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The Impact of Leader Behavior on Team Processes

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Abstract

The modern work environment is subject to constant change with a notable shift from individual to team-based work structures. This transition necessitates an improved understanding of how managerial actions influence the dynamics within these teams, to optimally align them for success. Despite the substantial research about leader effectiveness and team effectiveness based on organizational performance indicators, it is rather infrequent that the direct influence of leader behavior on teams is explored. This thesis aims to address this gap by answering how leader behaviors impact team processes in the context of German medium to large-scale IT-enterprises. Using a quantitative cross-sectional methodology, individuals working in team-based structures under direct supervision were surveyed. Analyzing data from 94 respondents via hierarchical linear regression analysis, several significant relationships were identified. In general, leader behavior has a strong positive impact on team processes. Furthermore, task-oriented leaders have the greatest positive influence on action processes, while relation-oriented leaders have the greatest positive influence on interpersonal processes. Change-oriented leaders also significantly influence action processes and interpersonal processes, albeit less strongly than their counterparts. These results provide implications for team management practices, emphasizing the importance of leader behavior for aligning team processes in the direction of success.

*Key words: Leader Behavior, Team Processes, IT-Management
Leader Effectiveness, Team Effectiveness*

Table of Content

List of Appendices	iv
List of Abbreviations	v
List of Figures	vi
List of Tables	vii
1 Introduction	1
2 Theoretical Background	3
2.1 Team Processes	3
2.1.1 Definition.....	3
2.1.2 State of Research.....	4
2.1.3 Team Processes Framework.....	5
2.2 Leader Behavior.....	7
2.2.1 Definition and Delineation of Terminology.....	7
2.2.2 State of Research.....	8
2.2.3 Hierarchical Leader Behavior Taxonomy	9
2.3 Relevance of Leader Behavior for the Success of Teams	11
2.4 Research Gap & Problem Statement.....	12
2.5 Research Question	12
2.6 Derivation of Hypotheses	13
2.7 Other Influences.....	17
2.8 Conceptual Framework	19
3 Applied Methodology	20
3.1 Literature Review	20
3.2 Study Design.....	20
3.3 Sample Delimitation	21
3.4 Materials.....	21
3.4.1 Team Processes Measurement (TPM).....	22
3.4.2 German Managerial Practices Survey (GMPS).....	22
3.4.3 German Leader-Member Exchange Scale (LMX)	23
3.4.4 Control Variables	23
3.5 Procedure.....	24
3.6 Data Processing.....	24
3.7 Sample	25
3.8 Quality Criteria	26
4 Results	27
4.1 Descriptive Statistics	27
4.2 Correlations.....	28
4.3 Regressions	30
5 Discussion	37
5.1 Leader Behavior and Team Processes.....	37
5.2 Task Orientation and Action Processes.....	38
5.3 Relation Orientation and Interpersonal Processes.....	40
5.4 LMX and Leader Behavior	41
5.5 Other Influences.....	42
5.6 Outcomes of Change Orientation.....	43
6 Limitations & Further Research	44
6.1 Subjectivity of Results	44
6.2 Missing Time Sensitivity.....	45
6.3 Changing Work Environments	46
6.4 Further Research	47
7 Conclusion	48
References	49
Annex	62
Declaration of Authenticity	viii

List of Appendices

Appendix A	Survey Questionnaire	62
Appendix B	Syntax.....	67
Appendix C	Reliabilities	72
Appendix D	Descriptive Statistics	73
Appendix E	Regression Assumptions H1	76
Appendix E1	Linearity of Regression Coefficients	76
Appendix E2	Normal Distribution of Residuals	76
Appendix E3	Homoscedasticity and Independence of Residuals	77
Appendix E4	Additional Material	77
Appendix F	Regression Assumptions H2	78
Appendix F1	Linearity of Regression Coefficients	78
Appendix F2	Collinearity Diagnostics	79
Appendix F3	Normal Distribution of Residuals	80
Appendix F4	Homoscedasticity and Independence of Residuals	80
Appendix F5	Additional Material	81
Appendix G	Regression Assumptions H3	82
Appendix G1	Linearity of Regression Coefficients	82
Appendix G2	Collinearity Diagnostics	83
Appendix G3	Normal Distribution of Residuals	84
Appendix G4	Homoscedasticity and Independence of Residuals	84
Appendix G5	Additional Material	85
Appendix H	Regression Models H3 - Gender Effect	86
Appendix H1	Regression Model Mutual Motivation.....	86
Appendix H2	Regression Model Emotion Regulation	86
Appendix H3	Regression Model Conflict Management.....	86
Appendix I	Regression Assumptions H4	87
Appendix I1	Linearity of Regression Coefficients	87
Appendix I2	Normal Distribution of Residuals	87
Appendix I3	Homoscedasticity and Independence of Residuals	88
Appendix I4	Additional Material	88

List of Abbreviations

Attitudes Behaviors Cognitions	ABC
Adjusted Coefficient of Determination	adj.R ²
Cronbach's Coefficient Alpha	α
Standardized Regression Coefficient	β
Unstandardized Linear Regression Coefficient	B
Unstandardized Multiple Linear Regression Coefficient.....	Beta
Natural Logarithm of the Standardized Regression Coefficient.....	Beta ln
Chief Executive Officer	CEO
Confidence Interval	CI
Degrees of Freedom	df
F-Statistic	F
German Managerial Practices Survey	GMPS
Input-Mediator-Output	IMO
Input-Process-Output	IPO
Information Technology	IT
Key Performance Indicator	KPI
Lower Limit	LL
Leader-Member-Exchange.....	LMX
Mean	M
Mean Square	M ²
Maximum	Max
Minimum.....	Min
Microsoft.....	MS
Sample Size	N
Probability Value	p
Partial Correlation Coefficient.....	Partial r
Quantile-Quantile	Q-Q
Pearson Correlation Coefficient	r
Multiple Correlation Coefficient	R
Coefficient of Determination	R ²
Standard Deviation	SD
Standard Error	SE
Sum of Squares.....	Σ^2
Statistic.....	Stat
t-Distribution	t
Team Processes Measurement.....	TPM
Upper Limit	UL
Variance Inflation Factor	VIF
Z-Standardized Predicted Residuals	ZPR
Z-Standardized Residuals	ZRE

List of Figures

Figure 1: Team Processes Framework (Marks et al., 2001, p. 364)	6
Figure 2: Hierarchical Leader Behavior Taxonomy (Yukl, 2012, p. 459).....	11
Figure 3: Illustration of Hypothesis 1	14
Figure 4: Illustration of Hypothesis 2	15
Figure 5: Illustration of Hypothesis 3	17
Figure 6: Illustration of Hypothesis 4	18
Figure 7: Illustration of Conceptual Framework.....	19
Figure 8: Illustration of Sample.....	26

List of Tables

Table 1: Correlations	29
Table 2: Hierarchical Regression Analysis of Hypothesis 1	30
Table 3: Hierarchical Regression Analysis of Hypothesis 2	31
Table 4: Hierarchical Regression Analysis of Hypothesis 3	33
Table 5: Hierarchical Regression Analysis of Hypothesis 4	36

1 Introduction

“Leaders find a way for the team to win” - John C. Maxwell (2011, p. 206). This phrase often resonates between corporate boardrooms, project meetings, and other collaborative settings where effective teamwork is key to achieving organizational goals. This thesis seeks to dissect what that *way* encompasses in terms of leader behaviors and their influence on team processes.

Due to rapidly changing work environments the demand for adjustments in the workforce is higher than ever (Vyas, 2022). Right now, there is a peak in the shift from traditional approaches to team-based work structures causing increased focus on the matter from an institutional point of view (Delice *et al.*, 2019). Especially the question of how to lead this new generation of teams is of interest for organizations and their aspirations of prosperity and success (Gren & Ralph, 2022). Due to accelerated technological developments over the past year, like the rise of artificial intelligence, the IT-sector is predestined for research in this area (Zhang *et al.*, 2023).

Literature in both fields, leadership (Hunt & Fedynich, 2019) and team research (Mathieu *et al.*, 2017) is vast and comprehensive. The most investigated issues are leader effectiveness and team effectiveness (Hackman & Wageman, 2012). However, they are mostly researched from the perspective of organizational performance indicators. What appears to be forsaken is the specific way in which leaders contribute to teamwork and how exactly teams achieve their successes. Commonly the answer is sought in the exploration of differences in leadership styles and their impact on teams in general. Although this approach yielded great enhancements it neglects that leadership styles are only abstract categories depending on a theoretical framework (Yukl, 2019). Putting leaders in those imaginary boxes limits our understanding of their true impact. At this point leader behaviors raise attention, since they are more tangible and specific (Kaiser & Overfield, 2010). This distinction makes them a much more reliable source for determining actual leader effectiveness (Yukl & Lepsinger, 2005). When it comes to team research there appears to be a similar problem. While usually the focus is on the achievements of teams, much more potential lies in the actions, strategies and interpersonal dynamics they engage in. According to Marks *et al.* (2001) those interactions can be referred to as team processes. A specific gap between leadership and team research can therefore be identified as the impact leader behaviors have on team processes. By examining this intricate relationship, the present work offers valuable insights that can significantly contribute to the landscape of organizational management. Consequently, this thesis deals with the question:

How does leader behavior impact team processes?

Grounded in Gary Yukl's (2012) hierarchical leader behavior taxonomy and Michelle Marks *et al.*'s (2001) team processes framework, this study aims at closing the research gap as well as gathering more detailed insights into both fields and how they connect. Furthermore, concrete practical implications for organizations should be derived to enhance the current state of research. To achieve this goal an empirical quantitative cross sectional field study is carried out. Due to the aforementioned technological developments, the IT-industry is chosen as the context in which this study is situated. First, several hypotheses are derived from a comprehensive literature review.

H1: Leader behavior has a significant impact on the quality of team processes.

H2: Task orientation is most predictive for efficient action processes.

H3: Relation orientation is most predictive for efficient interpersonal processes.

H4: LMX significantly influences the individual evaluation of leader behavior.

The compulsory data is gathered using a standardized online questionnaire. The participants are selected based on criteria such as industry, work location, team affiliation, and direct supervision. Subsequently, the hypotheses are tested using hierarchical linear regression analyses. This methodology was selected in careful consideration of available time and resources as well as its fit into comparable research approaches (Yukl, 2019).

This thesis examines the impact of leader behavior on team processes. In chapter 2 the theoretical foundations necessary for contextualization are explained. Besides the clarification of key terminology, the utilized constructs for leader behavior and team processes are presented. Furthermore, the hypotheses are derived, and a final conceptual framework is advanced. Chapter 3 encompasses the applied methodology. Among others, specific topics are survey development, data processing and the final sample. In chapter 4 the statistical results of this study are described. In chapter 5 the empirical findings are discussed critically and put in the bigger scholarly context. Chapter 6 is about the limitations of the present study. Specifically, subjectivity of results, missing time sensitivity and changing work environments are evaluated. Based on those shortcomings, recommendations for further research are given. Finally, chapter 7 summarizes the most relevant findings of this work.

2 Theoretical Background

In this chapter, the theoretical foundations of this study are explained. A literature review on team processes and leader behavior is conducted to examine the current state of research. After the identification of a research gap a specific research question and hypotheses are derived to further investigate the topic.

2.1 Team Processes

The following sections provide a definition of team processes, an overview about developments in team research to contextualize this study and a detailed explanation of a team processes framework.

2.1.1 Definition

Teams in and of themselves can be viewed as social systems (Trist, 1981). According to Sheard & Kakabadse (2004) team development is defined by how individuals become well-ordered and supportive systems. Older team development models proposed that this *how* incorporates teams going through different phases over the course of their existence. Psychologist Bruce Tuckman for example named those phases Forming, Storming, Norming, Performing (Tuckman, 1965) and Adjourning (Tuckman & Jensen, 1977). Unique about his approach was providing a broad framework for compartmentalizing specific behaviors happening between individuals when being put together as a working unit. However, due to rapid changes in the working world (Kozlowski & Bell, 2008; Tannenbaum *et al.*, 2012) teams no longer progress steadily through their development. Mathieu *et al.* (2008 p. 462) justify this idea by emphasizing that teams may “vary widely in terms of their history of working together”. They argue that modern teams may consist of some individuals that already worked together while other members are completely new, some teams may meet in person while others do so virtually, some may involve leadership while others manage themselves and during the working phase, the initial team may even split into smaller sub-groups.

While stage models do not necessarily meet the ravages of time anymore, nothing has changed about the idea that something happens between individuals which lets them become a team eventually. Mathieu *et al.* (2008) define that “something” as the behavioral activities and interactions that occur between interdependent individuals and call it team processes. Moreover, they not only define team development as team processes, but also how teams accomplish goals and objectives. Mathieu *et al.*'s conceptualization of team processes emphasizes that they are not fixed entities but evolve over time. This dynamic nature is also described by Delice *et al.* (2019). According to Marks *et al.* (2001) team processes encompass the actions, strategies, and interpersonal dynamics that

team members engage in while working together. They also involve both cognitive and social aspects, including how team members coordinate their efforts, communicate, make decisions, and manage relationships (Kozlowski & Bell, 2008). According to Marks *et al.* (2001) team processes are mechanisms through which teams transform their inputs (e.g., individual skills, knowledge, resources) into outputs (e.g., completed tasks, performance outcomes). Although it seems to be difficult to grasp team processes in terms of a single thought, it is fair to say that they incorporate the complex interactions and behaviors that happen between individual interdependent members along the way.

2.1.2 State of Research

Team research originated from changes in the workplace as well as developments in social psychology (Gale, 2004), and over time became a broad and dynamic discipline recognizing various facets of human interactions (Mathieu *et al.*, 2017). The main purpose of research in the field is providing answers to the questions how teams function how they can be optimized for success, and how individual behaviors and personalities influence group outcomes (Tannenbaum *et al.*, 2012). However, Mathieu *et al.* (2008) emphasize that the nature of team research changed throughout recent years, which led to questioning underlying assumptions. Tannenbaum *et al.* (2012) partly attribute this to globalization and technological developments. Kozlowski & Bell (2008, p. 38) see the cause for this change in “the increasing push toward team-based work structures in organizations and the need to build human capital to respond to unexpected challenges”. Tannenbaum *et al.* (2012) sum up that researchers adapt to changing circumstances regularly but remain with the question of whether this evolution is happening fast enough.

Since the 1980’s the standard approach for researching teams and their outcomes were so called “Input-Process-Output models of team effectiveness” (Landy & Conte, 2013, p. 527). Those IPO frameworks accentuate how teams progress through the work they accomplish. The input component represents composition, characteristics and resources of the team that are present before the collaboration begins. Processes refer to the ways in which outcomes are achieved thus referring to interactions between interdependent members. The output component refers to the results of the team’s work. While IPO models left a lasting impact on the field, their boundaries were reached when research approaches got more complex (Mathieu *et al.*, 2008). The main issue identified was that they failed to distinguish between different kinds of processes (Ilgen *et al.*, 2005). As a solution Input-Mediator-Output (IMO) models made their appearance. Recognizing the vital role of the connectors between inputs and outputs, those models were embraced onwards to specifically target team processes in research (Ilgen *et al.*, 2005). However, at the time there was neither agreement on what exactly team processes are nor how to accurately measure them.

One differentiation that is still used today stems from Hackman & Morris' (1975) framework of taskwork processes (task-related activities) and teamwork processes (interpersonal interactions). Marks *et al.* (2001) picked up on that idea by defining taskwork as *what* teams work on and teamwork as *how* they work on it. They expanded this view of team processes by describing them as the mediating mechanisms between inputs and outputs. They specifically define team processes as „members' interdependent acts that convert inputs to outputs through cognitive, verbal, and behavioral activities directed toward organizing taskwork to achieve collective goals” (Marks *et al.*, 2001, p. 357). Furthermore, they argue that the achievement of goals happens in several smaller IPO cycles. That means that each output can be considered as the input for the next cycle. They refer to those cycles as performance episodes. Understanding such episodes enables the perspective of seeing goal achievement as cycles that happen simultaneously and demand the ability of multitasking. Besides that, Marks *et al.* (2001) admitted that previous authors initiated useful attempts of team processes frameworks but that they were never connected to a dynamic model of team effectiveness, which led them to propose their own solution.

2.1.3 Team Processes Framework

In their work “A temporally based framework and taxonomy of team processes” from 2001, Michelle Marks, John Mathieu and Stephen Zaccaro advanced a team processes framework more practical for research application than previous attempts. This framework consists of three team process dimensions with ten more specific team processes. In contrast to traditional IPO models, Marks *et al.* (2001, p. 360) mention that team members may either be engaged in “activities related directly to goal accomplishment” which they refer to as “action phases” or they “reflect on past performance and plan for future action” which they refer to as “transition phases”. Those phases may not be exactly distinguishable and blend into each other at times since the respective activities can happen parallel to each other. As a third component, there are interpersonal processes, which happen constantly during goal achievement and do not belong to specific episodes. Those processes occur throughout transition phases and action phases and “lay the foundation for the effectiveness of other processes” (Marks *et al.*, 2001, p. 367). In the following the team processes framework is explained and defined.

Transition phases “are periods of time when teams focus primarily on evaluation and planning activities to guide their accomplishment of a team goal or objective” (Marks *et al.*, p. 364). Mission analysis involves the interpretation of the team's mission, tasks, and available resources, fostering a shared understanding of the purpose and generating insights from past performance. Goal specification prioritizes the identification and prioritization of challenging, attainable goals aligned with the mission, ensuring a clear

direction and well-defined timelines. Strategy formulation and planning enable teams to develop plans that align their actions, coordinate their efforts, and navigate through potential obstacles towards mission success, considering both, available resources and potential contingencies.

Action phases “are periods of time when teams conduct activities leading directly to goal accomplishment” (Marks *et al.*, p. 366). Monitoring progress facilitates regular assessment and adjustment to keep the team on track, ensuring members remain aligned with their objectives and achieve desired outcomes. Systems monitoring ensures the smooth operation of technical or operational aspects, proactively managing potential issues to maximize productivity and minimize disruptions. Team monitoring and backup foster a culture of mutual support and collaboration, empowering team members to provide valuable assistance or backup when needed, strengthening teamwork and ensuring individual and collective goal attainment. Coordination acts as a vital process, synchronizing activities, sharing crucial information, and clarifying roles and responsibilities, which optimizes workflow, minimizes conflicts, and enhances overall team effectiveness.

Interpersonal processes “are processes teams use to manage interpersonal relationships” (Marks *et al.*, p. 367). Conflict management plays a pivotal role, as it involves identifying and resolving conflicts through open communication and the pursuit of agreeable solutions. Motivating and confidence building inspire team members through feedback, recognition, and rewards, fostering a positive team climate that motivates individuals to perform at their best. Affect management means recognizing emotions within the team, promoting empathy, understanding, and a harmonious team atmosphere. By skillfully managing emotions, teams reduce tension, facilitate collaboration, and create a cooperative environment that enhances overall performance and well-being.

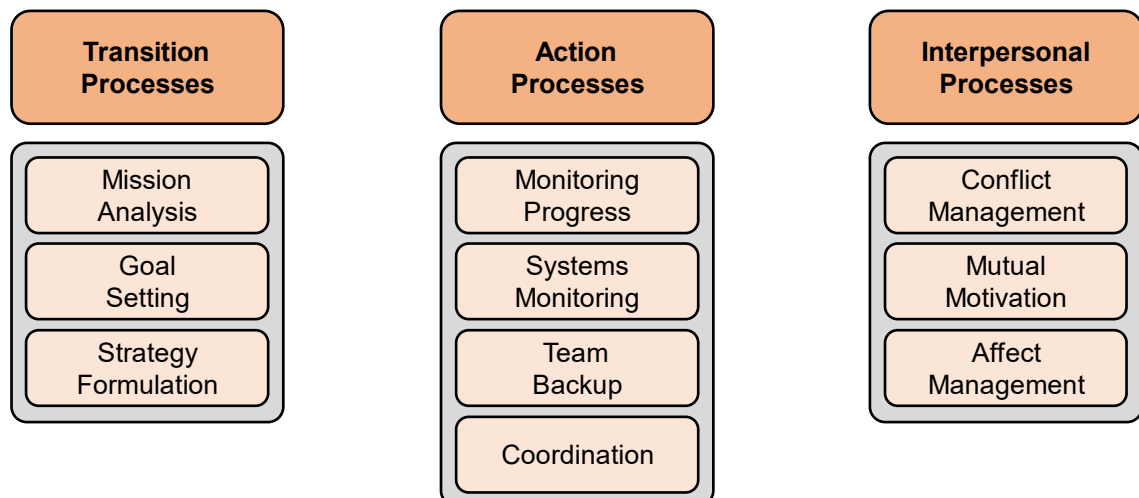


Figure 1: Team Processes Framework (Marks *et al.*, 2001, p. 364)

2.2 Leader Behavior

The following sections offer a delineation of relevant terminology, a definition of leader behavior, an overview about developments in leadership research to contextualize this study and a detailed explanation of a leader behavior taxonomy.

2.2.1 Definition and Delineation of Terminology

When researching leadership, one automatically stumbles across the terms leadership style and leader behavior. Even though both describe different ideas they are not always distinguished carefully enough. Park *et al.* (2018) in their “Critical Review of Global Leadership Literature” even concluded that those labels are often interchanged. When attempting to define leader behavior, first a clear distinction to leadership style is necessary. And even before that one needs to understand what leadership exactly is.

Hogan & Kaiser (2005, p. 171) state, that “leadership is usually defined in terms of the people who are in charge of organizations and their units”. However, Landy & Conte (2013) argue that just inhabiting a leading position does not automatically make a person a leader. While there are difficulties defining leadership specifically due to several definitions, it appears to be easiest to generally define the impact leaders have. Yukl (2012, p. 457) puts it as: “The essence of leadership in organizations is influencing and facilitating individual and collective efforts to accomplish shared objectives”. This definition incorporates a solution to the problem since it does not define leadership specifically but rather generalizes it as the responsibility to enable collective goal achievement. Yukl (2012, p. 457) further clarifies this idea by emphasizing that “leaders can improve the performance of a team or organization by influencing the processes that determine performance”. Put that way, it becomes even clearer that leadership is less about the straight achievement of goals and more about paving the way toward it.

