, the following relations and regression coefficients can be made.

During the first step of the mediation model, the regression of the leader effectiveness on team effectiveness, ignoring the mediator, was significant ($\beta = .29$, $t = 2.45$, $p < .05$). The second step, leader effectiveness on the mediator, was also significant ($\beta = .39$, $t = 2.12$, $p < .05$). Third step resulted in a statistically significant relation between the mediator controlling team effectiveness ($\beta = .47$, $t = 2.37$, $p < .05$).

To test whether the mediator carries the influence of the independent and dependent variable relation, two possible tests can be used. First, a Sobel test is used to analyze full mediation of meeting effectiveness on the leader – team effectiveness relation (Sobel, 1982). Using the effects of previous analysis, the test did not found fully mediation in the model ($z = 1.59$, $p < 0.1$). However, a Sobel test works well only in large samples (Sobel, 1982). Therefore, its value could be misleading. A second method to test the full

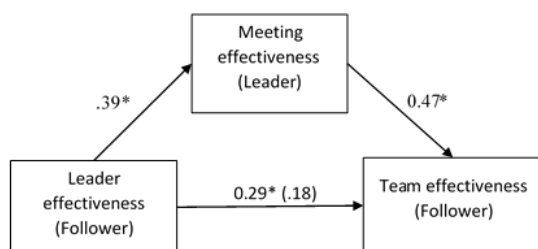


Figure 3. Regression coefficients of the mediating relationship between leader- and team effectiveness (follower ratings) and mediator meeting effectiveness (leader ratings). * $p < .05$

mediation is the Process Macro of Hayes. This model calculates the mediating relation based on bootstrapping the raw data and imposes no distributional assumptions (Preacher & Hayes, 2004). The model summary output was statistically significant ($R^2 = .57$, $MSE = .20$, $F = 5.22$, $p < .05$) and a statistically significant *adjusted-R²* by the mediator ($\Delta R^2 = .20$, $F = 5.41$, $p < .05$), indicating that full mediation is possible.

Finally, when analyzing the control variables that were included for both hierarchical regression analysis, leader's gender, leader's age and team size, resulted no significant effects on the leader effectiveness and team effectiveness. However, for all models of the leader effectiveness regression, gender indicated a high relation value, yet not statistically significant. Even though it cannot be stated with certainty, it could be possible that more female leader could show more EI behaviors that contribute to better leader effectiveness.

5. DISCUSSION AND RECOMMENDATIONS

5.1 Discussing the findings

The impact of the four leader EI behavioral categories (van Gorp, 2018) on the leadership effectiveness have been identified and can be treated as a foundation for future research. The two EI behaviors 'expressing emotions' and 'regulating emotions' showed a possible relation, but due to the lack of significance, they cannot be concluded to be a statistical indicator of better leadership effectiveness. This lack of significance could originate from a lot of reasons, but more importantly it does not align with the findings of Jordan & Troth (2002), who found that 'dealing with own emotions' had enough statistical significance.

Possible reasons for this lack of significance could be two-tailed: First, the definition of the EI behaviors differ across both studies. While Jordan & Troth (2002) make a clear distinction between dealing with emotion in oneself and of others, this research focused more on the different types of dealing with emotions, and not on the distinction between certain individuals. Another reason could be that the study of Jordan & Troth (2002) was solely based on survey data. This research focused on observational research designs, which could impact the quality and quantity of the data. Theories suggest interesting differences between survey-based and video-coded-based analysis (Hoozeboom & Wilderom, 2015). Firstly, survey-based ratings can be biased due to the behavior or performance of the rater, rater bias or random measurement error (Wherry & Bartlett, 1982). These biases must be minimized to obtain the best level of effectiveness. Secondly, ratings and shown emotions could differ based on event-based leader behavior. To improve this, a more qualitatively method is needed that can show actual behaviors and emotions instead of the survey-based scores EI levels. The EI codebook could be this qualitative framework to overcome

To assess the lack of statistical significance, two analysis were done. First, all hierarchical regressions were done without the control variables. This allows more available degrees of freedom for the analysis between the IV and DV. After running the entire analysis again, still no significance was found ('Expressing emotions': $\beta = -.52$; 'Regulating emotions': $\beta = .42$). Secondly, a Power test was done to determine the needed sample size to reach a certain power and significance (Everitt, 2002). The rule of

thumb for regression with a power of .80 is a sample size of 50 (Cohen, 1992). For the precise calculation, a software application named G*Power is used to determine the required sample size. The result of this analysis was based on a power of .80 and an error probability of .05. The result was a sample size of 47, which is a lot more than the sample used in this research.

5.2 Theoretical implications

The dynamic relationship between leader effectiveness and team performance, is assessed with both hierarchical regression and a mediation analysis method. Statistical significance lacked, but the correlations and regression indicated that meeting effectiveness should mediate this relationship. It is recommended to further assess the full mediation analysis of this relation, for example with more data or using the codebook on existing mediating relations, to validate and verify the same results.

A further theoretical implication is the validity of the EI codebook. This can be done both content-related (does it measure the appropriate content?) or criterion-related (testing relationships to other measures), which can be analyzed with face-, construct- and predictive validity (Cronbach & Meehl, 1955; Nevo, 1985). Based on the recommendations of van Gorp's research, the codebook was changed, and results were still good. It is more reliable but still some small improvement can be made. It is recommended that categories 4, 5, 6 and 10 get at least one more example of its emotional behavior. After these adjustments, the codebook can be tested with different coders and its content can be face-validated.

5.3 Practical implications

The codebook of van Gorp is now implemented again in an observational research. This observation method has shown that during the team meetings, different EI behavior categories are related with the leader effectiveness. These results can be seen as a benchmark, applying this method on future studies should provide the statistical significance if the same research design is used. More meeting research needs to also combine survey and observational data. Comparing both datasets can enhance the accuracy of both the practical use of the EI codebook and the actual leader EI behaviors and effectiveness

A second recommendation is to zoom more into the topics and situations in which EI behaviors are shown. For example, it could be possible that leaders show more emotional behaviors during moment of decision-making or during conflict resolutions. When analyzing the behaviors only during these specific moments, the impact of EI can be assessed more in-depth.

5.4 Limitations

The primarily data source of this research, the team meetings, is also the biggest limitation. First, the team meetings differed a lot with each other. When the EI of leaders is measured, it is dependent on several things. The leader needs to have room to talk or discuss, in order to even show some emotional behaviors in the first place. Huge impact on this are the different topics that are discussed during the meetings. Some meetings were solely based on planning, some looked back at previous decisions.

A second limitation is that no individual, survey-based data of EI level is available. Even though the codebook can be implemented without these self-test scores (van Gorp, 2018), it could provide the necessary validation of the

implementation of the codebook. Also, the data could provide a correlation with leader effectiveness, which could then be tested with regression and then analyzed with the verbal EI codebook.

5.5 Future research

A huge part of emotional behaviors is not measured and analyzed in this study; the followers. These individuals play a huge part in the team effectiveness, besides the impact of the leader. It should be interesting to find out the amount of EI behaviors these followers show during meetings. Finding the potential relation with team effectiveness, and even follower effectiveness. Also, identifying the differences with the leader EI behaviors and how the leader- and follower effectiveness differs. It is possible that certain task-oriented EI behaviors of the leaders have a positive relation with the EI behaviors of the followers? (Hoozeboom & Wilderom, 2015)

Secondly, and more interestingly, the future should focus more on research regarding the EI behaviors of different practical team. For instance, Agile teams are implemented nowadays. Modern times require organizations to shift the way their teams operate, like speed and flexibility to change, to keep up with the changes in the business world (Yusuf, Sarhadi, & Gunasekaran, 1999). This new method requires teams to be self-managed and self-organized, because the function of the leader is dispersed over all team members, and not a single individual (Rising & Janoff, 2000). EI describes the self-managing ability of individuals, so it is interesting to conduct a research between these individual competencies and their impact on team-level effectiveness. Is there a trade-off for the level of EI needed? Or does everyone need a certain baseline of EI in order to operate effectively?