This understanding of leadership enables a distinction between leadership styles and leader behaviors. Leadership styles refer to the general approach or strategy that a leader adopts *to* pave the way and can be seen as a philosophy that guides their interaction with followers. Leader behaviors refer to *how* the way is paved by a leader and incorporate the particular actions taken (Oberer & Erkollar, 2018). While leadership style is more overarching, leader behavior is rather specific. Furthermore, leadership styles can often be recognized through consistent leader behaviors, since specific leader behaviors are naturally more dominant due to the leader’s personal style (Onia & Alshafea, 2022). Summed up, leader behaviors are specific behavioral patterns that are consciously conducted by the leader (Kaiser & Overfield 2010).

2.2.2 State of Research

Leadership was studied intensely over the past decades and became a dynamic phenomenon which does not seem to stop evolving. The current state of research is more extensive than ever, which does not automatically lead to as much agreement on the topic (Benmira & Agbola, 2021). It seems that the more theories are developed, the less consensus there is (Hunt & Fedynich, 2019).

From today's perspective, the roots can be traced back to the 1850s, when Thomas Carlyle first published his world-famous great man theory based on the observation of influential leaders, considering common innate characteristics (Khan *et al.*, 2016). One of the first more specific approaches was Kurt Lewin's model of autocratic, democratic, and laissez-faire leadership styles developed in the 1930s. While autocratic leaders make decisions independently without consulting their employees, democratic leaders pursue input and feedback beforehand. Laissez-faire leadership is characterized by the absence of guidance or supervision (Lewin *et al.*, 1939). In the 1940s and 1950s the Ohio State Leadership Studies made an impact on the field by observing two distinct style categories – consideration and initiating structure - that led to organizational success within a large-scale enterprise (Fleishman *et al.*, 1955). While consideration refers to a leader's focus on building positive relationships and attending to the well-being of their subordinates, initiating structure refers to a leader's emphasis on organizing tasks, setting goals, and ensuring efficient work processes (Halpin, 1956). Around the same time the Michigan Leadership Studies observed two similar style categories – employee-centeredness and production-centeredness – in high-producing and low-producing groups. While employee-centered leaders focus on actual supervisory activities and being supportive, production-centered leaders spent more time on tasks like those performed by their subordinates (Warrick, 1981).

Robert Blake and Jane Mouton's Managerial Grid Model contributed further to the discipline in the 1960s by proposing a measurement grid with two dimensions – concern for people and concern for production – leading to five more general leadership styles laying on the edges as well as in the middle of the grid. While concern for people is about relationships with followers, concern for production refers to goal achievement. The novelty in this approach laid in the interdependence and not the independence of leadership styles (Mouton & Blake, 1964). In the 1980s Bernard Bass and Bruce Avolio published their transactional and transformational leadership theory providing a comprehensive theoretical framework building on the ideas of Burns in 1978 (Bass & Avolio, 1995; Bass, 1999). While transactional leaders contingently reinforce employees, transformational leaders tend to be motivating and inspiring. However, leaders cannot be strictly categorized in one or the other. They are part of a spectrum since they show a frequency of

both factors. Therefore, their “leader profile” involves more of one and less of the other (Bass, 1999, p. 11). Recent years brought up an even bigger variety of accentuated styles like authentic, servant, and ethical leadership (Gardner *et al.*, 2011; Parris & Peachey, 2013; Den Hartog, 2015).

Even though all the ideas about leadership have different emphases and approaches some essential principles have emerged and are common between authors. Generally, two main categories of leadership seem to evolve repeatedly being differentiated by nuances in their definitions (Yukl, 1999). Those categories appear to either incorporate aspects of tasks – autocratic, initiating structure, production-centeredness, concern for production, transactional – or of relations – democratic, consideration, employee-centeredness, concern for people, transformational – (Lewin *et al.*, 1939; Fleishman *et al.*, 1955; Warrick, 1981; Mouton & Blake, 1964; Bass & Avolio, 1995).

Yukl (2002) identified that a huge challenge in leadership research is the lack of agreement on distinct categories. While leadership theory remains to be heavily debated by numerous authors, at least all of them seem to agree that not one specific theory in discussion manages to incorporate all relevant aspects (Benmira & Agboola, 2021). Hunt & Fedynich (2019) therefore hypothesized that each individual leadership theory only evaluates aspects of reality. However, this is not a valid basis for research application since results always depend on the underlying constructs. Yukl (2012) also identified that problem by stating that existing models show more differences in outcomes than similarities. He further explains that some concepts have many categories and others have few, some present a whole range of leadership, and others only areas of it, also some aim for individuals while others aim for groups. He derives that “to be highly useful for designing research and formulating theories, categories should be observable, distinct, measurable, and relevant for many types of leaders” (Yukl, 2012, p. 457). He aimed for a solution by stepping away from leadership styles and leaning towards leader behaviors.

2.2.3 Hierarchical Leader Behavior Taxonomy

In his work “Effective Leadership Behavior - What We Know and What Questions Need More Attention”, Gary Yukl (2012) published his hierarchical leader behavior taxonomy after reviewing decades of research. The taxonomy synthesizes existing concepts from the field incorporating four meta-categories and 15 distinct component behaviors. Most of the earlier approaches fit into the two categories task orientation and relation orientation. However, Yukl (1999) was an early advocate for change orientation as a third category due to the shortcomings of two-dimensional models. Three years later it became a fixed part of his taxonomy (Yukl *et al.*, 2002). Further revisions in the upcoming years led to the integration of external orientation as a fourth category, expanding the

organizational context further into reality by connecting it to the outside world, making the taxonomy more holistic. In the following, the taxonomy is defined and explained.

Task-oriented behaviors “ensure that people, equipment, and other resources are used efficiently to accomplish the mission of a group or organization” (Yukl, 2012, p. 460). Planning involves setting clear objectives, defining tasks, and strategizing to achieve them, providing guidance, and increasing the likelihood of success. Clarifying involves communicating expectations and instructions clearly, fostering a shared understanding and alignment within the team. Monitoring involves regularly checking progress, tracking performance, and providing feedback to keep the team on track and make necessary adjustments. Problem-solving entails addressing challenges and obstacles by employing analytical and creative thinking, fostering collaboration and continuous improvement.

Relation-oriented behaviors “enhance member skills, the leader-member relationship, identification with the work unit or organization, and commitment to the mission” (Yukl, 2012, p. 461). Supporting creates an environment of emotional and instrumental assistance, building trust and job satisfaction. Developing invests in the growth and professional development of team members through coaching, mentoring, and training, enhancing individual performance and organizational success. Recognizing acknowledges and appreciates the efforts and achievements of team members, fostering motivation and a positive work culture. Empowering delegates authority and autonomy, encouraging initiative and accountability among team members.

Change-oriented behaviors “increase innovation, collective learning, and adaptation to external changes” (Yukl, 2012, p. 462). Advocating change involves promoting new ideas, articulating benefits, and addressing resistance to facilitate organizational innovation and growth. Envisioning change entails communicating a clear direction and compelling vision for the future, inspiring commitment and enthusiasm within the team. Encouraging innovation fosters a culture of creativity and experimentation, promoting adaptability to changing circumstances. Facilitating collective learning creates opportunities for knowledge sharing, collaboration, and continuous learning, enhancing collective performance, and cultivating innovation and growth.

External-oriented behaviors “are relevant for providing information about outside events, resources and assistance, and promote the reputation and interests of the work unit” (Yukl, 2012, p. 463). Networking builds relationships outside the immediate context, leveraging external resources and partnerships. External monitoring involves staying informed about market trends and competition, enabling leaders to adapt strategies proactively. Representing as a spokesperson, involves advocating for the organization's interests externally, ensuring its values are upheld and its reputation is maintained.

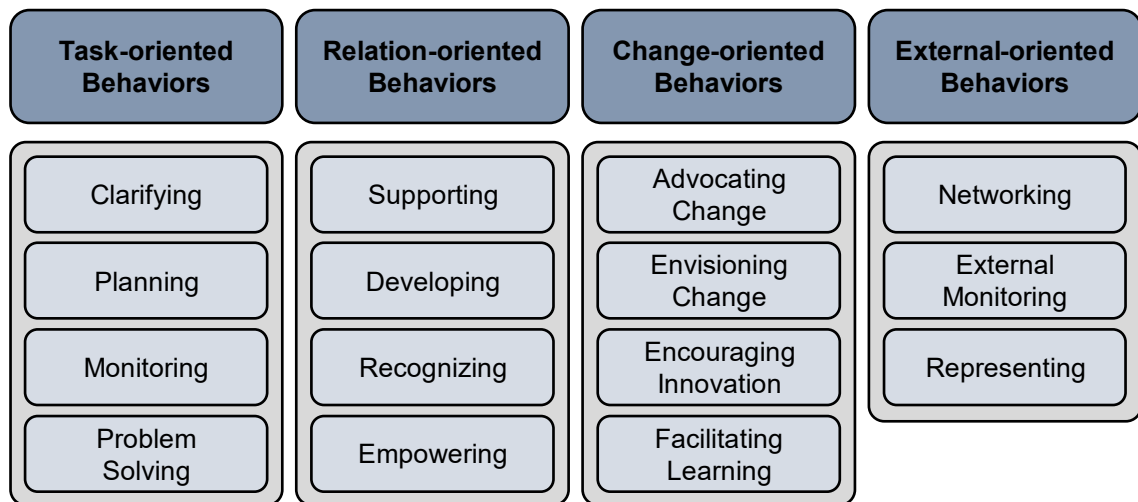


Figure 2: Hierarchical Leader Behavior Taxonomy (Yukl, 2012, p. 459)

2.3 Relevance of Leader Behavior for the Success of Teams

One of the primary purposes of examining leadership and teams is to identify possible improvements in goal achievement. A company's success is directly conditioned by the achievement of smaller corporate goals or even specific tasks. These tasks, in turn, are either completed by individuals or teams. Due to their increasing number in modern businesses this thesis focuses on teams and their ways to success (Honts *et al.*, 2012).

Since there is a logical link between the team's success and the company's success, the question that arises is how a leader adds value to the chain (Landy & Conte, 2013). The answer lies in the way in which the leader influences the team (Maxwell, 2007). Yukl (2012, p. 457) formulates the essence of leadership perfectly as "influencing and facilitating individual and collective efforts to accomplish shared objectives". Kozlowski & Bell (2003) emphasize that shaping team processes is a leader's number one obligation. Thus, a leader's foremost task can be broken down in the responsibility to enable the team to act more productively and efficiently.

Due to their superordinate nature, leadership styles are of limited utility when it comes to predicting team success, as the leader's ability to assist the team varies (Yukl, 2019). According to Fiedler's contingency theory (1967) the effectiveness of leadership styles is determined by the favorability of the situation. This is where leader behaviors come into play. Yukl (2008, p. 4) explains that by promoting the terminology "behavioral flexibility" and argues that effective leaders adapt their behaviors to situational demands. Kaiser & Overfield (2010, p. 107) describe flexible leadership as "the mastery of opposites" and emphasize the importance of complementary behaviors for situation independent organizational success. Knowledge regarding leader behaviors rather than leadership styles appears to be far more intriguing, as behaviors are the tools necessary to shape and align the dynamics in the direction of success (Yukl & Mahsud, 2010).

2.4 Research Gap & Problem Statement

One problem in the realm of leadership is the often-overlooked difference between styles and behaviors. Since leader behaviors are a much more reliable instrument in terms of predicting situation specific leader effectiveness due to their controllability, they should be assigned greater interest in research. Besides that, Yukl (2019) emphasizes that while there is research about specific behaviors and sometimes individual categories, consideration of more dimensional models still lacks.

There also is an issue to be found in teams' literature. After a period of disagreement about IPO models, IMO models attributed more weight to team processes (Illgen *et al.*, 2005). According to Zaccaro *et al.* (2001) this shift in thinking was long overdue since team-based work keeps replacing typical hierarchical structures rapidly. In the following years Marks *et al.* (2001) advanced their team processes framework to enable more considerate research approaches in the field. However, it almost took another two decades for a part of the authors of the original article to establish a comprehensive research instrument based on the theoretical developments made in 2001 (Mathieu *et al.*, 2019). Therefore, real improvements in the realm of team processes – in accordance with the understanding of Marks *et al.* (2001) – were technically only enabled recently.

Combining both fields unravels another insufficiency. Leader and team effectiveness are often researched from the standpoint of organizational performance (Yukl, 2019). While that approach yielded great results, literature that interconnects both fields is still lacking. Borgmann *et al.* (2016) share this opinion and mention that additional components such as team processes should be investigated in leadership studies. Despite the evident influence leaders have on teams, Zaccaro *et al.* (2001, p. 477) state that “there are few conceptual frameworks of how leaders contribute systematically to team effectiveness”.

2.5 Research Question

Summing up the evident scientific gaps, leadership research neglects the importance of leader behaviors, while team research still lacks insights about the importance of team processes for organizational success. Also, studies that link both, would do the fields well individually. This thesis aims to fill the identified research gaps by providing a comprehensive conceptual framework that incorporates both, Yukl's hierarchical leader behavior taxonomy and Marks *et al.*'s team processes framework. Brought to the point, this thesis addresses the question: “How does leader behavior impact team processes?”. This promises an exciting research concept along with results that will advance the current state of leadership and team research. In the subsequent section, meaningful hypotheses are derived from pertinent literature to structure further investigations.

2.6 Derivation of Hypotheses

To answer the research question “How does leader behavior impact team processes?” a literature review is conducted aiming at deriving hypotheses beneficial to evaluation.

Kim & Yukl (1995) explored significant correlations between measures of group effectiveness and specific leader behaviors grouped into task orientation, relation orientation and change orientation. Moreover, they found traditional managerial behaviors like planning, clarifying, problem-solving and informing to yield similarly large correlations as interpersonal behaviors like motivating, inspiring and developing. In line with that, Brown (2003) investigated that task-oriented and relation-oriented leader behaviors explained certain amounts of variance in affective and normative employee commitment, indicating that leader behavior overall improves an employees' willingness to commit to the organization and its goals. Also, Amabile *et al.* (2004) concluded that both, task-oriented leader behaviors, such as monitoring and problem-solving, and relation-oriented leader behaviors, such as recognizing, and empowering, have a direct influence on the performance of subordinates. Their study suggests that these behaviors are closely interwoven and deserve special emphasis in a leader's skillset.

Contrary, Tabernerero *et al.* (2009) claim that task-oriented behaviors have a greater impact on group effectiveness while relation-oriented behaviors cause greater coherence among group members. Wang *et al.* (2011) support the idea of leader behaviors being not that interwoven, by emphasizing that task-oriented behaviors exhibited by CEOs have a direct correlation with organizational performance while relation-oriented behaviors have an indirect effect through influencing employees' attitudes directly. While all researchers agree on the overall impact of leader behaviors there seems to be disagreement about the individual or combined impact they have.

Additionally, Van Seters & Field (1990, p. 40) early on concluded that to perform effectively “the new leader must be visionary and highly adaptable to change”. Also, Baum *et al.* (1998) explored that change-oriented leader behaviors like communicating the company's vision were directly related to venture growth. Considering additional factors, Edmondson (1999) found that leaders through coaching behaviors like empowering, can impact team psychological safety, enabling the team to take bigger risks in their learning behaviors, which ultimately facilitated performance. Edmondson (2002) enhanced her findings further by stating that learning is an interpersonal process directly related to proactively producing change.

Besides that, Ancona & Caldwell (1992) advocated that the growing dependence of organizations on teams necessitates the extension of conventional organizational limits beyond internal processes. Druskat & Wheeler (2003) enhanced this understanding by

stating that another characteristic of effective leaders is their willingness to go beyond organizational boundaries. Those leaders acquire outside information and support that empowers the team on the inside of the organization, highlighting the importance of external-oriented leader behaviors like networking and representing.

The literature reveals that specific behaviors out of all four leader behavior categories can impact certain aspects falling under the three team process dimensions. Subsequently, to further test the overall impact leader behavior has on team processes hypothesis 1 is formulated as follows:

H1: Leader behavior has a significant impact on the quality of team processes.

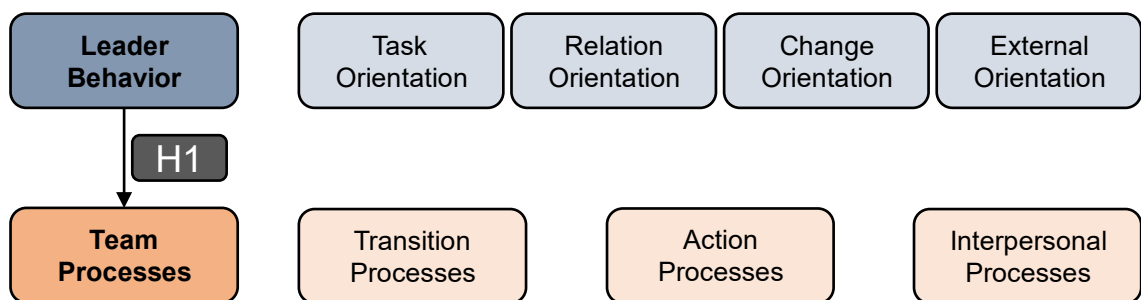


Figure 3: Illustration of Hypothesis 1

Going back to the disagreement of whether leader behaviors impact team processes collectively or individually, Sheard & Kakabadse (2004) state that a key characteristic of effective leaders is their ability to handle opposites. Those leaders can utilize a variety of strategies depending on the specific situation, showcasing a keen awareness and sensitivity to the contextual factors at play. In accordance, Yukl & Lepsinger (2005) found that situational determinants of organizational performance can be influenced by specific leader behaviors and concluded their research in the importance of leader flexibility. These findings suggest an individual consideration of leader behavior categories and their impact on team processes.

In 1990, Larson & Callahan explored that monitoring the performance of employees has the potential to independently influence work behavior by shaping the perceived importance of the task. Also, Weldon *et al.* (1991) discovered that setting challenging group goals, if employee' resources are carefully considered (Latham, 2012), directly impact performance outcomes. They also found that those outcomes are mediated by team action processes like coordination. Furthermore, Stout *et al.* (1999) argue, that since critical decisions are on the daily agenda in the workplace, communication may lead to improved decision-making. They evaluated that shared mental models across team members enhance communication which in turn leads to increases in action processes like team coordination. In line with those findings, Tesluk & Mathieu (1999) emphasize that coordination is directly impacted by leader problem-solving. Moreover, Shipper & Dillard

(2000) found, that while cultural differences influence the importance of various leader behaviors, task-oriented behaviors like planning and clarifying seem to be universal skills across the world.

Moreover, Judge *et al.* (2004) established that initiating structure, which incorporates task-oriented leader behaviors, was strongly related to group performance. Furthermore, Klein *et al.* (2006) found that engaging team members in structuring and planning behaviors, such as communicating the plan and adapting it based on new information, were essential for team success. In their meta-analysis LePine *et al.* (2008) also summarized the vital role of communication and coordination for collective accomplishments.

However, according to McKeown (2012) task-oriented leader behaviors can also be overdone, for example by over structuring processes, an extensive form of planning, leading to detrimental outcomes. One possible countermeasure to take as a leader, identified by Hackman & Wageman (2012) is to disengage in planning behaviors to a degree and to let the team do its own planning by just providing it with all necessary information. In general, task-oriented leaders are effective in situations where the task is complex and requires a high degree of coordination and control (Yukl, 2013).

The literature evaluated, shows a clear connection between task-oriented leader behaviors and team action processes. Consequently, to further investigate this relationship hypothesis 2 is formulated as follows:

H2: Task orientation is most predictive for efficient action processes.

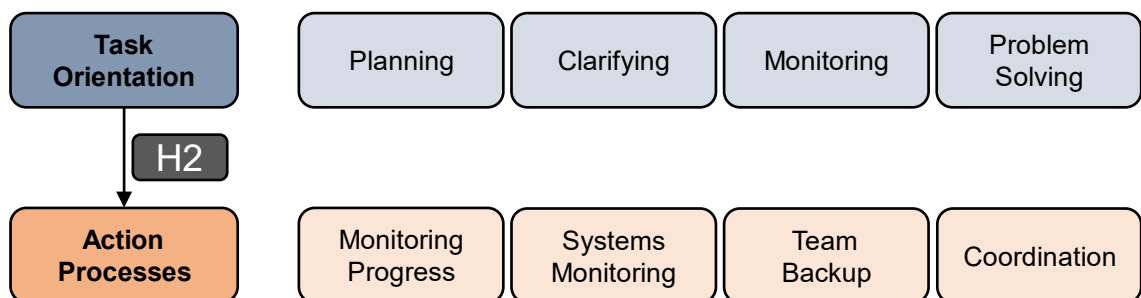


Figure 4: Illustration of Hypothesis 2

Another issue emerging from research are human interactions and how they are affected by leader behavior. According to King (1990), traditional conceptions of leadership emphasized the exercise of power and control over subordinates, whereas contemporary views highlight the significance of empowerment and fostering confidence.

Simons & Peterson (2000) found that different types of team conflict, namely task conflict and relation conflict, are associated with different team outcomes. Weingart & Jehn (2012) identified that task conflict within a team should therefore be actively managed by leaders advocating for collaboration which in turn leads to increased team cohesion and

motivation. Mullen & Copper (1994) also researched team cohesion and concluded that it directly influences team performance. Furthermore, Taberero *et al.* (2009) established that relation-oriented leaders have a significant impact on the development of a relational normative contract among group members, fostering cohesion within the team.