6. CONCLUSION

This research adds insights on the relations between the shown emotional behaviors of team leaders and its contribution towards leader-, meeting- and team effectiveness. Four different Emotional Intelligent Behavior have an influence on the leader effectiveness, of which 'Expressing emotions' and 'Regulating emotions' have the strongest relation. This is based on the implementation of the EI codebook, a coding scheme to observe and analyze the EI behaviors of individuals during team meetings. All different types of behaviors were coded at least once, and the total distribution of behaviors was Expressing emotions 39.40%; Utilizing emotions: 11.73%; Understanding emotions: 20.64%; and Regulating emotions: 28.23%. However, due to a low level of sample size power and lack of survey-based EI data, these relations are not statistically significant. Leader effectiveness has a positive relation with the team performance, and this relation is also positively mediated by the meeting effectiveness.

7. ACKNOWLEDGMENTS

First of all, I would like to thank my first supervisor Jacco Smits for the professional and friendly supervisory during my research and all the helpful feedback throughout the entire process. Secondly, I would like to express my gratitude to Rianne Kortekaas. During the coding phase, she was always available for questions and general helpful tips on "The Observer XT" application. Lastly, many thanks to my fellow coder, Esmee van der Veen, for the collaboration during the data collection and coding of the EI behaviors.

8. REFERENCES

- Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, 22(5), 453-474. doi:10.1016/0022-1031(86)90045-4
- Alfes, K., Truss, C., Soane, E. C., Rees, C., & Gatenby, M. (2013). The relationship between line manager behavior, perceived HRM practices, and individual performance: Examining the mediating role of engagement. *Human Resource Management*, 52(6), 839-859. doi:10.1002/hrm.21512
- Allen, J. A., Lehmann-Willenbrock, N., & Rogelberg, S. G. (2015). *The Cambridge handbook of meeting science*.
- Antonakis, J., Ashkanasy, N. M., & Dasborough, M. T. (2009). Does leadership need emotional intelligence? *Leadership Quarterly*, 20(2), 247-261. doi:10.1016/j.leaqua.2009.01.006
- Avolio, B. J., & Bass, B. M. (1995). Individual consideration viewed at multiple levels of analysis: A multi-level framework for examining the diffusion of transformational leadership. *The Leadership Quarterly*, 6(2), 199-218. doi:10.1016/1048-9843(95)90035-7
- Avolio, B. J., Bass, B. M., & Jung, D. I. (1999). Re-examining the components of transformational and transactional leadership using the multifactor leadership questionnaire. *Journal of Occupational and Organizational Psychology*, 72(4), 441-462. doi:10.1348/096317999166789
- Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, 18(3), 19-31. doi:10.1016/0090-2616(90)90061-S
- Chang, J. W., Sy, T., & Choi, J. N. (2012). Team emotional intelligence and performance: Interactive dynamics between leaders and members. *Small Group Research*, 43(1), 75-104. doi:10.1177/1046496411415692
- Chorney, J. M., McMurtry, C. M., Chambers, C. T., & Bakeman, R. (2015). Developing and modifying behavioral coding schemes in pediatric psychology: A practical guide. *Journal of Pediatric Psychology*, 40(1), 154-164. doi:10.1093/jpepsy/jsu099