Zhang *et al.*, 2011 state that relation-oriented leader behaviors, enhance team performance by encouraging teams to adopt a cooperative approach to conflict management instead of a competitive one. Due to Römer *et al.* (2012) interpersonal conflict between colleagues negatively affects employee well-being. In their study they found that this psychological distress can be either amplified or reduced by a variety of leader conflict management behaviors. Leaders can have a lasting impact on team effectiveness by facilitating discussions, making conflict constructive. That approach leads to executive decisions being more acceptable to employees (Tjosvold, 2008). In line with that, Somech (2006) explored that participative leaders improve team reflection by giving members the ability to take part in decision-making. Overall, effective leaders involve teams in open-minded discussions and value their ideas (Tjosvold *et al.*, 2014).

Besides conflict related issues, the findings of Morgeson (2005) revealed that supportive coaching was overall associated with positive team perceptions of leader effectiveness. However, Mitchell & Ambrose (2007) found that supervision can also be overdone and turn into abusive leader behaviors negatively impacting interpersonal processes. Tepper (2000) states that abusive supervision leads to less affective commitment among employees. Pyc *et al.* (2017) also mention counterproductive work behaviors leading to detrimental causes for the organization as a consequence. Schaubroeck *et al.* (2011) therefore emphasize the significance of leader behavior in establishing trust, subsequently impacting and guiding team processes in more positive directions.

There also are certain measures aiming at team motivation. Ramlall (2004) argues that motivation is directly increased by non-tangible forms of rewards like recognition. Edmondson (2003) found that leader behaviors like developing and recognizing subordinates helped with creating a speaking up culture around the workplace which turned out to be essential for team success. Gil *et al.* (2005) further emphasize that developing team members skills and abilities improves productivity by enabling them to take on new tasks. Danish & Usman (2010) found that recognition, even in the form of asking employees about their family lives, and empowerment in the form of requesting their participation in decision-making made subordinates courageous and enthusiastic. Similar results were gained in studies considering aspects like recognition, feedback and empowerment (Luthans & Stajkovic, 2012; Hackman & Wageman, 2012; Amundsen & Martinsen, 2015).

The literature evaluated, shows a clear connection between relation-oriented leader behaviors and team interpersonal processes. Consequently, to further investigate this relationship hypothesis 3 is formulated as follows:

H3: Relation orientation is most predictive for efficient interpersonal processes.

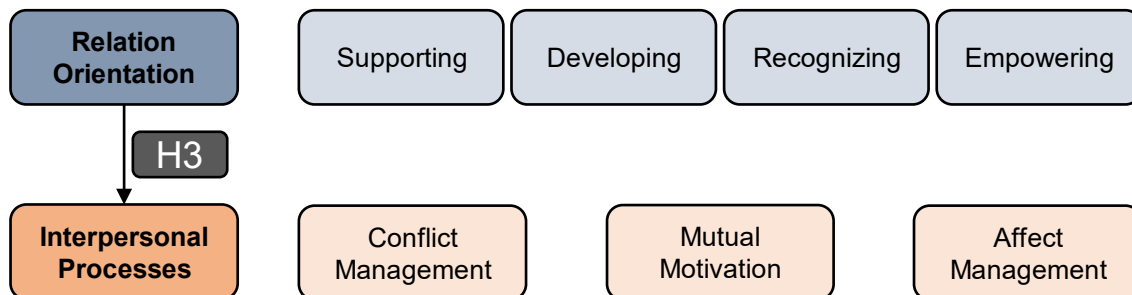


Figure 5: Illustration of Hypothesis 3

2.7 Other Influences

When researching leadership and teams several factors need to be considered to obtain substantial results. For example, when gathering data, the individual relationship between leader and follower (LMX) may tarnish their evaluation of each other (Graen & Uhl-Bien, 1995). LMX theory is a dyadic construct suggesting that leaders develop unique relationships of varying quality with their subordinates which can influence job satisfaction, performance, and organizational outcomes (Schriesheim *et al.*, 1999).

Gerstner & Day (1997) found a significant relationship between LMX and satisfaction with supervision. Also, Hassan *et al.* (2013) argue that empowerment exerted by leaders causes higher scores in LMX and subsequently leads to increased perceptions of leader effectiveness. Kim *et al.* (2010) also suggest that low LMX relationships lead to decreased efforts made by employees. Beyond that, Yukl (2019) evaluated that LMX outcomes are strongly determined by how supportive a leader is. Also, Matta *et al.* (2015) established, that LMX is mostly examined from either the perspective of the leader or the follower, not always leading to meaningful results because when measured from both perspectives disagreement on LMX is evident often. Furthermore, they state that LMX has effects on employee behavior, indicating the same for leader evaluation.

The literature reviewed puts certain emphasis on leader-member exchange relationships playing a vital role in the evaluation of leader and follower related data. Consequently, to be aware of this influence on research results hypothesis 4 is formulated as follows:

H4: LMX significantly influences the individual evaluation of leader behavior.

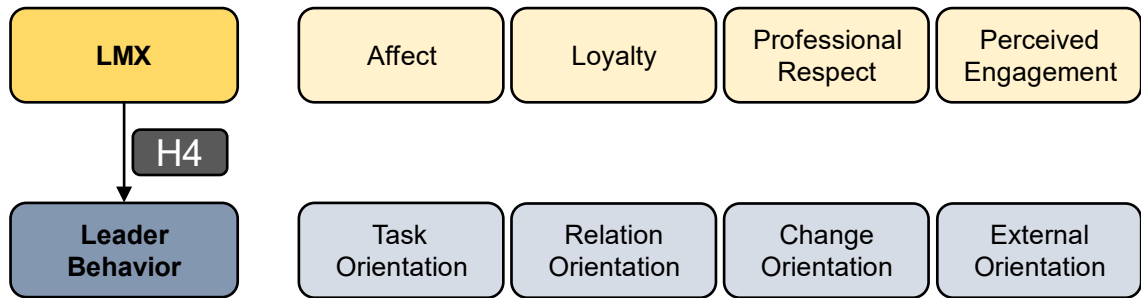


Figure 6: Illustration of Hypothesis 4

Furthermore, there are different types of teams. Sundstrom *et al.* (1990) define several differentiation characteristics. Among others two are organizational culture as well as technology and task design. They also conclude in four main team types of which one is defined as development teams. Part of this category are white collar professionals such as programmers, with characteristics of their work being “longer cycles” as well as “complex and unique outputs” (Sundstrom *et al.*, 1990, p. 121). Hollenbeck *et al.* (2012) divide team types by three distinct characteristics. First, difficulty of member substitution, second, authority differentiation, and third temporal stability. Devine (2002) concluded his research about team classification systems in the fact that there are numerous definitions and names. To make matters tidier, Honts *et al.* (2012) advanced two major categories, namely intellectual and physical teams. They also found that different team types value different team processes more, making a distinction inevitable for research.

Besides that, also team size could be a potential influence factor. According to the literature team size can impact several outcomes like team coordination (Kozlowski & Bell 2003), task completion (Sheard & Kakabadse, 2004), overall team performance (Sharma & Ghosh, 2007), team training interventions (Salas *et al.*, 2008), and team building activities (Klein *et al.*, 2009). Curral *et al.* (2001) for example explored that larger teams had poorer team processes, when operating under increased amounts of pressure. In line with that Kozlowski & Bell (2003) found that interpersonal processes became more complex with an increasing number of team members. In their meta-analysis LePine *et al.* (2008) further determined that team size is a significant moderator between team processes and team effectiveness.

Additionally, age might impact the intended study. Hoffman *et al.* (2020) found that organizations are placing greater importance on understanding how employees from different generations collaborate, given the increasing number of older employees in the workforce. They also explored that younger employees benefit from task-oriented behaviors that provide clarity and enhance their engagement, while older employees require more relation-oriented behaviors, as they are interested in promotions and supervisory roles, needing empowerment, recognition, development, and inclusion in decision-making processes.

Last, also survey participants gender might influence the results. While Jehn (1995) stated that gender had no impact on task conflict within teams, Jehn *et al.* (1997) explored that inner group dissimilarity in gender was significantly connected to perceptions of relation conflicts. Furthermore, Kiser (2015) found that women tend to perceive work related issues like deserving jobs in times of scarcity, attributing personal independence to a job and self-image regarding effectiveness, differently than men. Those issues do not necessarily predict an impact on team processes but indicate it.

2.8 Conceptual Framework

To investigate the topic of interest, utilizing the derived hypotheses to answer the research question of the present study a final conceptual framework is advanced.

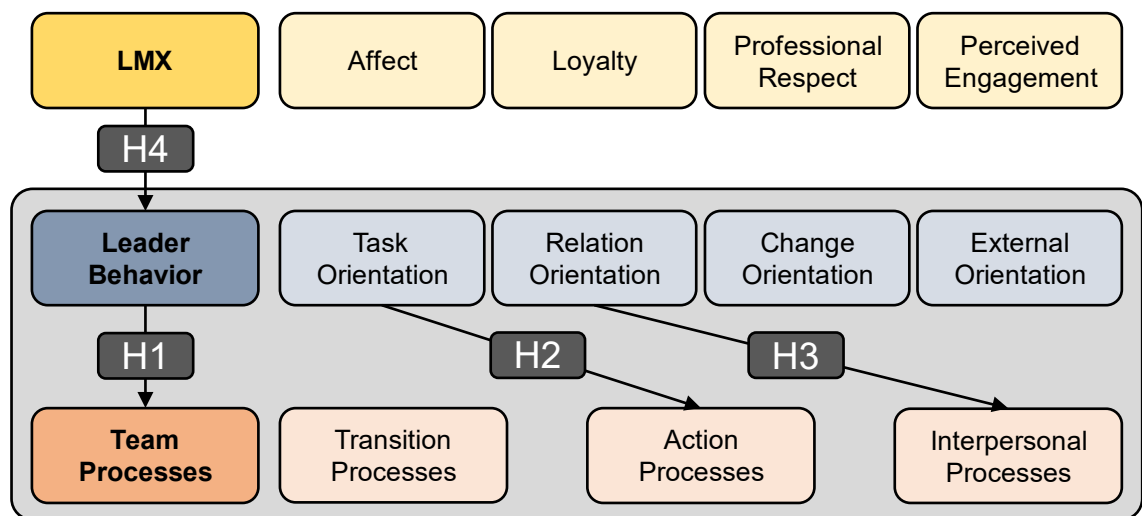


Figure 7: Illustration of Conceptual Framework

3 Applied Methodology

In this chapter, the applied methodology of the conducted study is described, including literature review, study design, survey development, procedure, participants, and data processing prior to analysis.

3.1 Literature Review

To gather knowledge about the topic of interest, a comprehensive literature review was conducted. Mainly Google Scholar and databases like SAGE Journals, APA PsycNet, Emerald Insight, Academy of Management, Wiley, ScienceDirect and JSTOR were searched. Key words like “Leadership” and “Teams”, as well as mixed search terms like “Leader Behavior” and “Team Processes” were evaluated. Also, the authors and the subdimensions of the main constructs were given special consideration. In total, the literature review yielded 217 studies from which 164 are cited in this work.

3.2 Study Design

To answer the research question “How does leader behavior impact team processes?” a quantitative deductive non-experimental research approach was chosen. To test the previously formulated hypotheses, a field study in the form of a cross-sectional study was conducted. A field study involves the observation of measurement parameters in their natural environment. A cross-sectional study entails the one-time measurement of groups or individuals during a specific measurement period (Christensen *et al.*, 2011). It is called cross-sectional because it outlines the differences between individuals or groups, referred to as different sections (Olsen & St George, 2004). Furthermore, a study is considered non-experimental when it solely involves observations rather than deliberate manipulation of selected independent variables (Christensen *et al.*, 2011).

The advantages of a cross-sectional study lie primarily in its efficiency and cost-effectiveness (Gottfredson & Hirschi, 1987; Latza, 2009). Olsen & St George (2004) also emphasize additional benefits compared to other study designs, such as the measurability of larger samples and the inclusion of a variety of variables due to the flexibility it comes along with. Thus, in addition to the main constructs, further control variables can be measured. Consequently, cross-sectional studies offer the capacity to comprehensively capture a broad spectrum of perspectives, including those outside the main constructs, enhancing the richness of the data collected. Christensen *et al.* (2011, p. 336) summarize this study design as “the method of choice when measuring individuals' attitudes, activities, and opinions”, which aligns with the aim of this work.

The chosen study design was implemented through a standardized online questionnaire, which was created and distributed using the online survey tool *SoSci-Survey*. A complete version of the questionnaire can be found in the annex (Appendix A). The questionnaire consisted of four sections: introduction, sample delimitation, materials for measuring main constructs, and control variables. Overall, the survey encompassed nine pages, which will be further explained in the following.

Section one comprised a short introduction. The first page included a personal introduction of the author and informs the participant about intention, research topic, and approximate duration. The second page was dedicated to explaining the type of data collected and the subsequent processing, as well as how anonymity is ensured. On the third page, the participant's consent was requested in line with the discussed matters.

3.3 Sample Delimitation

As described in the theoretical background of this work (2.7), numerous factors can influence study outcomes in team research. To achieve generalizable results, the surveyed sample in this study is highly restricted. Next to the IT-industry due to recent developments (Zhang *et al.*, 2023) special attention is given to intellectual teams (Honts *et al.*, 2012). The target population of this study comprises individuals working in the German IT-industry, who operate within medium to large-scale enterprises in teams of at least three members and are directly supervised by at least one managerial figure.

Section two, in the form of page four included five filter questions to verify the prerequisites. Through four yes-no questions, information was collected regarding the work location, industry, team affiliation, and the existence of at least one leader. The question concerning company size provided the response options "Micro business" (up to 9 employees or up to 2 million euros in annual sales), "Small business" (10 to 49 employees or 2 to 10 million euros in annual sales), "Mid-scale enterprise" (50 to 249 employees or 10 to 50 million euros in annual sales), and "Large-scale enterprise" (more than 250 employees or more than 50 million euros in annual sales). If any of the filter questions were not answered or inadequately in terms of the desired population, the survey was automatically closed with an informative text.

3.4 Materials

The next three pages, five, six, and seven, summed up in section three, contained the measurement instruments for evaluating team processes, leader behavior and leader member exchange quality.

3.4.1 Team Processes Measurement (TPM)

On page five of the questionnaire, team processes were measured using the Team Process Measurement by Fischer (2020). This is the German translation of the English scale developed by Mathieu *et al.* (2019), which is based on the theoretical foundations of team processes by Marks *et al.* (2001).

The German version includes a short version (10 items) and a long version (30 items). Since team processes are the main dependent variable in this study, the long version of the scale was used. All items are positively coded and measured on a Likert scale ranging from 1 to 5, indicating the frequency of various behaviors within the team. A score of 1 represents “not at all”, 2 represents “very little”, 3 represents “to some extent”, 4 represents “to a large extent”, and 5 represents “to a very large extent”.

The 30 items are distributed across three process dimensions: transition processes (9 items), such as “Monitoring our essential tasks”; action processes (12 items), such as “Regularly checking how well we are achieving our team goals”; and interpersonal processes (9 items), such as “Fairly and justly dealing with personal conflict”. Transition processes encompass the sub-scales “Mission Analysis”, “Goal Setting”, and “Strategy Formulation”. Action processes encompass the sub-scales “Monitoring Progress”, “Systems Monitoring”, “Team Backup”, and “Coordination”. Interpersonal processes encompass the sub-scales “Conflict Management”, “Mutual Motivation”, and “Affect Management”. Each of the sub-scales contains 3 items.

For data processing prior to analysis, Fischer (2020) recommends calculating the sub-scales as the average of the associated items, the process dimensions as the average of the associated sub-scales, and a total score as the average of all sub-scales. Implementing this recommendation is essential because it ensures a balanced total score considering the process dimensions, due to the unequal distribution of items.

3.4.2 German Managerial Practices Survey (GMPS)

On page six of the questionnaire, leader behavior was measured using the German Managerial Practices Survey by Fischer (2021). This measurement instrument is based on the taxonomy developed by Yukl (2012) for categorizing leader behavior.

This version comprises 15 positively coded items, which are measured on a Likert scale ranging from 1 to 5, indicating the frequency of various leader behaviors. A score of 1 represents “not at all”, 2 represents “very little”, 3 represents “to some extent”, 4 represents “to a large extent”, and 5 represents “to a very large extent”. The items correspond to the four meta-categories of leader behavior: task orientation (4 items), such as “Ensuring that everyone on the team has a shared understanding of goals”; relation

orientation (4 items), such as “Strengthening collaboration and mutual support within the team”; change orientation (4 items), such as “Mobilizing and advocating for change”; and external orientation (3 items), such as “Gaining support from influential partners outside the team”.

For data processing prior to analysis, Fischer (2021) recommends calculating the sub-scales as the average of the associated items and the meta-categories as the average of the associated sub-scales. However, he does not advise to calculate a total score, as the categories represent different aspects. According to Yukl's (2012) explanations, a total score can still be useful to provide a bigger picture, as each leader holds all categories to a certain degree. When calculating a total score, it is important to consider the unbalanced distribution of items across the meta-categories. Therefore, a total score should be calculated as the average of the meta-categories.

3.4.3 German Leader-Member Exchange Scale (LMX)

On page 7 of the questionnaire, the individual leader-member relationship quality was measured using the German Leader-Member Exchange Scale by Paul & Schyns (2014). The German translation bases on the theoretical foundations of Liden & Maslyn (1998).

The instrument comprises 12 positively coded items that assess the extent of agreement or disagreement with specific statements about the participant's direct supervisor on a Likert rating scale from 1 to 7. The scale endpoints represent 1 as “strongly disagree” and 7 as “strongly agree”. The four sub-scales comprising three items each are: affection, such as “My supervisor is someone you would like to be friends with”; loyalty, such as “My supervisor would defend me against others in the organization if I had made a mistake”; professional respect, such as “I appreciate my supervisor's professional abilities”; perceived engagement, such as “I go beyond what is required in my job description”. For data processing prior to analysis, Paul & Schyns (2014) recommend calculating the sub-scales based on the average of the associated items and an average total score.

3.4.4 Control Variables

In section four as page eight of the questionnaire, participant data on team size, age, and gender was collected. Team size was evaluated as a whole number equal to or greater than three. Also, a maximum team size of 50 individuals was set. In the case of a team size exceeding this limit, participants were requested to report their team size as the upper limit. Theoretically, team sizes above 50 members are possible, but they are significantly less likely to occur and would complicate the later categorization of team sizes (Sharma & Ghosh, 2007). Participants' age was evaluated as a whole number. Participants' gender could be indicated as “male”, “female”, or “diverse”.

3.5 Procedure

After survey construction, a pre-test was conducted with $N = 7$ volunteers to assess comprehensibility. No conspicuities were identified. The average completion took 12 minutes.

Participation in the study was entirely voluntary, and no incentives were offered. To reach the target population, four main approaches were implemented. In addition to activating personal contacts, the questionnaire link was disseminated through social media platforms such as WhatsApp and Facebook. Furthermore, it was placed in relevant forums on career portals like Stepstone, XING, LinkedIn, and Indeed. Additionally, various IT-companies across Germany were contacted via publicly accessible e-mail addresses through classical “cold calling”.

The response rate during early data collection was moderate, likely due to personal contacts and online media. Only later in the process a significant increase occurred, which may be attributed to the cooperation of some IT-companies. Over a duration of 87 days from March 5, 2023, to May 30, 2023, the questionnaire was clicked 364 times.

3.6 Data Processing

A total of 167 interviews were conducted. Among these interviews, the consent form was not filled out or declined in 8 cases. In a further 46 cases, the filter questions were not answered in accordance with the target population requirements. Additionally, 10 interviews were discontinued during the process or had multiple missing responses upon completion. Thus, 103 interviews remained, that met all initial inclusion criteria.

The exclusion of additional datasets was performed with respect to the theoretical considerations of Leiner (2019) regarding survey duration and response patterns. To establish an upper limit for a legitimate completion time, the time measured in the pre-test of 12 minutes was doubled, resulting in a time of 24 minutes. However, it should be noted that participants who took longer should not be excluded, as interruptions during completion may have occurred. The time limit serves only to determine a legitimate average completion time under exclusion of outliers. Under these conditions, the average completion time was 7 minutes and 49 seconds. It is noteworthy that this time is significantly lower than the one determined in the pre-test. This can be explained by the fact that on average, less than 30 seconds were spent on the first three pages covering the topics of information and consent. Despite deviating significantly from the pre-test, the average completion time is considered as representative for this study. To filter out outliers who answered the questionnaire so quickly that meaningful results cannot be ensured, one standard deviation was subtracted from the average completion time to determine a meaningful lower limit. All participants below this threshold were excluded.

In a further step, the datasets were examined for response patterns. Unusual response pattern means for example the exact same response to all items within a scale, especially regarding the extremes. In total, 3 datasets had response patterns, 4 had an insufficient completion time, and 2 encompassed both issues. Consequently, an additional 9 datasets were excluded, resulting in a final sample size of $N = 94$.

In the following the remaining datasets were prepared for analysis using *MS Excel*. While leader behavior and team processes were evaluated on a Likert scale ranging from 1 to 5, leader-member exchange was evaluated on a rating scale from 1 to 7. In preparation of a possible combination of scales during statistical analysis a precautionary scale harmonization was performed. All values of leader-member exchange were converted to a 5-point Likert scale. In general, up to 15 decimals were considered here and in later calculations of new variables to avoid influencing the results through conversion. Subsequently, the authors' recommendations for further calculations were followed.

If not already ensured by their dichotomous nature, the control variables were transformed into categories. This was done to enhance the clarity of the descriptive analysis. However, it should be noted that the original evaluation was not overwritten, as it remains the most interesting for the control function in regression analysis. In the dataset to be analyzed, both the newly formed categories and the original values were included. Gender remained unaffected, as after data preparation, only two categories remained.

Participants' age was divided into four groups: "Gen Z" (25 years or younger), "Gen Y" (26-40 years), "Gen X" (41-55 years), and "Senior citizens" (56 years or older). According to Wang & Peng (2015), these are typical age spans in research. Since there is no specific definition for categorizing team size, the categories were assigned based on reason, as practiced in other studies that evaluated team size as a significant factor influencing different outcomes (LePine *et al.*, 2008; Salas *et al.*, 2008). Thus, team size was divided into three categories: "small" (3-5 members), "medium" (6-20 members), and "large" (21-50 members).

3.7 Sample

The final sample amounts to $N = 94$ survey participants. Of these, $N = 67$ are male (71%), $N = 27$ are female (29%), and $N = 0$ identify as diverse (0%). Participant age ranges from 18 to 63 ($M = 35.52$; $SD = 12.90$). Furthermore, participants were categorized into groups based on their age, resulting in the following distribution: Gen X $N = 16$ (17%), Gen Y $N = 49$ (52%), Gen Z $N = 16$ (17%), and Senior citizens $N = 13$ (14%). Thus, the age group 26-40 is most prevalent in this study.

Team size ranges from 3 to 50 ($M = 12.37$; $SD = 9.50$). After categorization $N = 21$ (22%) participants are part of small teams, $N = 59$ (63%) are part of medium teams, and $N = 14$ (15%) are part of large teams. Thus, medium-sized teams are most prevalent in this study. Additionally, $N = 30$ (32%) of the participants are employed in mid-scale enterprises, while $N = 64$ (68%) are employed in large-scale enterprises. Therefore, employees of large companies are twice as prevalent in this study as those employed in medium-sized companies.

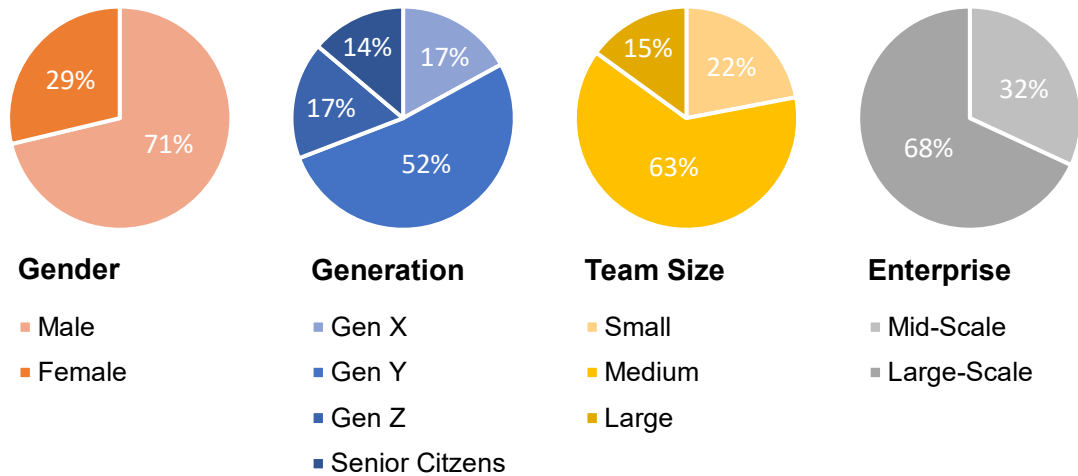


Figure 8: Illustration of Sample

3.8 Quality Criteria

To ensure generalizability of results, the three commonly used quality criteria of objectivity, validity, and reliability were evaluated. Objectivity depends on whether participants were influenced by the researcher (Himme, 2007). Therefore, objectivity is ensured through the study design. Furthermore, for all three research instruments, team processes (Fischer, 2020), leader behavior (Fischer, 2021), and leader-member exchange (Paul & Schyns, 2014), the authors state evidence of convergent and divergent construct validity, as well as criterion validity. To determine reliability, internal consistency was assessed using Cronbach's alpha (Schermelel-Engel & Werner, 2012). The values for the main-scales and sub-scales $\alpha = .73 - .94$ are considered high and indicate psychometric quality of all three constructs. Moreover, they came out like the reliabilities determined by the authors. Details can be attained from the annex (Appendix C).

4 Results

This chapter examines the findings of the empirical study. The statistical analysis was conducted using the software *IBM SPSS 27*. In an initial step, the data was descriptively analyzed. In the further course, intercorrelations were examined. Finally, hierarchical linear regression analyses were calculated to test the hypotheses. All effect sizes were interpreted using the recommendations proposed by Cohen (1988). For exact reproducibility of results, the applied syntax can be obtained from the annex (Appendix B).

4.1 Descriptive Statistics

In the overall sample, moderate ratings were observed for both leader behavior ($M = 3.39$; $SD = 0.65$) and team processes ($M = 3.53$; $SD = 0.60$). Task orientation received the highest rating out of all leader behavior orientations ($M = 3.65$; $SD = 0.87$), while external orientation received the lowest rating ($M = 3.24$; $SD = 0.84$). Interpersonal processes received the highest rating out of all team process dimensions ($M = 3.54$; $SD = 0.76$), while transition processes received the lowest rating ($M = 3.44$; $SD = 0.74$). These initial findings deliver a statistical profile of the primary variables, providing a baseline for further analysis.

When considering gender groups, it was observed that male participants gave slightly higher ratings for team processes and leader behavior than female participants. However, both groups rated relation orientation and change orientation equally. Also, male participants ($M = 3.52$; $SD = 0.89$) evaluated leader-member exchange quality similarly to female participants ($M = 3.54$; $SD = 1.05$). These findings reveal the presence of slight numerical variations in the perception of leader behavior and team processes across gender groups.

The analysis by generations revealed that senior citizens, gave the highest ratings for team processes and leader behavior, followed by Gen X. Participants from Gen Y and Gen Z rated these aspects lower in comparison. Depending on team size, participants working in large teams provided the highest ratings for team processes and leader behavior, followed by participants in small teams, and then in medium-sized teams. It is also noteworthy that participants in small teams gave above-average ratings for leader-member exchange quality ($M = 3.95$; $SD = 0.85$). The data illustrates numerical distinctions based on age demographics and team sizes, presenting a quantifiable differentiation among the sample groups. Further descriptives can be obtained from the annex (Appendix D).

4.2 Correlations

When interpreting the correlation table, one notable observation is that, disregarding the control variables, all variables have significant correlations with each other at a level of $p < .01$. Of no interest are the correlations among the sub-scales of team processes, as they measure the same construct, as well as their correlations with the respective total score, as the total score is derived from them. Same applies to sub-scales and total score of leader behavior. However, it is worth noting that the corresponding sub-scales have similar effect sizes in relation to the total scores, indicating that they have an evenly distributed influence.

Considering the theoretical background regarding hypotheses 1 and 4, several correlations stand out. For instance, a significant strong positive correlation is evident between leader-member exchange and leader behavior $r = .776$; $p < .01$. Furthermore, there is a significant strong positive correlation between leader behavior and team processes $r = .776$; $p < .01$.

Turning to hypotheses 2 and 3, it is observed that each leader behavior orientation has a significant positive correlation with each team processes dimension, albeit effect sizes vary. Action processes correlate strongly with task orientation $r = .596$; $p < .01$, relation orientation $r = .535$; $p < .01$, and change orientation $r = .596$; $p < .01$, as well as moderately to strongly with external orientation $r = .464$; $p < .01$. Interpersonal processes correlate moderately with task orientation $r = .364$; $p < .01$, and external orientation $r = .410$; $p < .01$, as well as strongly with relation orientation $r = .763$; $p < .01$, and change orientation $r = .593$; $p < .01$.

The control variables, team size, and age, do not show any significant correlations with the main constructs. Only gender has a significant weak negative correlation with team processes $r = -.213$; $p < .05$. Regarding the sub-scales of team processes, there are also significant weak negative correlations with transition processes $r = -.204$; $p < .05$ and action processes $r = -.206$; $p < .05$. Further information about all correlations can be obtained in the following from the full correlation table.

Variables	N	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1.TPM	94	3.53	0.60	-												
2.transition_processes	94	3.44	0.73	.77**	-											
3.action_processes	94	3.50	0.59	.90**	.67**	-										
4.interpersonal_processes	94	3.65	0.87	.80**	.30**	.61**	-									
5.GMPS	94	3.39	0.65	.78**	.53**	.69**	.69**	-								
6.task_orientation	94	3.54	0.76	.65**	.68**	.60**	.36**	.69**	-							
7.relation_orientation	94	3.44	0.94	.66**	.29**	.53**	.76**	.84**	.43**	-						
8.change_orientation	94	3.34	0.77	.65**	.42**	.60**	.59**	.83**	.44**	.64**	-					
9.external_orientation	94	3.24	0.84	.48**	.31**	.46**	.41**	.77**	.34**	.52**	.55**	-				
10.LMX	94	3.53	0.93	.63**	.35**	.54**	.63**	.78**	.41**	.76**	.63**	.60**	-			
11.team_size	94	12.37	9.50	.12	.16	.09	.05	.06	.12	.06	.07	-.05	.03	-		
12.age	94	35.52	12.90	.27**	.22*	.26*	.19	.17	.13	.13	.15	.11	.15	.29**	-	
13.gender	94	1.29	0.41	-.21*	-.20*	-.21*	-.13	-.11	-.19	.04	-.05	-.16	.01	-.10	-.15	-

Note. * $p < .05$ (2-sided); ** $p < .01$ (2-sided)

gender: 1 = male; 2 = female

Table 1: Correlations

4.3 Regressions

In the subsequent section, the hypotheses are evaluated via hierarchical linear regression analyses. Key assumptions were tested for each hypothesis individually.

H1: Leader behavior has a significant impact on the quality of team processes.

First, the necessary assumptions for regression analysis were examined. Linearity of regression coefficients was confirmed through graphical analysis (Appendix E1). Normal distribution of residuals was confirmed using the Shapiro-Wilk test and a Q-Q diagram (Appendix E2). Homoscedasticity and independence of residuals were observed in a scatterplot (Appendix E3). Two regression models were computed.

Variables	B	SE	95% CI		β	p
			LL	UL		
Step 1:						
GMPS	.715	.061	.595	.836	.776	<.001
<i>adj. R²</i>	= .597; $F(1, 92) = 138.812$; $p < .001$					
Step 2:						
GMPS	.685	.060	.565	.804	.742	<.001
team_size	.002	.004	-.006	.010	.032	.632
age	.005	.003	-.001	.012	.116	.091
gender	-.148	.086	-.319	.022	-.113	.087
<i>adj. R²</i>	= .618; $F(4, 89) = 38.629$; $p < .001$					

Note. Dependent Variable: TPM, $N = 94$

Table 2: Hierarchical Regression Analysis of Hypothesis 1

The first model, with team processes as the dependent variable and leader behavior as the independent variable, yielded a significant result $F(1, 92) = 138.812$; $p < .001$. In this model, leader behavior significantly explains a large proportion of the variance in the quality of team processes $adj. R^2 = .597$; $F(1, 92) = 138.812$; $p < .001$. Specifically, 60% of the variance can be accounted for. The regression coefficient for leader behavior is 0.715 and significant $t(92) = 11.782$; $p < .001$. An increase of 1 unit in leader behavior is estimated to lead to a corresponding increase of 0.715 units in the quality of team processes. The standardized coefficient indicates a strong positive effect $\beta = .776$; $t(92) = 11.782$; $p < .001$.

The second model, including team processes as the dependent variable and leader behavior as well as the control variables as independent variables, also yielded a significant result $F(4, 89) = 38.629$; $p < .001$. In this model, despite the inclusion of control variables, leader behavior can still significantly explain a large proportion of the variance in

the quality of team processes $adj. R^2 = .618$; $F(4, 89) = 38.629$; $p < .001$. Specifically, 62% of the variance can be accounted for. The regression coefficient for leader behavior is 0.685 and significant $t(89) = 11.386$; $p < .001$. The standardized coefficient indicates a strong positive effect $\beta = .742$; $t(89) = 11.386$; $p < .001$. The regression coefficients for the control variables are not significant. Therefore, leader behavior significantly influences the quality of team processes. Thus, Hypothesis 1 is confirmed.

H2: Task orientation is most predictive for efficient action processes.

First, the necessary assumptions for regression analysis were examined. Linearity of regression coefficients was confirmed through graphical analysis (Appendix F1). Multicollinearity among the independent variables was ruled out based on values for tolerance and variance inflation factor (Appendix F2). Normal distribution of residuals was confirmed using the Shapiro-Wilk test and a Q-Q diagram (Appendix F3). Homoscedasticity and independence of residuals were observed in a scatterplot (Appendix F4). Three regression models were computed.

Variables	B	SE	95% CI		β	p
			LL	UL		
Step 1:						
task_orientation	.468	.066	.337	.598	.596	<.001
<i>adj. R²</i>		= .348; $F(1, 92) = 50.572$; $p < .001$				
Step 2:						
task_orientation	.294	.066	.162	.426	.374	<.001
relation_orientation	.088	.064	-.038	.215	.140	.169
change_orientation	.218	.080	.059	.378	.282	.008
external_orientation	.076	.065	-.053	.206	.108	.246
<i>adj. R²</i>		= .494; $F(4, 89) = 23.671$; $p < .001$				
Step 3:						
task_orientation	.270	.067	.136	.403	.343	<.001
relation_orientation	.102	.064	-.025	.229	.161	.115
change_orientation	.212	.080	.054	.370	.274	.009
external_orientation	.056	.066	-.075	.187	.079	.396
team_size	-.001	.005	-.011	.008	-.019	.802
age	.006	.004	-.001	.013	.134	.088
gender	-.133	.100	-.333	.067	-.102	.188
<i>adj. R²</i>		= .507; $F(7, 86) = 14.690$; $p < .001$				

Note. Dependent Variable: action_processes, $N = 94$

Table 3: Hierarchical Regression Analysis of Hypothesis 2

The first model, with action processes as the dependent variable and task orientation as the independent variable, yielded a significant result $F(1, 92) = 50.572; p < .001$. In this model, task orientation significantly explains a moderate proportion of the variance in the quality of action processes $adj. R^2 = .348; F(1, 92) = 50.572; p < .001$. Specifically, 35% of the variance can be accounted for. The regression coefficient for task orientation is 0.468 and significant $t(92) = 7.111; p < .001$. The standardized coefficient indicates a strong positive effect $\beta = .596; t(92) = 7.111; p < .001$. Thus, the model demonstrates an influence of task orientation on the quality of action processes. In a subsequent model including all leader behaviors, it was examined whether task orientation has the greatest impact on the quality of action processes.

The second model, with action processes as the dependent variable and all leader behaviors as independent variables, also yielded a significant result $F(4, 89) = 23.671; p < .001$. This model explains a significant large and even greater proportion of the variance in the quality of action processes $adj. R^2 = .494; F(4, 89) = 23.671; p < .001$. Specifically, 50% of the variance can be accounted for. Furthermore, two out of the four leader behaviors have a significant impact on the quality of action processes. The regression coefficient for task orientation is 0.294 and significant $t(89) = 4.431; p < .001$. The standardized coefficient indicates a moderate positive effect $\beta = .374; t(89) = 4.431; p < .001$. Additionally, the regression coefficient for change orientation is 0.218 and significant $t(89) = 2.716; p < .01$. The standardized coefficient indicates a weak to moderate positive effect $\beta = .282; t(89) = 2.716; p < .01$. The regression coefficients for relation orientation and external orientation are not significant.

The third model, with action processes as the dependent variable and all leader behaviors as well as the control variables as independent variables, also yielded a significant result $F(7, 86) = 14.690; p < .001$. This model explains a significant large and minimally altered proportion of the variance in action processes $adj. R^2 = .507; F(7, 86) = 14.690; p < .001$. Specifically, 51% of the variance can be accounted for. Like in the previous model, task orientation and change orientation have a significant impact on the quality of action processes. The regression coefficient for task orientation is 0.270 and significant $t(86) = 4.019; p < .001$. The standardized coefficient indicates a moderate positive effect $\beta = .343; t(86) = 4.019; p < .001$. The regression coefficient for change orientation is 0.212 and significant $t(86) = 2.669; p < .01$. The standardized coefficient indicates a weak to moderate positive effect $\beta = .274; t(86) = 2.669; p < .01$. The regression coefficients for relation orientation, external orientation, and the control variables are not significant.

In summary, task orientation and change orientation, even when considering the control variables, have a significant impact on the quality of action processes. However, it should be noted that task orientation has a higher standardized coefficient and a lower significance level compared to change orientation. Thus, task-oriented leader behavior has the greatest predictive power for efficient action processes. Therefore, Hypothesis 2 is confirmed.

H3: Relation orientation is most predictive for efficient interpersonal processes.

First, the necessary assumptions for regression analysis were examined. Linearity of regression coefficients was confirmed through graphical analysis (Appendix G1). Multicollinearity among the independent variables was ruled out based on values for tolerance and variance inflation factor (Appendix G2). Normal distribution of residuals was confirmed using the Shapiro-Wilk test and a Q-Q diagram (Appendix G3). Homoscedasticity and independence of residuals were observed in a scatterplot (Appendix G4). Three regression models were computed.

Variables	B	SE	95% CI		β	p
			LL	UL		
Step 1:						
relation_orientation	.703	.062	.579	.826	.763	<.001
<i>adj. R²</i>		= .578; $F(1, 92) = 128.122$; $p < .001$				
Step 2:						
relation_orientation	.606	.084	.439	.773	.658	<.001
task_orientation	.012	.087	-.162	.186	.011	.890
change_orientation	.220	.106	.010	.431	.195	.041
external_orientation	-.046	.086	-.217	.125	-.045	.595
<i>adj. R²</i>		= .585; $F(4, 89) = 33.799$; $p < .001$				
Step 3:						
relation_orientation	.638	.084	.472	.805	.693	<.001
task_orientation	-.029	.088	-.204	.146	-.025	.743
change_orientation	.221	.104	.014	.428	.195	.037
external_orientation	-.088	.086	-.260	.083	-.086	.309
team_size	-.004	.006	-.016	.009	-.043	.539
age	.005	.005	-.004	.014	.075	.282
gender	-.295	.132	-.556	-.033	-.155	.028
<i>adj. R²</i>		= .602; $F(7, 86) = 21.137$; $p < .001$				

Note. Dependent Variable: interpersonal_processes, $N = 94$

Table 4: Hierarchical Regression Analysis of Hypothesis 3

The first model, with interpersonal processes as the dependent variable and relation orientation as the independent variable, yielded a significant result $F(1, 92) = 128.122; p < .001$. In this model, relation orientation significantly explains a large proportion of the variance in the quality of interpersonal processes $adj. R^2 = .578; F(1, 92) = 128.122; p < .001$. Specifically, 58% of the variance can be accounted for. The regression coefficient for relation orientation is 0.703 and significant $t(92) = 11.319; p < .001$. The standardized coefficient indicates a strong positive effect $\beta = .763; t(92) = 11.319; p < .001$. Thus, the model demonstrates an influence of relation orientation on the quality of interpersonal processes. In a subsequent model including all leader behaviors, it was examined whether relation orientation has the greatest impact on the quality of interpersonal processes.

The second model, with interpersonal processes as the dependent variable and all leader behaviors as independent variables, also yielded a significant result $F(4, 89) = 33.799; p < .001$. This model explains a significant large and minimally altered proportion of the variance in the quality of interpersonal processes $adj. R^2 = .585; F(4, 89) = 33.799; p < .001$. Specifically, 59% of the variance can be accounted for. Furthermore, two out of the four leader behaviors have a significant impact on the quality of interpersonal processes. The regression coefficient for relation orientation is 0.606 and remains significant $t(89) = 11.319; p < .001$. The standardized coefficient indicates a strong positive effect $\beta = .658; t(89) = 11.319; p < .001$. Additionally, the regression coefficient for change orientation is 0.220 and significant $t(89) = 2.078; p < .05$. The standardized coefficient indicates a weak positive effect $\beta = .195; t(89) = 2.078; p < .05$. The regression coefficients for task orientation and external orientation are not significant.

The third model, including interpersonal processes as the dependent variable and all leader behaviors as well as the control variables as independent variables, also yielded a significant result $F(7, 86) = 21.137; p < .001$. This model explains a significant large and minimally altered proportion of the variance in the quality of interpersonal processes $adj. R^2 = .602; F(7, 86) = 21.137; p < .001$. Specifically, 60% of the variance can be accounted for. Like in the previous model, relation orientation and change orientation have a significant impact on the quality of interpersonal processes. The regression coefficient for relation orientation is 0.638 and remains significant $t(86) = 7.629; p < .001$. The standardized coefficient indicates a strong positive effect $\beta = .693; t(86) = 7.629; p < .001$. Additionally, the regression coefficient for change orientation is 0.221 and significant $t(86) = 2.120; p < .05$. The standardized coefficient indicates a weak positive effect $\beta = .195; t(86) = 2.120; p < .05$. The regression

coefficients for task orientation and external orientation are not significant. The same applies to the control variables, team size, and age.

However, gender has a significant influence on the perception of interpersonal processes in this model. The regression coefficient is -0.295 $t(86) = 2.241$; $p < .05$. Considering the coding “male” = 1 and “female” = 2, an increase of 1 unit in gender is estimated to result in a decrease in the quality of interpersonal processes by -0.295 units. The standardized coefficient indicates a weak negative effect. $\beta = -.155$; $t(86) = -2.241$; $p < .05$. This means that whenever both genders evaluate the leader’s relation orientation equally, the quality of interpersonal processes is perceived approximately -0.295 units worse by women than by men.

In summary, relation orientation and change orientation, even under the influence of control variables, have a significant impact on the quality of interpersonal processes. However, it should be noted that relation orientation has a much higher standardized coefficient and a much lower level of significance compared to change orientation. Thus, relation-oriented leader behavior has the greatest predictive power for efficient interpersonal processes. Therefore, Hypothesis 3 is confirmed.