- Chrusciel, D. (2006). Considerations of emotional intelligence (EI) in dealing with change decision management. *Management Decision*, 44(5), 644-657. doi:10.1108/00251740610668897
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159. doi:10.1037/0033-2909.112.1.155
- Conger, J. A., & Kanungo, R. N. (1994). Charismatic leadership in organizations: Perceived behavioral attributes and their measurement. *Journal of Organizational Behavior*, 15(5), 439-452. doi:10.1002/job.4030150508
- Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in Web- or internet-based surveys. *Educational and Psychological Measurement*, 60(6), 821-836. doi:10.1177/00131640021970934
- Cooper, A., & Petrides, K. V. (2010). A psychometric analysis of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) using item response theory. *Journal of Personality Assessment*, 92(5), 449-457. doi:10.1080/00223891.2010.497426
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52(4), 281-302. doi:10.1037/h0040957
- Elswick, S. E. (2017). The application of applied behavior analysis to the field of social work: Lessons in data collection and best-practices. In *Data Collection: Methods, Ethical Issues and Future Directions* (pp. 17-46).
- Engleberg, I. N., & Wynn, D. (2007). *Working in groups: Communication Principles and Strategies* (4 ed.). Boston, MA: Pearson.
- Everitt, B. S. (2002). *The Cambridge Dictionary of Statistics* (2 ed. Vol. 17). Cambridge: Cambridge University Press.
- Field, A. (2017). *Discovering Statistics Using IBM SPSS Statistics* (5 ed.). University of Sussex.
- George, J. M. (2000). Emotions and leadership: The role of emotional intelligence. *Human Relations*, 53(8), 1027-1055. doi:10.1177/0018726700538001
- Gibson, C. B., Cooper, C. D., & Conger, J. A. (2009). Do You See What We See? The Complex Effects of Perceptual Distance Between Leaders and Teams. *Journal of Applied Psychology*, 94(1), 62-76. doi:10.1037/a0013073
- Goleman, D. (1998a). The emotionally competent leader. *The Healthcare Forum journal*, 41(2).
- Goleman, D. (1998b). What makes a leader? *Harvard business review*, 76(6), 93-102.
- Hayes, A. F., & Preacher, K. J. (2013). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 451-470.
- Hoogeboom, M., & Wilderom, C. P. M. (2015). Effective leader behaviors in regularly held staff meetings: Surveyed vs. Videotaped and Video-Coded Observations. *Cambridge University Press*, 381-412.
- Jordan, P. J., Ashkanasy, N. M., Härtel, C. E. J., & Hooper, G. S. (2002). Workgroup emotional intelligence. Scale development and relationship to team process effectiveness and goal focus. *Human Resource Management Review*, 12(2), 195-214. doi:10.1016/S1053-4822(02)00046-3
- Jordan, P. J., & Troth, A. C. (2004). Managing emotions during team problem solving: Emotional intelligence and conflict resolution. *Human Performance*, 17(2), 195-218. doi:10.1207/s15327043hup1702_4
- Kozlowski, S. W. J., & Ilgen, D. R. (2006). Enhancing the effectiveness of work groups and teams. *Psychological Science in the Public Interest, Supplement*, 7(3), 77-124. doi:10.1111/j.1529-1006.2006.00030.x
- Lee, C., & Wong, C. S. (2017). The effect of team emotional intelligence on team process and effectiveness. *Journal of Management and Organization*, 1-16. doi:10.1017/jmo.2017.43
- Locke, E. A. (1991). *The essence of leadership*. New York:: Lexington Books.