Investigation of the Gender Effect evident in H3

As the evaluation of H3 revealed the influence of gender on the perception of interpersonal processes, it became interesting to further examine the underlying factors. The interpersonal processes dimension encompasses the three sub-scales: “Conflict Management”, “Mutual Motivation”, and “Emotion Regulation”, each consisting of three items. To further examine the influence of gender on the perception of interpersonal processes, three regression models were calculated, involving relation orientation as well as gender as independent variables, and one of the sub-scales at a time as the dependent variable.

The models for “Mutual Motivation” $F(1, 92) = 47.616$; $p < .001$ and “Emotion Regulation” $F(1, 92) = 43.796$, $p < .001$ are significant, but do not provide deeper insights into the matter. More details can be found in the annex (Appendix H1, Appendix H2). The model for “Conflict Management” is also significant $F(1, 92) = 55.704$; $p < .001$. This model explains a significant large proportion of the variance in the perception of conflict management $adj. R^2 = .541$; $F(1, 92) = 55.704$; $p < .001$. Specifically, 54% of the variance can be accounted for. The regression coefficient is -0.375 and significant $t(92) = -2.479$; $p < .05$. The standardized coefficient indicates a weak negative effect $\beta = -.174$; $t(92) = -2.479$; $p < .05$. This means that whenever both genders evaluate the leader’s relation orientation equally, the quality of conflict management is perceived approximately -0.375 units worse by women than by men. More details can be found in the annex (Appendix H3).

H4: LMX significantly influences the individual evaluation of leader behavior.

First, the necessary assumptions for regression analysis were examined. Linearity of regression coefficients was confirmed through graphical analysis (Appendix I1). Normal distribution of residuals was confirmed using the Shapiro-Wilk test and a Q-Q diagram (Appendix I2). Homoscedasticity and independence of residuals were observed in a scatterplot (Appendix I3). Two regression models were computed.

Variables	B	SE	95% CI		β	p
			LL	UL		
Step 1:						
LMX	.541	.046	0.45	.632	.776	.000
<i>adj. R²</i>	= .598; $F(1, 92) = 139.338$; $p < .001$					
Step 2:						
LMX	.538	.046	.446	.630	.772	.000
team_size	.001	.005	-.008	.010	.013	.846
age	.002	.004	-.005	.009	.033	.636
gender	-.151	.095	-.340	.038	-.106	.115
<i>adj. R²</i>	= .599; $F(4, 89) = 35.750$; $p < .001$					

Note. Dependent Variable: GMPS, $N = 94$

Table 5: Hierarchical Regression Analysis of Hypothesis 4

The first model, with leader behavior as the dependent variable and LMX as the independent variable, yielded a significant result $F(1, 92) = 139.338$; $p < .001$. In this model, LMX significantly explains a large proportion of the variance in individual ratings of leader behavior $adj. R^2 = .598$; $F(1, 92) = 139.338$; $p < .001$. Specifically, 60% of the variance can be accounted for. The regression coefficient for LMX is 0.541 and significant $t(92) = 11.804$; $p < .001$. The standardized coefficient indicates a strong positive effect $\beta = .776$; $t(92) = 11.804$; $p < .001$.

The second model, including leader behavior as the dependent variable and LMX as well as the control variables as independent variables, also yielded a significant result $F(4, 89) = 35.750$; $p < .001$. In this model, despite the inclusion of control variables, LMX continues to significantly explain a large and minimally altered proportion of the variance in individual ratings of leader behavior $adj. R^2 = .599$; $F(4, 89) = 35.750$; $p < .001$. Specifically, 60% of the variance can be accounted for. The regression coefficient for LMX is 0.538 and significant $t(89) = 11.623$; $p < .001$. The standardized coefficient indicates a strong positive effect $\beta = .772$; $t(89) = 11.623$; $p < .001$. The regression coefficients for the control variables are not significant. Thus, LMX significantly influences the individual rating of leader behavior. Therefore, Hypothesis 4 is confirmed.

5 Discussion

In this chapter, the results of the present study are critically discussed within the broader scholarly context to check for similarities and differences in comparable studies.

5.1 Leader Behavior and Team Processes

The first hypothesis suggested that leader behavior has a significant influence on the quality of team processes, which was confirmed by hierarchical linear regression analysis. Those findings are in line with Sohmen (2013) who evaluated that the symbiotic relationship between leader behavior and teamwork cannot be overstated. He argues that both are crucial for meeting organizational objectives, as even the most competent leader can face failure if their team does not perform as desired.

Some authors also expanded the context in which leader behaviors and team processes are researched by other factors. Cramton & Webber (2002) for example found that specifically in the IT-industry, geographical dispersion worsens team performance, but that the quality of team processes mediates this relationship. In connection with the results of this study, it can be said that leaders who pay close attention to their behavioral choices can compensate for many disadvantages in global teams. Montano *et al.* (2017) also put mental health in the pool. They concluded that a mix of task-oriented and relation-oriented leader behaviors can enhance employee psychological well-being. Judging by the results of the present study, this can be attributed to the proportion of relation-oriented leader behaviors, as those ensure better interpersonal processes leading to increased employee mental health. Besides that, Briker *et al.* (2020) examined that incongruence in leader – team temporal focus led to increases in both task-oriented and relation-oriented behaviors, while congruence led to a more laissez faire type leadership. Considering the present results this appears logical, since the leader, recognizing the disconnect would be compelled to take a more active role to recapture their influence by aligning the teams focus with their own.

Disregarding other influences, Elkomy *et al.* (2020) found that in a hospital setting leader task orientation, relation orientation and change orientation, all significantly influenced overall quality, rated either by staff or patients. In a similar setting Razavi *et al.* (2022) evaluated the differences in preferred leader behaviors of teams in different work phases. They found that team action processes were influenced by task-oriented leader behaviors like planning (resource management and coordination). Team interpersonal processes were more dependent on relation-oriented leader behaviors like supporting conflict management and encouraging speaking up. However, those research findings were established in physical action teams rather than intellectual teams. Despite that different

team types were investigated, the same results as the ones gathered in this study were deducted. Those findings indicate that even though different team types may put emphasis on different leader behaviors due to situational demands, the respective processes influenced by the specific behaviors appear to be independent of team type.

Furthermore, Yukl *et al.* (2019) hypothesized that task-oriented, relation-oriented and change-oriented leader behaviors would positively impact measures of organizational effectiveness, which they were able to support in their analysis. Besides the three more common orientations, Hassan *et al.* (2018) found that in various types of organizations external-oriented leader behaviors like external monitoring, representing and networking had an impact on follower perceptions of team performance and leader effectiveness. Also, Fanelli & Misangyi (2006) attribute those internal enhancements to external management. While the present study neglected the measurement of performance indicators it yielded an immense impact of leader behavior on team processes. As described in the theoretical background (2.3) the influence teams have on organizational success is undeniable. Therefore, this study enqueues in the body of findings broadening the consensus. In addition to that, Barrasa (2003) explored that leader behaviors explained 67% of the variance in team effectiveness which is close to the 62% found in this study.

All leader behavior orientations have been shown to positively impact all dimensions of team processes in various settings. Leaders play a vital role in shaping team processes by providing guidance, setting expectations, and fostering a conducive work environment. By exhibiting situation appropriate behaviors, leaders enhance team transition and action phases as well as the accompanying interpersonal processes.

5.2 Task Orientation and Action Processes

The second hypothesis suggested that task orientation is most predictive for efficient action processes. Derived from theory and empirically researched also this hypothesis was confirmed by hierarchical linear regression analysis. Those findings are in line with Tabernero *et al.* (2009) who simulated a complex decision-making task in a team experiment and found that task-oriented leader behaviors led to better performance outcomes than relation-oriented leader behaviors. These outcomes appear to be logical, since task-oriented leaders emphasize monitoring and coordination, which especially improves action processes within teams, when the major barrier to success is task complexity. Henkel *et al.* (2019) also simulated a team project and explored that in early stages teams preferred task-oriented behaviors like planning and clarifying. Considering the present study, that can be explained by the help task-oriented leaders provide for team coordination to overcome situational uncertainty, which is most prevalent at the beginning.

Several authors have broadened the scope of research on task-oriented leader behaviors and team action processes by incorporating additional factors into their studies. For example, Curseu (2011) explored the impact of different leader behaviors and their effect on task and relation conflicts within a sample of 37 intellectual teams. He concluded that task conflict alone has a non-significant negative influence on teamwork quality, but that this relationship is significantly moderated by the influence of task-oriented leaders. As shown in the present study those leaders are best at supporting teams when it comes to conquering task related issues. Furthermore, Ma *et al.* (2022) found that task-oriented leaders increase learning among employees. Accordingly, Koeslag-Kreunen *et al.* (2018) found that especially task-oriented behaviors enable leaders to structure and encourage collaborative learning. The present study indicates that this can be attributed to the influence task-oriented leaders have on team processes like monitoring activities, since those provide the information necessary to learn from.

Neglecting other influences, Porter (2005) identified that backing up behaviors, as a part of team action processes, play a major role in overall organizational performance. Due to the present study, task-oriented leaders are especially helpful with reasonably clarifying the importance of backing up for the specific task at hand when team members need to fill in for each other. This helps employees with understanding the situational demand of their efforts better. Besides that, Yukl *et al.* (2019) hypothesized that problem-solving would be the leader behavior most predictive for leader effectiveness. They found their idea to be true and discovered in the process, that clarifying also had a strong influence. Similarly, the present study indicates that problem-solving and clarifying leaders positively impact team action processes which in turn makes them effective in their role. Mikkelsen *et al.* (2015) showed that even across various industries task-oriented leader behaviors remain to consistently influence several critical team outcomes. The present study shows that specifically in the IT-industry part of those critical outcomes are team action processes.

Overall, task-oriented leaders who prioritize goal attainment, performance monitoring, and task related efforts like planning and clarifying tend to facilitate efficient action processes within teams. By providing clear instructions, setting deadlines, and monitoring activities, they ensure that team members stay focused on their tasks, effectively utilize available resources, and complete their assigned responsibilities. Efficient action processes involve activities such as task execution, different types of monitoring, team coordination, and backing up behaviors. Task-oriented leaders tend to put emphasis on exactly these aspects, which makes them so influential in their role.

5.3 Relation Orientation and Interpersonal Processes

The third hypothesis suggested that relation orientation is most predictive for efficient interpersonal processes. Derived from theory and empirically tested also this hypothesis was confirmed by hierarchical linear regression analysis. Those findings are in line with Maxwell (1993) who stated that one key function of leadership is to develop an organizations most valuable asset – people. Accordingly, Nembhard & Edmondson (2009) found that relation-oriented leader behaviors like developing employees, in the form of encouraging them to participate in decision-making, positively impacts the team. Considering the here gathered findings, this can be attributed to leaders ensuring inclusiveness and recognizing their subordinates perspectives, subsequently increasing interpersonal processes.

Multiple authors have expanded research on relation-oriented leader behaviors and team interpersonal processes by including diverse factors in their investigations. In addition to his findings about task-oriented leader behaviors, Curseu (2011) found that within intellectual teams, relationship conflict has a significant negative impact on teamwork quality but is highly moderated by relation-oriented leaders. The present study suggests that those leaders positively impact interpersonal processes, especially team conflict management and therefore reduce relationship conflict which explains the moderation effect. Moreover, Mikkelsen *et al.* (2015) determined that relation-oriented behaviors were best at predicting employee outcomes like satisfaction, motivation, and organizational commitment. The reason for that, as established in the present study, is that relation-oriented leaders significantly impact interpersonal processes like mutual motivation and affect management, making employees feel appreciated by management and their colleagues. Owens & Hekman (2016) further integrated social contagion and leader humility in the team context. They found that leaders exerting humble behaviors, no matter in which behavioral category they fall, foster team processes, by being mimicable. Those leaders were able to enhance constructive interaction, efficient task assignment, and ongoing monitoring. As the present study found, those team behaviors, which are all part of interpersonal processes, can be enhanced best by relation-oriented leaders. Those findings can be summed up as “leading by example”.

Disregarding additional influences, Yukl *et al.* (2019) explored that relation-oriented leader behaviors are the most influential for subordinate job satisfaction. According to the present study the reason for that is the impact those leaders have on team conflict management, mutual motivation and affect management. Borgmann *et al.* (2016) found that relation-oriented and change-oriented behaviors were both significantly related to interpersonal employee determinants which also supports the findings gathered in this study. Finally, Henkel *et al.* (2019) in their study about a simulated team project

experienced that during later project stages, the teams desires shifted towards relation-oriented behaviors like recognition (listening and showing interest) as well as empowerment (autonomy delegation). The present study contextualizes those findings by emphasizing the impact those leaders have on interpersonal processes which appear to be more important to employees in times of situational certainty than uncertainty.

Overall, relation-oriented leaders emphasize building positive relationships, trust, and effective communication among their subordinates. By creating a supportive and empowering, inclusive work environment, those leaders enable the sharing of ideas among team members and promote a sense of belonging. They also encourage interpersonal interactions and facilitate open dialogue to set the team up for constructive conflict management. Providing the tools necessary for enhancing trust, cohesion, and cooperation, they further benefit team interactions. Summed up, relation-oriented leader behaviors are crucial in fostering the quality of interpersonal processes.

5.4 LMX and Leader Behavior

The fourth hypothesis suggested that LMX significantly influences the individual evaluation of leader behavior. As expected, hierarchical linear regression analysis unraveled a major impact. In line with that, many researchers already explored a close relationship between the two constructs in various industries (Yukl *et al.*, 2009). Chen *et al.* (2012) state that high-quality leader-member relationships are associated with better performance, job satisfaction, and organizational commitment. Those employees appear to be better off in general, which indicates a reason for their more favorable leader evaluations.

Furthermore, Dulebohn *et al.* (2012) found that transformational leadership, which encompasses a variety of relation-oriented and change-oriented leader behaviors directly impacts how followers evaluate their personal leader-member relationship. Since those findings clearly show how leader behavior influences LMX, it is reasonable that the present study explored the same relationship, but the other way around. In accordance, Michel & Tews (2015) also concluded that how subordinates perceive leader behaviors depends on their individual leader relationships, which is exactly what was found in the here gathered results.

Overall, the results indicate that a positive and strong leader-member relationship leads to favorable evaluations of leader behavior by subordinates. When leaders establish high-quality relationships characterized by trust and respect, team members are more likely to view them positively. Conversely, a poor leader-member relationship may lead to more negative evaluations of leader behavior.

5.5 Other Influences

Other influencing factors researched in this study were team size, age and gender. According to statistical analysis age had no significant effects on any of the examined relationships. That goes along with Cramton & Webbers (2002) results who specifically evaluated the impact of team size on team processes in the IT-industry and did not find any non-zero relationships between the variables. The same applies to age. Hoffman *et al.* (2020) provide a great explanation by stating that contrary to the common emphasis on generational disparities, research indicates that differences among employees are often influenced by their life and career stages rather than solely being a result of generational variance. In light of these findings, the influence of age and team size on team processes and leader behaviors appears to be not as paramount as previously assumed.

The only control variable that showed a significant influence in one of the research scenarios was gender. According to statistical analysis of H3, whenever both genders evaluate the leader's relation orientation equally, the quality of interpersonal processes is perceived significantly worse by women than by men. This effect was further attributable to the sub-scale conflict management. Therefore, potential factors may be found in the included items "Dealing with personal conflicts fairly and justly", "Showing respect to each other", and "Maintaining harmony within the group". Rahim & Katz (2020) did not specifically find the same phenomenon but concluded their research in women using different strategies in terms of conflict management than men. Female employees tend to employ noncompeting strategies such as integrating, obliging, avoiding, and compromising whereas male employees tend to utilize competing strategies like dominating. In contrast, Tekleab *et al.* (2009) examined team conflict management, team cohesion, and team effectiveness in a longitudinal study involving 53 teams and were not able to identify any differences between the groups. The effects of gender gathered in this study are significant but were only evaluated on a side note. Also, the current body of research is insufficient and does not agree on the topic. Therefore, further research should be carried out with a focus on the conflict management sub-scale and its items to identify more accurate results and insights.

Summed up, team size and age have no significant impact on the perception of team processes and leader behaviors in the IT-industry, reinforcing current scientific findings on the topic. Conversely, the influence of gender on the perceptions of leader behavior, particularly leader relation orientation, and team processes, specifically conflict management is controversial and points to the necessity for more focused investigations to resolve these discrepancies.

5.6 Outcomes of Change Orientation

Unexpectedly change-oriented leader behaviors also had a significant impact on both, action processes and interpersonal processes. These relationships appear to be reasonable in accordance with various other studies. In line with those revelations, Kotter & Cohen (2002) found that leaders often try to propel change by using rational explanations instead of motivational and inspiring visions. They emphasize that major change is only successfully implemented when coming from the heart rather than the mind. The results of the present study underline those findings by showing that change-oriented leaders are exemplary at influencing team members to mutually motivate each other.

Ellis *et al.* (2006) who explored team learning after special events, found that particularly after failures, investigations of all types of actions taken yielded a significant impact. In accordance, Baumard & Starbuck (2005) analyzed the outcomes of large strategic failures in a European telecommunication company and concluded that the inability to learn from past experiences was detrimental to organizational outcomes. The results of the present study show how leader behaviors like facilitating collective learning throughout the team, impact a variety of action and interpersonal processes. Those results explain how decisive change-oriented leaders are for organizational success.

Moreover, Elenkov *et al.* (2005) found that a variety of change-oriented leader behaviors had an influence on organizational innovations, amounting to around 50% of variance explained. This goes along well with the present study, as it became evident that change-oriented leaders who are typically good at effectively communicating the company's vision to subordinates, highly impact team mutual motivation and inspire members to act. Kirkpatrick (2012) additionally showed change-oriented behaviors like leading through vision and values to provide a compelling reason to take the first step in new directions. Gurr & Drysdale (2020) further emphasize that especially in times of crises great adaptability to change is a performance determinant and that leaders are required to provide guidance. These findings are particularly notable amid the past years' public health crisis which brought unexpected challenges and disruptions to the team horizon (Hartwig *et al.*, 2020). In light of the present study, it may be due to such factors that employees learned to appreciate change-oriented leaders in all work-related areas, since they have someone to fall back on in times of great uncertainty.

Overall, the results show that change-oriented leader behaviors are great predictors of effective action and interpersonal processes. Even if other leader behaviors yielded higher influences, change-oriented leader behaviors undeniably impact leader effectiveness in general and should be part of every leader's repertoire.

6 Limitations & Further Research

In this chapter the limitations of the present study are discussed. Based on those shortcomings and the results achieved, recommendations for further research are given.

6.1 Subjectivity of Results

The most pertinent limitation of the present study is subjectivity due to the chosen study design. As evident in H4, leader-member relationships significantly tarnish the evaluation of the direct supervisor's behavior. Also, the effect sizes between leader behavior and team processes appear to be inflated (Podsakoff *et al.*, 2003). This phenomenon is also widely recognized as common method or common source bias (Martin *et al.*, 2015). However, Yukl (2019) argues that survey research employing behavior description questionnaires completed by subordinates is by far the most common approach in the field. Furthermore, actual leader effectiveness was found to be more strongly correlated with how subordinates described leader behavior rather than the leader's own reporting (Kim & Yukl, 1995). Those findings indicate that when forced to decide, leader behavior should be evaluated through follower assessment.

One way to avoid biased data is by following Fischer's (2021) recommendation of gathering employee assessments about a specific leader and calculating an average to get a more realistic rating. As great as this idea is, it comes along with several disadvantages considering the present study. First, the sample would be significantly smaller due to major increases in effort to get whole teams to participate. Second, it would take away researcher anonymity and would also influence objectivity of results. Third, measuring a leader on average would entail measuring team processes on average. While this is recommended by Fischer (2020) as well, there would again be disadvantages in the approach. In case of team processes, in the specific research context of the present study, subjectivity was not a limitation but a necessity. While averages would have provided a more realistic picture of leader behaviors, they would have erased all nuances and extremes in team processes assessment. For example, it would have wiped out the measured gender effect. To examine specific teams, averages might be appropriate, but when looking at teams in general, the applied methodology appeared to fit well.

Another aspect of subjectivity always hides in the chosen measurement instruments. This phenomenon was considered by Park *et al.* (2018) when they investigated how 183 global leader behaviors fitted in Yukl's hierarchical leader behavior taxonomy. They found that the behavioral categories were rather comprehensive, but still did not fully cover 67 specific behaviors. However, they concluded that certain behaviors are universal while others are naturally culture distinct. Summed up the question remains, whether

there are leader behaviors which are not part of Yukl's taxonomy but should be considered in the investigative context of the present work. Nevertheless, this is an unsolvable issue, since "behavior categories are abstractions rather than tangible attributes [...] derived from observed behaviors to organize perceptions of the world [...] but they do not exist in any objective sense, which makes it impossible to establish a set of flawless behavior categories" (Yukl, 2019, p. 49).

6.2 Missing Time Sensitivity

An additional limiting factor neglected in the present study design is the temporal aspect. As evident in the literature, teams go through different phases during their work, suggesting that the significance of various leader behaviors may be contingent upon specific points in time.

Early on Gersick (1989) advocated for revolutionizing traditional group development models, stating that in a highly technological industry out of eight naturally occurring teams over their full lifespan, not one achieved its' goals by evenly taking one planned step after the other. Instead, the teams went through phases of inertia, execution, and completion. Marks *et al.* (2001) agree that traditional approaches of team measurement should be replaced with more modern methods including time sensitivity. They reason this recommendation by stating that various time-related factors, such as deadlines, synchronization of schedules, and coordination efforts, significantly influence the strategies used, the pace of activities, and the development of role assignments necessary for successful performance (Marks *et al.*, 2001, p. 359). In line with that, Delice *et al.* (2019) advanced an ABC (attitudes, behaviors, cognitions) framework including five distinct phases of team development for research purposes, recognizing the importance of evaluation differences throughout the process. They emphasize that team processes vary over time in accordance with the team's current most prominent needs. Furthermore, they state that changes over time could also impact measured effect sizes drastically, recommending researchers to make use of technological enhancements to focus on real time assessment of teams.