- Macht, G. A., Nembhard, D. A., & Leicht, R. M. (2019). Operationalizing emotional intelligence for team performance. *International Journal of Industrial Ergonomics*, 71, 57-63. doi:10.1016/j.ergon.2019.02.007
- Mathieu, J., Maynard, T. M., Rapp, T., & Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of Management*, 34(3), 410-476. doi:10.1177/0149206308316061
- Mayer, J. D., & Salovey, P. (1997). *Emotional development and emotional intelligence: Implications for educators*: New York: Basic Books.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2008). Emotional Intelligence: New Ability or Eclectic Traits? *American Psychologist*, 63(6), 503-517. doi:10.1037/0003-066X.63.6.503
- Mayer, J. D., Salovey, P., Caruso, D. R., & Sitarenios, G. (2003). Measuring Emotional Intelligence with the MSCEIT V2.0. *Emotion*, 3(1), 97-105. doi:10.1037/1528-3542.3.1.97
- McGrath, J. E. (1984). *Groups: Interaction and performance* (Vol. 14). Englewood Cliffs, N.J.: Prentice-Hall.
- Meinecke, A. L., Lehmann-Willenbrock, N., & Kauffeld, S. (2017). What happens during annual appraisal interviews? How leader-follower interactions unfold and impact interview outcomes. *Journal of Applied Psychology*, 102(7), 1054-1074. doi:10.1037/apl0000219
- Nevo, B. (1985). FACE VALIDITY REVISITED. *Journal of Educational Measurement*, 22(4), 287-293. doi:10.1111/j.1745-3984.1985.tb01065.x
- Nixon, C. T., & Littlepage, G. E. (1992). Impact of meeting procedures on meeting effectiveness. *Journal of Business and Psychology*, 6(3), 361-369. doi:10.1007/BF01126771
- Offermann, L. R., Bailey, J. R., Vasilopoulos, N. L., Seal, C., & Sass, M. (2004). The relative contribution of emotional competence and cognitive ability to individual and team performance. *Human Performance*, 17(2), 219-243. doi:10.1207/s15327043hup1702_5
- Palmer, B. R., Stough, C., Harmer, R., & Gignac, G. (2009). The Genos Emotional Intelligence Inventory: A measure designed specifically for workplace applications. In *Assessing emotional intelligence: Theory, research, and applications*. (pp. 103-116). New York, NY, US: Springer Science + Business Media.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), 879-903. doi:10.1037/0021-9010.88.5.879
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36(4), 717-731. doi:10.3758/BF03206553
- Rising, L., & Janoff, N. S. (2000). Scrum software development process for small teams. *IEEE Software*, 17(4), 26-32. doi:10.1109/52.854065
- Rogelberg, S. G., Leach, D. J., Warr, P. B., & Burnfield, J. L. (2006). "Not another meeting!" Are meeting time demands related to employee well-being? *The Journal of applied psychology*, 91(1), 83-96. doi:10.1037/0021-9010.91.1.83
- Salas, E., Dickinson, T. L., Converse, S. A., & Tannenbaum, S. I. (1992). Toward an understanding of team performance and training. *Toward an Understanding of Team Performance and Training*, 3-29.
- Schutte, N. S., Malouff, J. M., Hall, L. E., Haggerty, D. J., Cooper, J. T., Golden, C. J., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences*, 25(2), 167-177. doi:10.1016/S0191-8869(98)00001-4
- Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. *Social methodology* 1982(1), 290-312.
- Sundstrom, E., De Meuse, K. P., & Futrell, D. (1990). Work teams: Applications and effectiveness. *American Psychologist*, 45(2), 120-133. doi:10.1037/0003-066X.45.2.120
- van Gorp, A. L. P. (2018). What are the verbal emotionally intelligent behaviors of highly effective leaders? (1), 15.
- Van Mierlo, H., Vermunt, J. K., & Rutte, C. G. (2009). Composing group-level constructs from individual-level survey data. *Organizational Research Methods*, 12(2), 368-392. doi:10.1177/1094428107309322
- Waller, M. J., & Kaplan, S. A. (2018). Systematic Behavioral Observation for Emergent Team Phenomena: Key Considerations for Quantitative Video-Based Approaches. *Organizational Research Methods*, 21(2), 500-515. doi:10.1177/1094428116647785
- Wherry, R. J. S., & Bartlett, C. J. (1982). THE CONTROL OF BIAS IN RATINGS: A THEORY OF RATING. *Personnel Psychology*, 35(3), 521-551. doi:10.1111/j.1744-6570.1982.tb02208.x
- Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *Leadership Quarterly*, 13(3), 243-274. doi:10.1016/S1048-9843(02)00099-1
- Wysocki, T. (2015). Introduction to the special issue: Direct observation in pediatric psychology research. *Journal of Pediatric Psychology*, 40(1), 1-7. doi:10.1093/jpepsy/jsu104
- Yukl, G. (1998). *Leadership in organizations* (4 ed.). Upper Saddle River, NJ: Prentice Hall.
- Yusuf, Y. Y., Sarhadi, M., & Gunasekaran, A. (1999). Agile manufacturing: the drivers, concepts and attributes. *International Journal of Production Economics*, 62(1), 33-43. doi:10.1016/S0925-5273(98)00219-9
- Zaccaro, S. J., & Klimoski, R. J. (2001). The nature of organizational leadership : understanding the performance imperatives confronting today's leaders.
- Zaccaro, S. J., Rittman, A. L., & Marks, M. A. (2001). Team leadership. *Leadership Quarterly*, 12(4), 451-483. doi:10.1016/S1048-9843(01)00093-5

9. APPENDIX

9.1 Appendix A

Example of a Normal P-P plot to test the normal distribution of a variable. When the samples are close to the normal diagonal, the variable can be seen as normal distributed.