Overall, the literature concurs that the consideration of temporal aspects is essential for accomplishing meaningful research results. Considering, that this study investigated individuals without taking specific parameters about their exact team background into account, one could argue, that it is likely, that a broad mixture of different scenarios, phases and episodes was measured. However, that does not make the present study time sensitive at all, but only raises the question if blended data has an impact on the generalizability of results.

6.3 Changing Work Environments

The third limitation of the present study are the ongoing changes in the work environment. Soeari *et al.* (2023) argue that organizations always were and will be subject to change. However, the big problem with the current pace is, that work environments become more complex so rapidly that research almost constantly fails to keep up. In the following some of the critical factors are listed.

In recent years, diversity and inclusion have gained attention, prompting leaders to broaden their behaviors to manage those issues (Homan *et al.*, 2020). Also, team resilience and learning oriented leadership are brought to focus, enabling organizations to be less affected by unexpected disruptions (Hartwig *et al.*, 2020; Lundqvist *et al.*, 2023). Furthermore, virtual teams are on the rise which brings more complexity to traditional understandings of leadership (Mayer *et al.*, 2023). Even though the sample reached in this study may most definitely include participants that work in virtual teams, it is rather expected to be mixed. Since the literature emphasizes team differences due to their degree of virtuality, research should be carried out in separate contexts. For example, Zimmermann *et al.* (2008) found that task-oriented and relation-oriented leader behaviors are regarded as more crucial in virtual, than in interpersonal settings. In accordance, Morrison-Smith & Ruiz (2020) explored that the most cited challenges and opportunities of virtual team processes, are communication, trust and collaboration.

Besides that, researching 354 software development teams Chamtitigul & Li (2021) found that team performance specifically in the IT-industry is relying on the ethicality of leaders. They explored that team processes like information sharing are mediated by ethical leaders, which appears to be especially reasonable considering the increasing number of economic scandals over the past decade. Another thought proposed by Gren & Ralph (2022) was the question of how leadership should look like in an agile software development context, where self-management is prioritized, and traditional leadership marginalized. Assessing different IT-companies, they found that modern leadership in agile teams becomes more of a shared responsibility. In addition to that Mayer *et al.* (2023) found that even if shared leadership is considered, some leader behaviors are more likely to be shared among the team than others.

Over the years, and especially recently, leadership and team research have become broad and comprehensive fields of study, which condition carefully considered research designs. Even if the sample chosen in the present study is rather small due to the variety of selection criteria, there could have been several others included to provide even more reasonable results in an even more specific context.

6.4 Further Research

Given the results obtained in the present study, it is recommended that future research attempts to replicate those findings, with a conscious effort to consider and mitigate the aforementioned limitations. This is crucial to further ensure generalizability of results. It is important to demonstrate that the outcomes are not solely attributable to the research approach. In this context, the measurement parameters of time and changing work environments become even more critical than subjectivity of results. Once it is recognized that subjective results in the realm of team research do not automatically represent limitations but offer more detailed insights into individual thought processes, a more nuanced understanding of teams as a collective of individuals can be developed.

Subsequent research concepts should also integrate KPIs to provide a more comprehensive picture of the relationship between leader behavior, team processes, and organizational outcomes. Such frameworks could help with examining how exactly team processes mediate or moderate the influence leaders have on organizational performance. Researching mediating effects could provide an understanding of how leader behaviors impact team processes, and subsequently affect organizational outcomes, while researching moderating effects could provide an understanding of when the direct effects of leader behavior on organizational outcomes are strengthened or weakened by certain team processes.

Furthermore, greater attention should be paid to transition processes, which were not specifically investigated in this study. In this context, it should be noted that the statistical analyses hinted at significant effects between leader behavior and transition processes which should be explored further. Future research approaches building on the insights gained here should also emphasize the importance of change orientation, as significant relationships with action processes and interpersonal processes were indeed identified. Especially in times of rapid evolving work environments, change-oriented behaviors promise to yield interesting innovations.

7 Conclusion

The present study aimed to answer the research question “How does leader behavior impact team processes?”. To do so four hypotheses were tested statistically via hierarchical linear regression analysis in the context of an empirical quantitative cross-sectional study. The sample encompassed individuals from German IT-teams situated in medium to large-scale enterprises under direct supervision.

The results show that leader behavior significantly impacts team processes in general. Furthermore, task-oriented leader behavior has the largest influence on team action processes, while relation-oriented leader behavior has the largest influence on team interpersonal processes. Moreover, also change-oriented leader behaviors are highly influential when it comes to both action processes and interpersonal processes. However, the results for change orientation are smaller than for task orientation or relation orientation respectively. In this specific context, external orientation yielded no significant influence on either type of processes. In addition to that, the individual leader-member relationship has a significant impact on how subordinates perceive their leader’s behavior. Moreover, employees working in small teams appear to have the best relationships with their supervisors. Besides that, situational factors and time are relevant components in team research and need to be considered carefully.

Subsequently, the results of this study provide various practical implications. Human resource departments are often concerned with leadership styles when it comes to the recruitment of managers. Instead of their personal style, their knowledge about the impact of different behaviors and their ability to change them flexibly in accordance with the teams needs appears to be a far more intriguing selection criterion. Also, the gathered findings may help organizations with tailoring leadership to specific situational demands, fostering team effectiveness to achieve optimal outcomes.

Overall, it can be said that leaders are profoundly influential entities in the organizational context. They harness their impact by being catalysts of efficient teamwork and assume a role of paramount importance by cultivating an environment conducive to exceptional performance. Their behaviors shape how teams approach work, deal with each other and ultimately achieve goals. While leaders themselves are not necessarily involved in specific accomplishments, they are the leveraging force of organizational success.

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Annex

Appendix A Survey Questionnaire

Seite 01 Willkommen

Liebe Studienteilnehmerinnen und Studienteilnehmer,

vielen Dank, dass Sie sich dazu entschieden haben, mich bei meiner aktuellen Studie zu unterstützen. Im Rahmen meiner Masterarbeit an der Hochschule RheinWaal untersuche ich derzeit den Zusammenhang zwischen Führungsverhaltensweisen und Team Prozessen.

Die Bearbeitungsdauer des Fragebogens wird ca. 10 Minuten Ihrer Zeit beanspruchen. Alle Daten werden anonym erhoben und nicht an Dritte weitergegeben. Die Daten werden auf SoSciSurvey gesammelt und ausschließlich für wissenschaftliche Zwecke verwendet. Die Umfrage ist freiwillig und kann jederzeit, ohne Angabe von Gründen, abgebrochen werden. Bei den kommenden Fragen gibt es keine „richtigen“ oder „falschen“ Antworten. Bitte beantworten Sie daher jede einzelne Aussage ehrlich.

Im Folgenden informiere ich Sie über den Umgang mit Ihren personenbezogenen Daten und bitte um Ihre Zustimmung zur Teilnahme an meiner Studie sowie zur Verwendung Ihrer Daten für die angegebenen Zwecke. Bitte lesen Sie sich die Erklärung sorgfältig durch. Bei Rückfragen oder Verständnisschwierigkeiten können Sie sich gerne bei mir Sven Langer (sven.langer@hsrw.org) - melden.

Vielen Dank für Ihre Teilnahme!

Seite 02 Erklärung

Welche Daten werden erhoben?

Im Rahmen dieser Studie werden folgende Daten erhoben: Sozio demografische Daten (Alter, Geschlecht, höchster Bildungsabschluss), Fragen zu Ihrer derzeitigen Beschäftigung (Branche, Unternehmensgröße, Vorhandensein von Vorgesetzten, Vorhandensein eines Teams, Größe des Teams), Einschätzung zu Verhaltensweisen Ihrer Führungskraft, Beziehung zu Ihrer Führungskraft, Einschätzung von Prozessen innerhalb Ihres Teams.

Was passiert mit den Daten?

Alle erhobenen Daten dienen ausschließlich wissenschaftlichen Zwecken und werden einmalig, nur für die vorab genannte Untersuchung verwendet. Nachdem Sie den Fragebogen beantwortet haben, werden die Daten in anonymisierter Form in ein Datenverarbeitungsprogramm übertragen und ausgewertet. Die erhobenen Daten werden nicht auf Einzelfallebene, sondern ausschließlich auf aggregierter Ebene (bspw. Mittelwerte und Korrelationen) ausgewertet. Die erhobenen Rohdaten werden bis zu zehn Jahre lang geschützt aufbewahrt (Empfehlung der Deutschen Forschungsgemeinschaft) und nur berechnete Personen erhalten Zugriff zu diesen. Berechnete Personen sind die Studierenden dieses Projektes [siehe unten]. Alle Personen, die an der Verarbeitung der Daten beteiligt sind, werden schriftlich zur Einhaltung der datenschutzrechtlichen Bestimmungen verpflichtet.

Ihre Teilnahme an dieser Studie ist freiwillig. Lehnen Sie die Teilnahme ab, entstehen Ihnen hieraus keine Nachteile. Bei Bedarf kontaktieren Sie mich gerne (sven.langer@hsrw.org).

Wenn Sie mit dem Vorhaben einverstanden sind, akzeptieren Sie bitte die nachfolgende Einverständniserklärung. Ich danke Ihnen für Ihre Mitwirkung und Ihr Vertrauen in diese Arbeit!

Mit freundlichen Grüßen

Sven Langer

Seite 03 Einverständniserklärung

Einverständniserklärung zur Teilnahme und zur Verwendung personenbezogener Daten im Rahmen dieser Studie.

Über Forschungsziele, Datennutzung und Datenschutz wurde ich in den vorherigen Abschnitten informiert. Diese Abschnitte habe ich gelesen und verstanden. Ich erkläre hiermit, dass ich vor den Datenerhebungen die Möglichkeit hatte, Fragen zu stellen. Eventuelle Fragen wurden vollständig beantwortet. Mir ist bewusst, dass meine Teilnahme an der Studie vollkommen freiwillig ist und ich bei einer Verweigerung meiner Einwilligung keinerlei Nachteile erleide. Meine Einwilligung kann ich jederzeit mit Wirkung für die Zukunft widerrufen, ohne dass dies einer Begründung bedarf. Im Fall eines Widerrufs werden meine personenbezogenen Daten gelöscht.

EE01_01 Ich bin damit einverstanden, an der Studie teilzunehmen und stimme auch der Erhebung und Verarbeitung der personenbezogenen Daten im Kontext der Studie zu:
Ja, Nein
1 aktive(r) Filter: Wenn eine der folgenden Antwortoption(en) ausgewählt wurde: 2, -9 - Dann nach dem Klick auf "Weiter" den Text X002 anzeigen und das Interview beenden

Seite 04 Auswahlfragen

AF01_01 Arbeiten Sie in der IT-Branche?
Ja, Nein
1 aktive(r) Filter: Wenn eine der folgenden Antwortoption(en) ausgewählt wurde: 2, -9 - Dann nach dem Klick auf "Weiter" den Text X002 anzeigen und das Interview beenden

AF02_01 Befindet sich Ihr derzeitiger Arbeitsstandort innerhalb Deutschlands?
Ja, Nein
1 aktive(r) Filter: Wenn eine der folgenden Antwortoption(en) ausgewählt wurde: 2, -9 - Dann nach dem Klick auf "Weiter" den Text X002 anzeigen und das Interview beenden

AF03_01 Sind Sie bei der Arbeit Teil eines Teams (mindestens 3 Personen)?
Ja, Nein
1 aktive(r) Filter: Wenn eine der folgenden Antwortoption(en) ausgewählt wurde: 2, -9 - Dann nach dem Klick auf "Weiter" den Text X002 anzeigen und das Interview beenden

AF04_01 Gibt es mindestens eine für dieses Team verantwortliche Person? (z.B. Team LeiterIn, Vorgesetzte/r)
Ja, Nein
1 aktive(r) Filter: Wenn eine der folgenden Antwortoption(en) ausgewählt wurde: 2, -9 - Dann nach dem Klick auf "Weiter" den Text X002 anzeigen und das Interview beenden

AF05_01 Welche Größe hat das Unternehmen, in dem Sie arbeiten ungefähr?
Kleinstunternehmen (bis 9 Beschäftigte, oder bis 2 Millionen Euro Jahresumsatz), Kleines Unternehmen (10 bis 49 Beschäftigte, oder 2 bis 10 Millionen Euro Jahresumsatz), Mittleres Unternehmen (50 bis 249 Beschäftigte, oder 10 bis 50 Millionen Euro Jahresumsatz), Großes Unternehmen (mehr als 250 Beschäftigte, oder mehr als 50 Millionen Euro Jahresumsatz)
1 aktive(r) Filter: Wenn eine der folgenden Antwortoption(en) ausgewählt wurde: 1, 2, -9 - Dann nach dem Klick auf "Weiter" den Text X003 anzeigen und das Interview beenden

Seite 05 Team Prozesse

Ziel dieses Teils der Befragung ist es, Ihre Einschätzung der Zusammenarbeit in Ihrem Team zu erfassen. Kreuzen Sie bitte jeweils das Feld an, das am besten beschreibt, inwieweit Sie der jeweiligen Aussage zustimmen. In welchem Umfang arbeitet unser Team aktiv an den folgenden Aufgaben:

1=überhaupt nicht, 2=sehr wenig, 3=zum Teil, 4=in hohem Maße, 5=in sehr hohem Maße, 9=nicht beantwortet

TP01_01	Monitoren unserer wesentlichen Aufgaben.
TP01_02	Monitoren der zentralen Herausforderungen, von denen wir erwarten, dass wir uns ihnen stellen müssen.
TP01_03	Festlegen der Ressourcen, die wir brauchen, um erfolgreich zu sein.
TP01_04	Setzen von Zielen für das Team.
TP01_05	Sicherstellen, dass jeder im Team unsere Ziele eindeutig versteht.
TP01_06	Verknüpfen unserer Ziele mit der strategischen Ausrichtung der Organisation.
TP01_07	Entwickeln einer übergeordneten Strategie, die unser Handeln leitet.
TP01_08	Ausarbeiten von Alternativplänen („wenn X– dann Y“), um mit ungewissen Situationen umzugehen.
TP01_09	Erkennen, wann an einem gegebenen Arbeitsplan festgehalten und wann ein anderer herangezogen werden sollte.
TP01_10	Regelmäßiges Überprüfen, wie gut wir unsere Teamziele erreichen.
TP01_11	Einsetzen klar definierter Kennwerte, um unseren Fortschritt zu bewerten.
TP01_12	Rechtzeitiges Einholen von Rückmeldung von unseren Stakeholdern darüber, wie gut wir unsere Ziele erreichen.
TP01_13	Überwachen und Verwalten unserer Ressourcen (finanzielle Ressourcen, Ausstattung, etc.).
TP01_14	Überwachen wichtiger Aspekte unserer Arbeitsumgebung (z.B. Inventar, Ausstattung, Prozessablauf, Informationsfluss).
TP01_15	Beobachten des Geschehens und der Gegebenheiten außerhalb des Teams, die Einfluss auf unsere Tätigkeiten haben.
TP01_16	Entwickeln von Standards für eine annehmbare Leistung der Teammitglieder.
TP01_17	Ausgewogenes Verteilen des Arbeitspensums unter den Teammitgliedern.
TP01_18	Gegenseitiges Unterstützen, wenn Hilfe gebraucht wird.
TP01_19	Gut miteinander kommunizieren.
TP01_20	Reibungsloses aufeinander abstimmen unserer Arbeitsbemühungen.
TP01_21	Abstimmen unserer Tätigkeiten.
TP01_22	Faires und gerechtes Umgehen mit persönlichen Konflikten.
TP01_23	Einander Respekt zeigen.
TP01_24	Aufrechterhalten der Harmonie in der Gruppe.
TP01_25	Stolz auf unsere Leistungen sein.
TP01_26	Entwickeln von Vertrauen in die Fähigkeit unseres Teams, gute Leistungen zu erbringen.
TP01_27	Gegenseitiges Ermutigen unser allerbestes zu geben.
TP01_28	Teilen eines Gefühls der Zusammengehörigkeit und des Zusammenhalts.
TP01_29	Mit Stress umgehen.
TP01_30	Bewahren eines guten emotionalen Gleichgewichts im Team.

Seite 06 Führungsverhalten

Bitte geben Sie in diesem Teil der Befragung an, in welchem Umfang Ihre direkte Führungskraft / Team Leitung (im Falle mehrere Personen fokussieren Sie sich bitte auf eine) die folgenden Verhaltensweisen zeigt:

1=überhaupt nicht, 2=sehr wenig, 3=zum Teil, 4=in hohem Maße, 5=in sehr hohem Maße, 9=nicht beantwortet

FV01_01	Sicherstellen, dass alle im Team ein geteiltes Verständnis der Ziele haben.
FV01_02	Sicherstellen, dass alle im Team die Verantwortlichkeiten und Prozesse verstanden haben.
FV01_03	Einsetzen klar definierter Kriterien, um den Fortschritt zu bewerten.
FV01_04	Rechtzeitiges Eingreifen, wenn Probleme auftreten.
FV01_05	Stärkung der Zusammenarbeit und gegenseitigen Unterstützung im Team.
FV01_06	Berücksichtigung individueller Bedürfnisse der Teammitglieder.
FV01_07	Ehrliche Wertschätzung, wenn schwierige Aufgaben gemeistert wurden.
FV01_08	Zielgerichtete Entwicklung der Teammitglieder (z. B. Kompetenzen, Karriere).
FV01_09	Mobilisieren und Werben für Veränderungen.
FV01_10	Überzeugende Kommunikation einer greifbaren Vision, wohin sich das Team entwickelt.
FV01_11	Ermutigen, bestehende Lösungen kritisch zu hinterfragen und weiterzuentwickeln.
FV01_12	Sicherstellen, dass aus erfolgskritischen Fehlern konsequent Verbesserungen abgeleitet werden.
FV01_13	Gewinnen von einflussreichen Partnern außerhalb des Teams, die uns unterstützen.
FV01_14	Beobachten von Entwicklungen außerhalb des Teams, um Chancen und Risiken zu identifizieren.
FV01_15	Angemessenes Vertreten des Teams nach Außen, ohne sich selbst in den Vordergrund zu drängen.

Seite 07 Führungsbeziehungsqualität

In diesem Teil der Befragung werden Fragen zu Ihrem bzw. Ihrer unmittelbaren Vorgesetzten gestellt. Kreuzen Sie bitte bei jeder Frage die für Sie passende Zahl an. Folgen Sie dem ersten Impuls. Es gibt keine richtigen und falschen Antworten, keine guten und schlechten.

1=stimme überhaupt nicht zu, 7=stimme vollständig zu,-9=nicht beantwortet

LM01_01	Mein/e Vorgesetzte/r ist ein Mensch, den man gern zum Freund hätte.
LM01_02	Ich mag meine/n Vorgesetzte/n als Mensch sehr.
LM01_03	Es macht viel Spaß, mit meiner/m Vorgesetzten zu arbeiten.
LM01_04	Mein/e Vorgesetzte/r würde mich gegenüber anderen im Unternehmen verteidigen, wenn ich einen wirklichen Fehler gemacht hätte.
LM01_05	Mein/e Vorgesetzte/r verteidigt meine Handlungen gegenüber einer/m Höhergestellten, auch wenn er/sie kein vollständiges Wissen über die fragliche Angelegenheit hat.
LM01_06	Mein/e Vorgesetzte/r würde mich verteidigen, wenn ich von anderen angegriffen würde.
LM01_07	Ich schätze die beruflichen Fähigkeiten meiner/s Vorgesetzten.
LM01_08	Ich respektiere das Wissen und die Kompetenz meiner/s Vorgesetzten bezüglich seiner/ihrer Tätigkeit.
LM01_09	Ich bin vom Wissen, das mein/e Vorgesetzte/r bezüglich seiner/ihrer Arbeit hat, beeindruckt.
LM01_10	Ich tue für meinen Vorgesetzten mehr, als ich nach meiner Arbeitsbeschreibung müsste.
LM01_11	Um die Ziele meines Vorgesetzten bei der Arbeit zu erreichen, bin ich bereit, mich mehr als gewöhnlich anzustrengen.
LM01_12	Es macht mir nichts aus, meinem Vorgesetzten zuliebe sehr hart zu arbeiten.

Seite 08 Demographie

- D01_01 Aus wie vielen Personen besteht das von Ihnen evaluierte Team?
Beachten Sie bitte, dass Sie einen numerischen Wert zwischen 3 - 50 eintragen müssen. Sollte die Größe des von Ihnen evaluierten Teams außerhalb dieses Bereichs liegen, orientieren Sie Ihren Eintrag bitte am möglichen Minimum bzw. Maximum.
-
- D01_02 Wie alt sind Sie (in Jahren)?
Ganze Zahl
-
- D01_03 Wie ist Ihr Geschlecht?
Männlich, Weiblich, Divers

Seite 09 Verabschiedung

Text X001 Vielen Dank für Ihre Teilnahme an dieser Studie!

Bei Rückfragen und Anmerkungen stehe ich Ihnen gerne unter folgender E-Mail-Adresse zur Verfügung: svn.langer@hsrw.org

Über weitere Unterstützung durch das Teilen des Umfragelinks würde ich mich sehr freuen. Ihre Antworten wurden gespeichert, Sie können das Browserfenster nun schließen.

Mit freundlichen Grüßen

Sven Langer

Text X002 Vielen Dank für Ihr Interesse an dieser Studie!

Bei Rückfragen und Anmerkungen stehe ich Ihnen gerne unter folgender E-Mail-Adresse zur Verfügung: svn.langer@hsrw.org

Über weitere Unterstützung durch das Teilen des Umfragelinks würde ich mich sehr freuen.

Mit freundlichen Grüßen

Sven Langer

Text X003 Vielen Dank für Ihr Interesse an dieser Studie!

Leider treffen die Untersuchungsvoraussetzungen dieses Forschungsprojektes nicht auf Sie zu. Ich bedanke mich dennoch herzlich für Ihr Engagement und Ihr Interesse an der Teilnahme.

Bei Rückfragen und Anmerkungen stehe ich Ihnen gerne unter folgender E-Mail-Adresse zur Verfügung: svn.langer@hsrw.org

Über weitere Unterstützung durch das Teilen des Umfragelinks würde ich mich sehr freuen.

Mit freundlichen Grüßen

Sven Langer

Appendix B Syntax

Sample

```
FREQUENCIES VARIABLES=gender_coded age_groups_coded team_size_groups_coded organiza-
tion_size_coded
/STATISTICS=STDDEV MINIMUM MAXIMUM MEAN
/ORDER=ANALYSIS.
FREQUENCIES VARIABLES=age team_size
/STATISTICS=STDDEV MINIMUM MAXIMUM MEAN
/ORDER=ANALYSIS.
```

Reliabilities

```
RELIABILITY
/VARIABLES=TP01_01 TP01_02 TP01_03 TP01_04 TP01_05 TP01_06 TP01_07 TP01_08 TP01_09
TP01_10
TP01_11 TP01_12 TP01_13 TP01_14 TP01_15 TP01_16 TP01_17 TP01_18 TP01_19 TP01_20
TP01_21 TP01_22
TP01_23 TP01_24 TP01_25 TP01_26 TP01_27 TP01_28 TP01_29 TP01_30
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=TP01_01 TP01_02 TP01_03 TP01_04 TP01_05 TP01_06 TP01_07 TP01_08 TP01_09
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=TP01_10 TP01_11 TP01_12 TP01_13 TP01_14 TP01_15 TP01_16 TP01_17 TP01_18
TP01_19
TP01_20 TP01_21
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=TP01_22 TP01_23 TP01_24 TP01_25 TP01_26 TP01_27 TP01_28 TP01_29 TP01_30
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=LB01_01 LB01_02 LB01_03 LB01_04 LB01_05 LB01_06 LB01_07 LB01_08 LB01_09
LB01_10
LB01_11 LB01_12 LB01_13 LB01_14 LB01_15
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=LB01_01 LB01_02 LB01_03 LB01_04
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=LB01_05 LB01_06 LB01_07 LB01_08
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=LB01_09 LB01_10 LB01_11 LB01_12
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=LB01_13 LB01_14 LB01_15
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
RELIABILITY
/VARIABLES=LM01_01 LM01_02 LM01_03 LM01_04 LM01_05 LM01_06 LM01_07 LM01_08 LM01_09
LM01_10
LM01_11 LM01_12
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA.
```

*****Descriptive Statistics*****

```
DESCRIPTIVES VARIABLES=TPM transition_processes action_processes interpersonal_processes
GMPS
```

```
task_orientation relation_orientation change_orientation external_orientation LMX
/STATISTICS=MEAN STDDEV MIN MAX SEMEAN.
```

```
SORT CASES BY gender_coded.
```

```
SPLIT FILE SEPARATE BY gender_coded.
```

```
DESCRIPTIVES VARIABLES=TPM transition_processes action_processes interpersonal_processes
GMPS
```

```
task_orientation relation_orientation change_orientation external_orientation LMX
/STATISTICS=MEAN STDDEV MIN MAX SEMEAN.
```

```
SPLIT FILE OFF.
```

```
SORT CASES BY age_groups_coded.
```

```
SPLIT FILE SEPARATE BY age_groups_coded.
```

```
DESCRIPTIVES VARIABLES=TPM transition_processes action_processes interpersonal_processes
GMPS
```

```
task_orientation relation_orientation change_orientation external_orientation LMX
/STATISTICS=MEAN STDDEV MIN MAX SEMEAN.
```

```
SPLIT FILE OFF.
```

```
SORT CASES BY team_size_groups_coded.
```

```
SPLIT FILE SEPARATE BY team_size_groups_coded.
```

```
DESCRIPTIVES VARIABLES=TPM transition_processes action_processes interpersonal_processes
GMPS
```

```
task_orientation relation_orientation change_orientation external_orientation LMX
/STATISTICS=MEAN STDDEV MIN MAX SEMEAN.
```

```
SPLIT FILE OFF.
```

*****Correlations*****

```
CORRELATIONS
```

```
/VARIABLES=TPM transition_processes action_processes interpersonal_processes GMPS
```

```
task_orientation relation_orientation change_orientation external_orientation LMX team_size age
gender
```

```
/PRINT=TWOTAIL NOSIG FULL
```

```
/MISSING=PAIRWISE.
```

*****H1 Linearity*****

```
STATS REGRESS PLOT YVARS=TPM XVARS=GMPS
```

```
/OPTIONS CATEGORICAL=BARS GROUP=1 BOXPLOTS INDENT=15 YSCALE=75
```

```
/FITLINES APPLYTO=TOTAL.
```

*****H1 Normal Distribution of Residuals*****

```
EXAMINE VARIABLES=H1_ZRE
```

```
/PLOT BOXPLOT NPLOT
```

```
/COMPARE GROUPS
```

```
/STATISTICS DESCRIPTIVES
```

```
/CINTERVAL 95
```

```
/MISSING LISTWISE
```

```
/NOTOTAL.
```

*****H1 Homoscedasticity and Independence of Residuals*****

```
GGRAPH
```

```
/GRAPHDATASET NAME="graphdataset" VARIABLES=H1_ZPR H1_ZRE MISSING=LISTWISE RE-
PORTMISSING=NO
```

```
/GRAPHSPEC SOURCE=INLINE
```

```
/FITLINE TOTAL=NO SUBGROUP=NO.
```

```
BEGIN GPL
```

```
SOURCE: s=userSource(id("graphdataset"))
```

```
DATA: H1_ZPR=col(source(s), name("H1_ZPR"))
```

```
DATA: H1_ZRE=col(source(s), name("H1_ZRE"))
```

```
GUIDE: axis(dim(1), label("H1_ZPR"))
```

```
GUIDE: axis(dim(2), label("H1_ZRE"))
```

```
GUIDE: text.title(label("Scatter Plot of H1_ZRE by H1_ZPR"))
```

```
ELEMENT: point(position(H1_ZPR*H1_ZRE))
```

```
END GPL.
```

*****H1 Regression models*****

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT TPM
/METHOD=ENTER GMPS
/METHOD=ENTER team_size age gender.
```

*****H2 Linearity*****

```
STATS REGRESS PLOT YVARS=action_processes XVARS=task_orientation relation_orientation
change_orientation external_orientation
/OPTIONS CATEGORICAL=BARS GROUP=1 BOXPLOTS INDENT=15 YSCALE=75
/FITLINES APPLYTO=TOTAL.
```

*****H2 Multicollinearity Diagnostics*****

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT action_processes
/METHOD=ENTER task_orientation relation_orientation change_orientation external_orientation.
```

*****H2 Normal Distribution of Residuals*****

```
EXAMINE VARIABLES=H2_ZRE
/PLOT BOXPLOT NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
/CINTERVAL 95
/MISSING LISTWISE
/NOTOTAL.
```

*****H2 Homoscedasticity and Independence of Residuals*****

```
GGRAPH
/GRAPHDATASET NAME="graphdataset" VARIABLES=H2_ZPR H2_ZRE MISSING=LISTWISE RE-
PORTMISSING=NO
/GRAPHSPEC SOURCE=INLINE
/FITLINE TOTAL=NO SUBGROUP=NO.
BEGIN GPL
SOURCE: s=userSource(id("graphdataset"))
DATA: H2_ZPR=col(source(s), name("H2_ZPR"))
DATA: H2_ZRE=col(source(s), name("H2_ZRE"))
GUIDE: axis(dim(1), label("H2_ZPR"))
GUIDE: axis(dim(2), label("H2_ZRE"))
GUIDE: text.title(label("Scatter Plot of H2_ZRE by H2_ZPR"))
ELEMENT: point(position(H2_ZPR*H2_ZRE))
END GPL.
```

*****H2 Regressionmodels*****

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT action_processes
/METHOD=ENTER task_orientation
/METHOD=ENTER relation_orientation change_orientation external_orientation
/METHOD=ENTER team_size age gender.
```

*****H3 Linearity*****

```
STATS REGRESS PLOT YVARS=interpersonal_processes XVARS=relation_orientation task_orientation
change_orientation external_orientation
/OPTIONS CATEGORICAL=BARS GROUP=1 BOXPLOTS INDENT=15 YSCALE=75
/FITLINES APPLYTO=TOTAL.
```

*****H3 Multicollinearity Diagnostics*****

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COLLIN TOL
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT interpersonal_processes
/METHOD=ENTER relation_orientation task_orientation change_orientation external_orientation.
```

*****H3 Normal Distribution of Residuals*****

```
EXAMINE VARIABLES=H3_ZRE
/PLOT BOXPLOT NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
/CINTERVAL 95
/MISSING LISTWISE
/NOTOTAL.
```

*****H3 Homoscedasticity and Independence of Residuals*****

```
GGRAPH
/GRAPHDATASET NAME="graphdataset" VARIABLES=H3_ZPR H3_ZRE MISSING=LISTWISE RE-
PORTMISSING=NO
/GRAPHSPEC SOURCE=INLINE
/FITLINE TOTAL=NO SUBGROUP=NO.
BEGIN GPL
SOURCE: s=userSource(id("graphdataset"))
DATA: H3_ZPR=col(source(s), name("H3_ZPR"))
DATA: H3_ZRE=col(source(s), name("H3_ZRE"))
GUIDE: axis(dim(1), label("H3_ZPR"))
GUIDE: axis(dim(2), label("H3_ZRE"))
GUIDE: text.title(label("Scatter Plot of H3_ZRE by H3_ZPR"))
ELEMENT: point(position(H3_ZPR*H3_ZRE))
END GPL.
```

*****H3 Regression models*****

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT interpersonal_processes
/METHOD=ENTER relation_orientation
/METHOD=ENTER task_orientation change_orientation external_orientation
/METHOD=ENTER team_size age gender.
```

*****H3 Gender Influence*****

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT conflict_management
/METHOD=ENTER relation_orientation gender.
```

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT mutual_motivation
/METHOD=ENTER relation_orientation gender.
```

```
REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT handling_emotions
/METHOD=ENTER relation_orientation gender.
```

*****H4 Linearity*****

```

STATS REGRESS PLOT YVARS=GMPS XVARS=LMX
/OPTIONS CATEGORICAL=BARS GROUP=1 BOXPLOTS INDENT=15 YSCALE=75
/FITLINES APPLYTO=TOTAL.

```

*****H4 Normal Distribution of Residuals*****

```

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/PLOT BOXPLOT NPLOT
/COMPARE GROUPS
/STATISTICS DESCRIPTIVES
/CINTERVAL 95
/MISSING LISTWISE
/NOTOTAL.

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*****H4 Homoscedasticity and Independence of Residuals*****

```

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/GRAPHDATASET NAME="graphdataset" VARIABLES=H4_ZPR H4_ZRE MISSING=LISTWISE RE-
PORTMISSING=NO
/GRAPHSPEC SOURCE=INLINE
/FITLINE TOTAL=NO SUBGROUP=NO.
BEGIN GPL
SOURCE: s=userSource(id("graphdataset"))
DATA: H4_ZPR=col(source(s), name("H4_ZPR"))
DATA: H4_ZRE=col(source(s), name("H4_ZRE"))
GUIDE: axis(dim(1), label("H4_ZPR"))
GUIDE: axis(dim(2), label("H4_ZRE"))
GUIDE: text.title(label("Scatter Plot of H4_ZRE by H4_ZPR"))
ELEMENT: point(position(H4_ZPR*H4_ZRE))
END GPL.

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*****H4 Regression models*****

```

REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS CI(95) R ANOVA
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT GMPS
/METHOD=ENTER LMX
/METHOD=ENTER team_size age gender.

```

Appendix C Reliabilities

Reliability Statistics	α	Items
TPM	0,934	30
transition_processes	0,887	9
action_processes	0,844	12
interpersonal_processes	0,938	9
GMPS	0,893	15
task_orientation	0,780	4
relation_orientation	0,854	4
change_orientation	0,812	4
external_orientation	0,728	3
LMX	0,937	12

Case Summary	N	%
Valid	94	100,0
Excluded	0	0,0
Total	94	100,0

Appendix D Descriptive Statistics

Whole Sample	N	Min	Max	M	SE	SD
TPM	94	1,82	4,81	3,53	0,062	0,599
transition_processes	94	1,44	4,78	3,44	0,076	0,735
action_processes	94	1,92	4,75	3,50	0,061	0,594
interpersonal_processes	94	1,56	4,89	3,65	0,089	0,866
GMPS	94	1,71	4,69	3,39	0,067	0,649
task_orientation	94	1,75	4,75	3,54	0,078	0,756
relation_orientation	94	1,50	5,00	3,44	0,097	0,940
change_orientation	94	1,50	5,00	3,34	0,079	0,766
external_orientation	94	1,33	5,00	3,24	0,087	0,839
LMX	94	0,83	4,94	3,53	0,096	0,931

Female	N	Min	Max	M	SE	SD
TPM	27	1,82	4,57	3,33	0,121	0,628
transition_processes	27	1,44	4,44	3,21	0,145	0,751
action_processes	27	1,92	4,50	3,31	0,120	0,624
interpersonal_processes	27	1,78	4,78	3,48	0,148	0,768
GMPS	27	1,71	4,58	3,28	0,130	0,674
task_orientation	27	1,75	4,75	3,31	0,145	0,755
relation_orientation	27	1,50	5,00	3,50	0,170	0,885
change_orientation	27	1,75	4,75	3,28	0,145	0,751
external_orientation	27	1,33	4,33	3,04	0,147	0,764
LMX	27	0,83	4,94	3,54	0,202	1,049

Male	N	Min	Max	M	SE	SD
TPM	67	2,17	4,81	3,61	0,070	0,572
transition_processes	67	1,78	4,78	3,54	0,087	0,712
action_processes	67	2,25	4,75	3,58	0,069	0,568
interpersonal_processes	67	1,56	4,89	3,72	0,110	0,898
GMPS	67	1,98	4,69	3,43	0,078	0,639
task_orientation	67	1,75	4,75	3,63	0,091	0,743
relation_orientation	67	1,50	5,00	3,42	0,118	0,966
change_orientation	67	1,50	5,00	3,36	0,095	0,776
external_orientation	67	1,33	5,00	3,32	0,105	0,859
LMX	67	1,13	4,82	3,52	0,108	0,888

Gen Y	N	Min	Max	M	SE	SD
TPM	48	1,82	4,77	3,48	0,090	0,621
transition_processes	48	1,44	4,67	3,35	0,108	0,746
action_processes	48	1,92	4,75	3,47	0,089	0,617
interpersonal_processes	48	1,56	4,89	3,60	0,126	0,871
GMPS	48	1,71	4,65	3,33	0,099	0,685
task_orientation	48	1,75	4,75	3,51	0,113	0,786
relation_orientation	48	1,50	5,00	3,37	0,142	0,984
change_orientation	48	1,75	5,00	3,32	0,113	0,782
external_orientation	48	1,33	4,67	3,12	0,129	0,895
LMX	48	1,13	4,94	3,51	0,141	0,974

Gen X	N	Min	Max	M	SE	SD
TPM	16	2,53	4,57	3,69	0,125	0,502
transition_processes	16	2,89	4,44	3,60	0,106	0,424
action_processes	16	2,25	4,50	3,66	0,128	0,513
interpersonal_processes	16	1,67	4,78	3,81	0,228	0,912
GMPS	16	2,10	4,21	3,53	0,130	0,520
task_orientation	16	2,50	4,75	3,73	0,167	0,668
relation_orientation	16	1,50	4,75	3,50	0,226	0,904
change_orientation	16	1,75	4,50	3,52	0,175	0,698
external_orientation	16	2,00	4,33	3,38	0,158	0,631
LMX	16	0,83	4,76	3,76	0,247	0,989

Gen Z	N	Min	Max	M	SE	SD
TPM	16	2,17	4,81	3,34	0,161	0,644
transition_processes	16	1,78	4,78	3,41	0,226	0,903
action_processes	16	2,33	4,75	3,28	0,155	0,622
interpersonal_processes	16	1,78	4,89	3,33	0,249	0,998
GMPS	16	2,52	4,69	3,26	0,167	0,668
task_orientation	16	1,75	4,75	3,41	0,197	0,790
relation_orientation	16	1,75	5,00	3,30	0,259	1,038
change_orientation	16	1,50	4,50	3,09	0,213	0,851
external_orientation	16	1,67	5,00	3,25	0,223	0,890
LMX	16	1,73	4,76	3,24	0,249	0,996

Senior Citizens	N	Min	Max	M	SE	SD
TPM	13	2,66	4,43	3,80	0,142	0,513
transition_processes	13	2,22	4,44	3,72	0,194	0,698
action_processes	13	2,42	4,25	3,74	0,141	0,508
interpersonal_processes	13	3,33	4,89	3,95	0,121	0,437
GMPS	13	2,42	4,54	3,57	0,180	0,647
task_orientation	13	2,00	4,75	3,67	0,201	0,724
relation_orientation	13	2,50	4,75	3,79	0,192	0,691
change_orientation	13	2,25	4,25	3,40	0,191	0,689
external_orientation	13	2,33	4,67	3,41	0,204	0,735
LMX	13	2,50	4,40	3,64	0,163	0,588

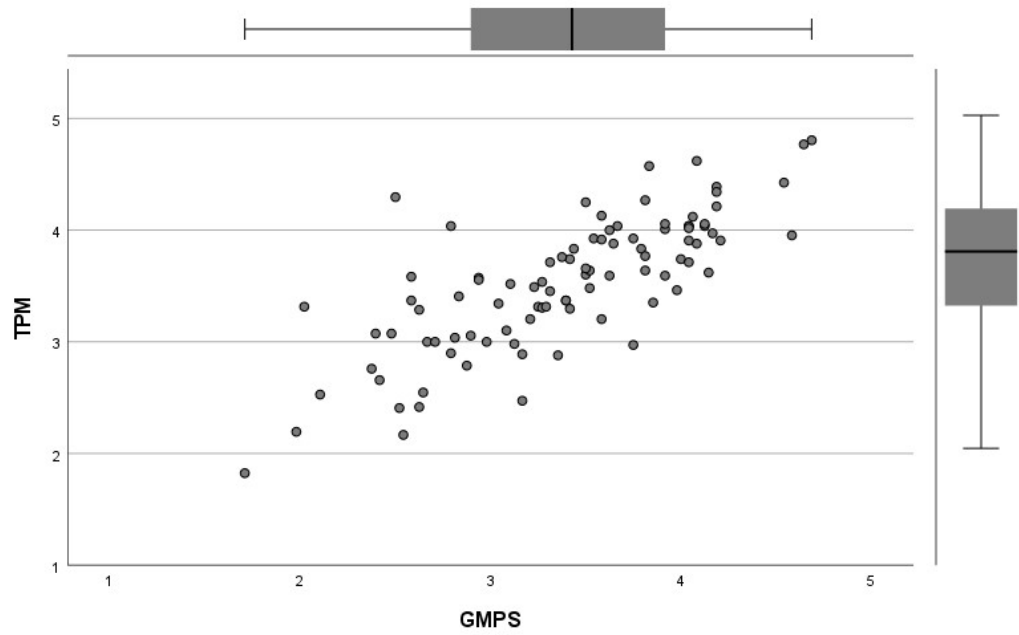
Small Teams	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SE</i>	<i>SD</i>
TPM	21	2,17	4,77	3,60	0,123	0,563
transition_processes	21	1,67	4,67	3,41	0,154	0,705
action_processes	21	2,50	4,75	3,53	0,109	0,502
interpersonal_processes	21	2,22	4,89	3,86	0,150	0,688
GMPS	21	2,54	4,65	3,62	0,134	0,613
task_orientation	21	2,25	4,75	3,62	0,144	0,660
relation_orientation	21	2,00	5,00	3,73	0,201	0,922
change_orientation	21	2,00	5,00	3,60	0,164	0,752
external_orientation	21	1,67	4,67	3,54	0,155	0,711
LMX	21	1,55	4,88	3,95	0,186	0,852

Medium Teams	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SE</i>	<i>SD</i>
TPM	59	1,82	4,81	3,45	0,077	0,589
transition_processes	59	1,44	4,78	3,38	0,099	0,762
action_processes	59	1,92	4,75	3,46	0,081	0,621
interpersonal_processes	59	1,56	4,89	3,52	0,118	0,904
GMPS	59	1,71	4,69	3,28	0,081	0,621
task_orientation	59	1,75	4,75	3,46	0,103	0,790
relation_orientation	59	1,50	5,00	3,30	0,123	0,944
change_orientation	59	1,50	4,50	3,20	0,095	0,729
external_orientation	59	1,33	5,00	3,15	0,110	0,847
LMX	59	0,83	4,76	3,34	0,118	0,908

Large Teams	<i>N</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SE</i>	<i>SD</i>
TPM	14	2,19	4,43	3,76	0,177	0,662
transition_processes	14	2,22	4,44	3,75	0,167	0,623
action_processes	14	2,25	4,25	3,64	0,167	0,623
interpersonal_processes	14	2,11	4,89	3,89	0,234	0,877
GMPS	14	1,98	4,54	3,52	0,200	0,747
task_orientation	14	2,25	4,75	3,77	0,197	0,737
relation_orientation	14	2,00	4,75	3,63	0,235	0,881
change_orientation	14	1,75	4,50	3,52	0,228	0,852
external_orientation	14	1,67	4,67	3,17	0,249	0,931
LMX	14	1,13	4,94	3,67	0,259	0,968

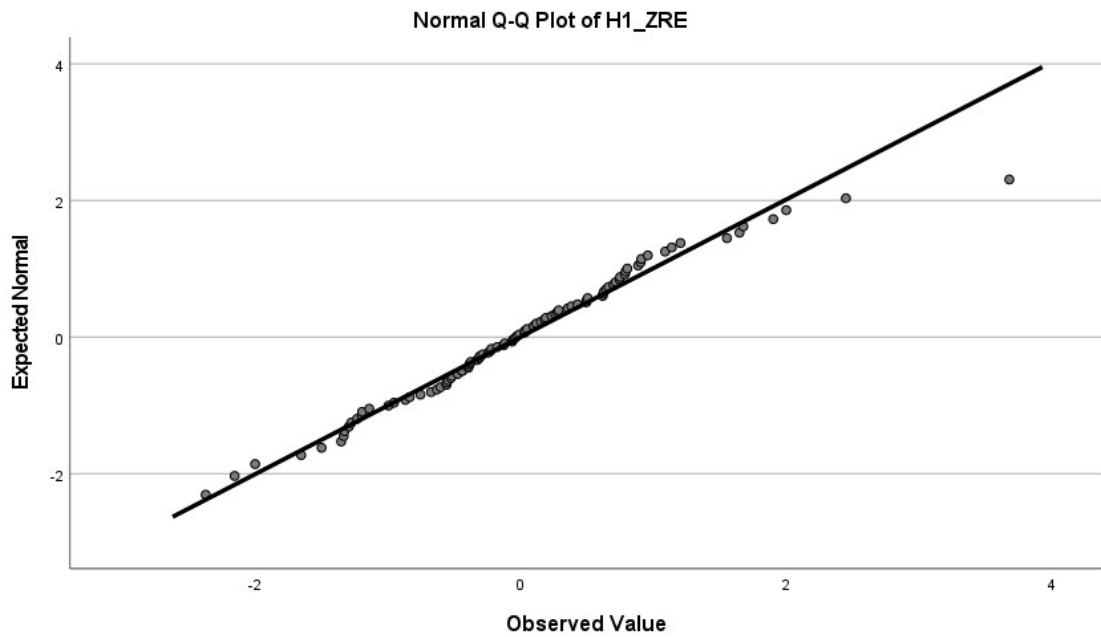
Appendix E Regression Assumptions H1

Appendix E1 Linearity of Regression Coefficients

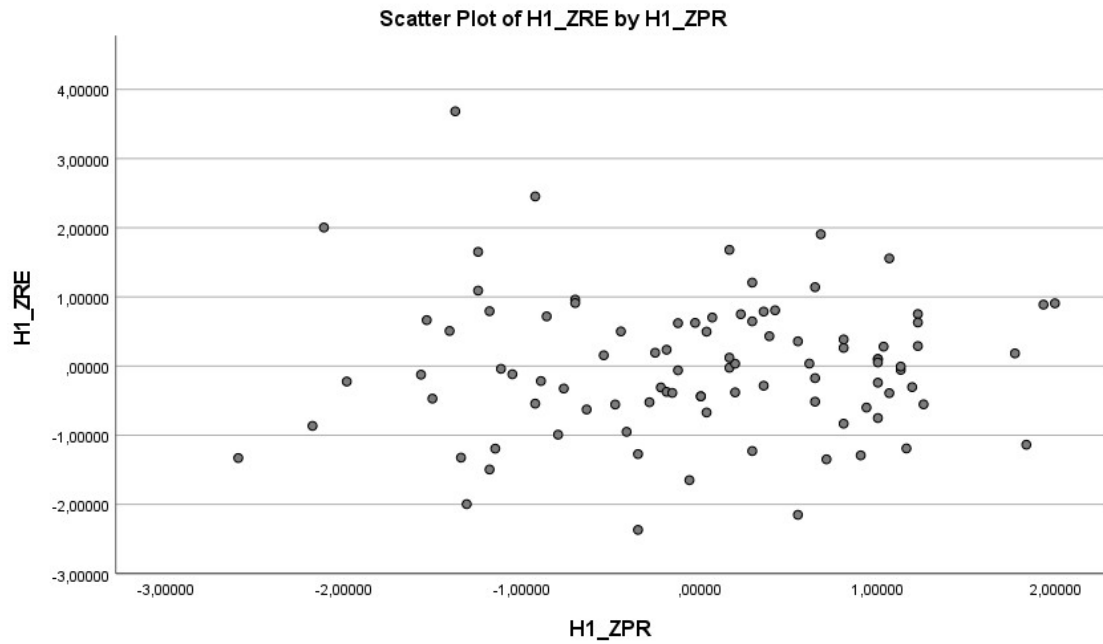


Appendix E2 Normal Distribution of Residuals

Normality	Shapiro-Wilk		
	<i>Stat</i>	<i>df</i>	<i>p</i>
H1_ZRE	0,978	94	0,115



Appendix E3 Homoscedasticity and Independence of Residuals



Appendix E4 Additional Material

Model Summary	<i>R</i>	<i>R</i> ²	<i>adj. R</i> ²	<i>SE</i>
Step 1: a	0,776	0,601	0,597	0,380
Step 2: a, b	0,797	0,635	0,618	0,370

Note. a: GMPS

Note. b: age, gender, team_size

ANOVA		Σ^2	<i>df</i>	<i>M</i> ²	<i>F</i>	<i>p</i>
Step 1: a	Regression	20,069	1	20,069	138,812	0,000
	Residual	13,301	92	0,145		
	Total	33,370	93			
Step 2: a, b	Regression	21,174	4	5,294	38,629	0,000
	Residual	12,196	89	0,137		
	Total	33,370	93			

Note. a: GMPS

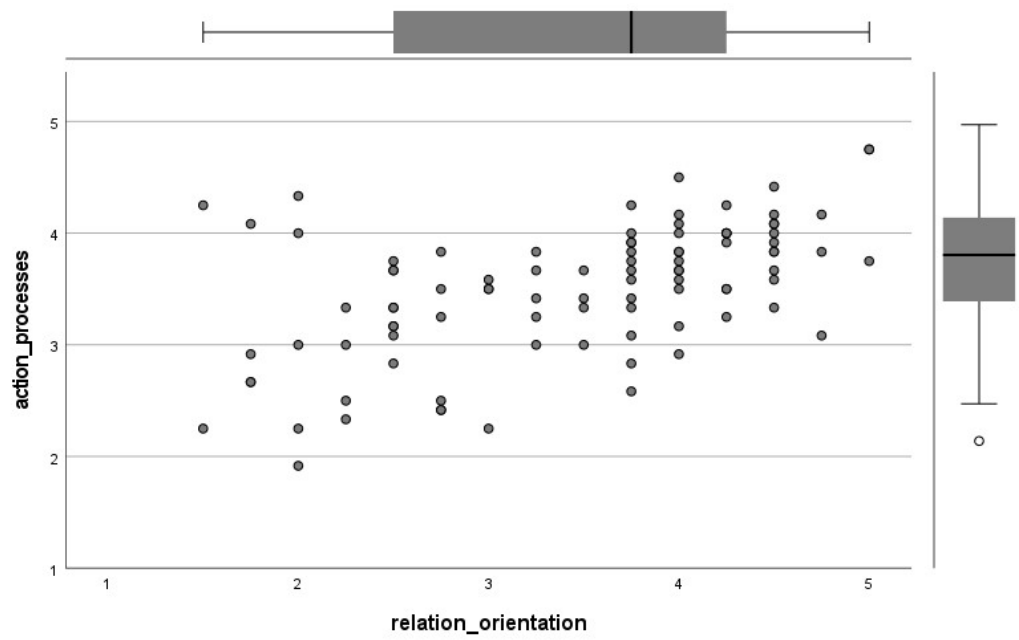
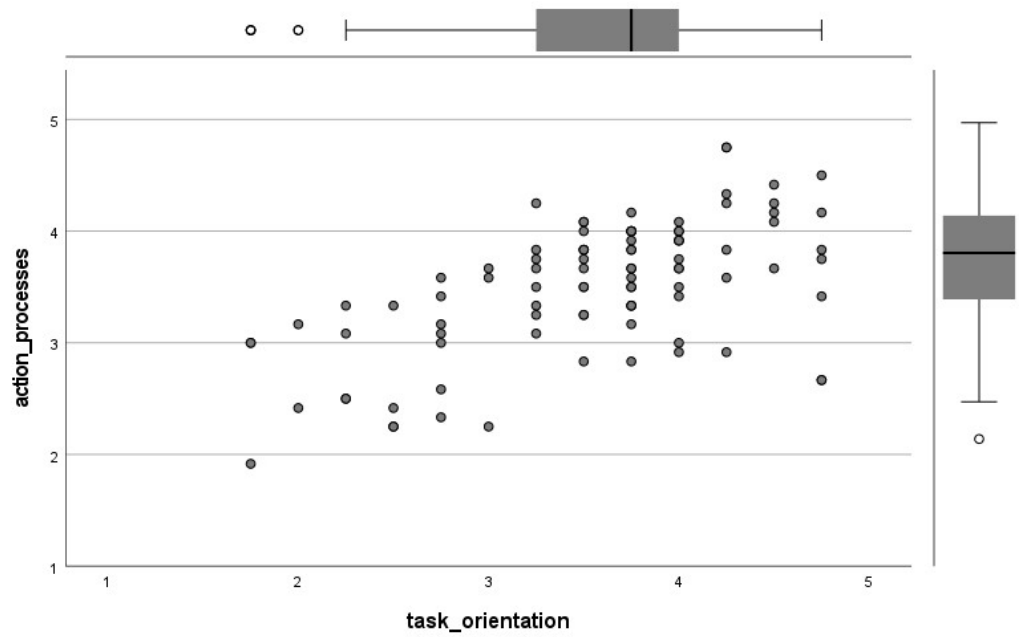
Note. b: age, gender, team_size

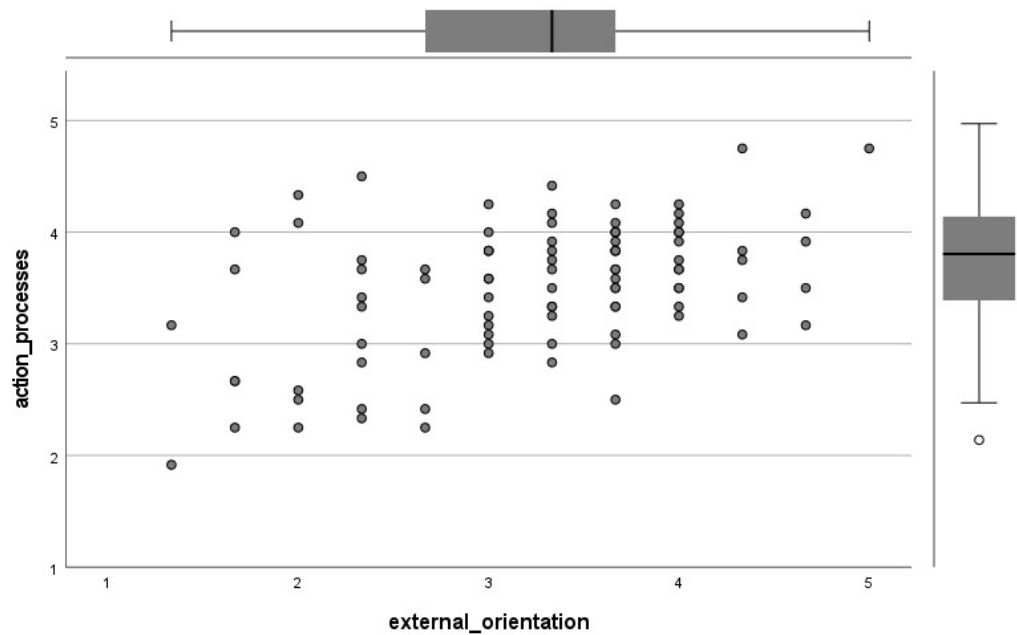
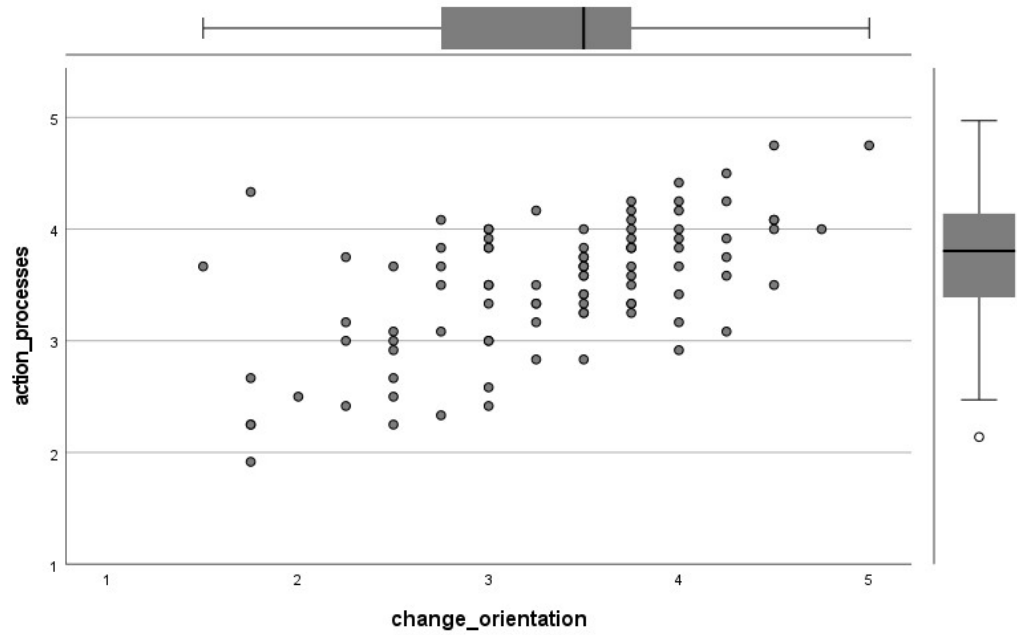
Excluded Variables		<i>Beta In</i>	<i>t</i>	<i>p</i>	<i>Partial r</i>
Step 1: a	team_size	0,075	1,133	0,260	0,118
	age	0,141	2,162	0,033	0,221
	gender	-0,132	-2,023	0,046	-0,207

Note. a: GMPS

Appendix F Regression Assumptions H2

Appendix F1 Linearity of Regression Coefficients



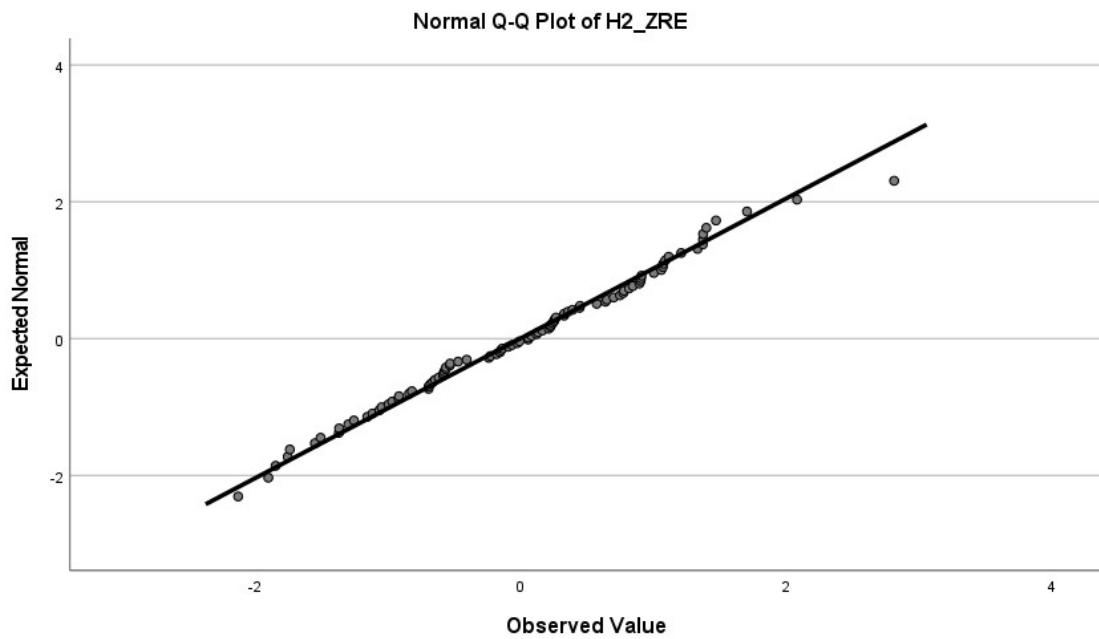
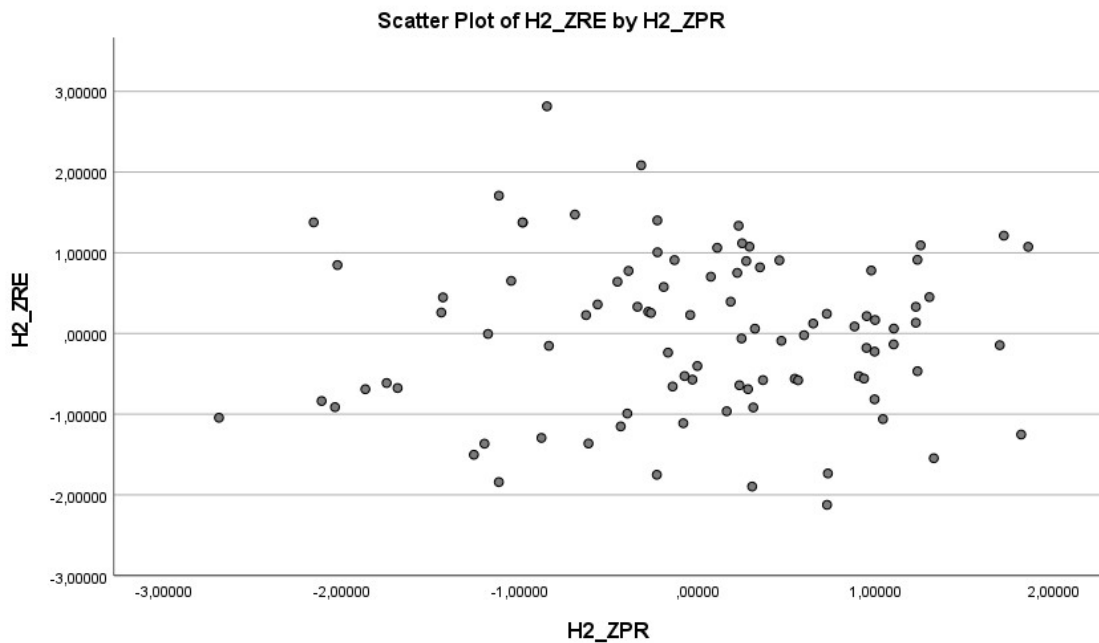


Appendix F2 Collinearity Diagnostics

action_processes	Collinearity Diagnostics	
	<i>Tolerance</i>	<i>VIF</i>
task_orientation	0,763	1,311
relation_orientation	0,535	1,868
change_orientation	0,506	1,975
external_orientation	0,641	1,560

Appendix F3 Normal Distribution of Residuals

Normality	Shapiro-Wilk		
	<i>Stat</i>	<i>df</i>	<i>p</i>
H2_ZRE	0,990	94	0,732

**Appendix F4 Homoscedasticity and Independence of Residuals**

Appendix F5 Additional Material

Model Summary	R	R²	adj. R²	SE
Step 1: a	0,596	0,355	0,348	0,480
Step 2: a, b	0,718	0,515	0,494	0,423
Step 3: a, b, c	0,738	0,545	0,507	0,417

Note. a: task_orientation

Note. b: external_orientation, relation_orientation, change_orientation

Note. c: age, gender, team_size

ANOVA		Σ^2	df	M²	F	p
Step 1: a	Regression	11,636	1	11,636	50,572	0,000
	Residual	21,168	92	0,230		
	Total	32,804	93			
Step 2: a, b	Regression	16,910	4	4,227	23,671	0,000
	Residual	15,895	89	0,179		
	Total	32,804	93			
Step 3: a, b, c	Regression	17,864	7	2,552	14,690	0,000
	Residual	14,940	86	0,174		
	Total	32,804	93			

Note. a: task_orientation

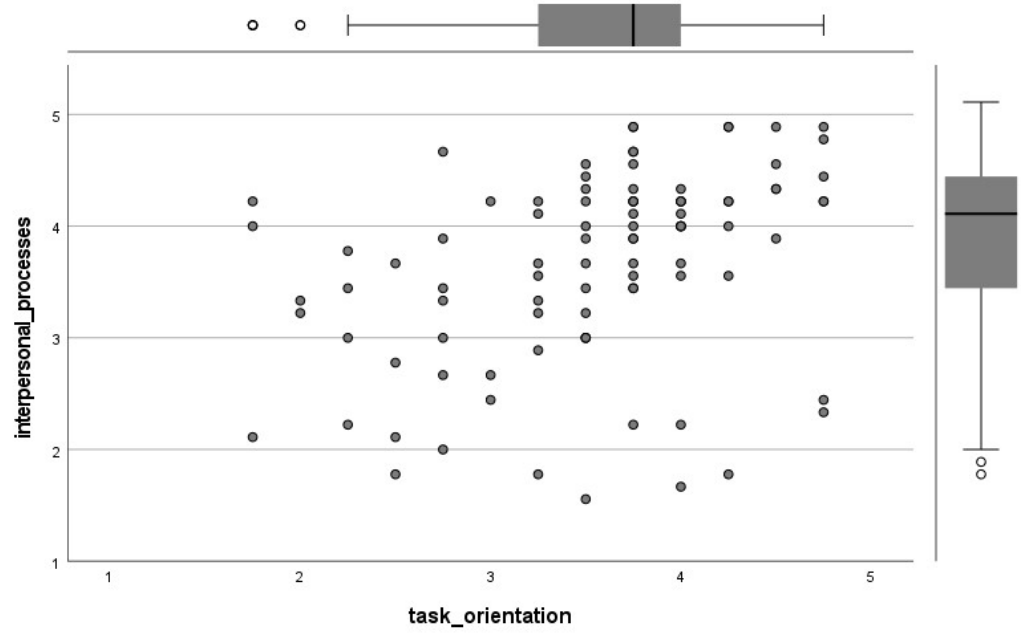
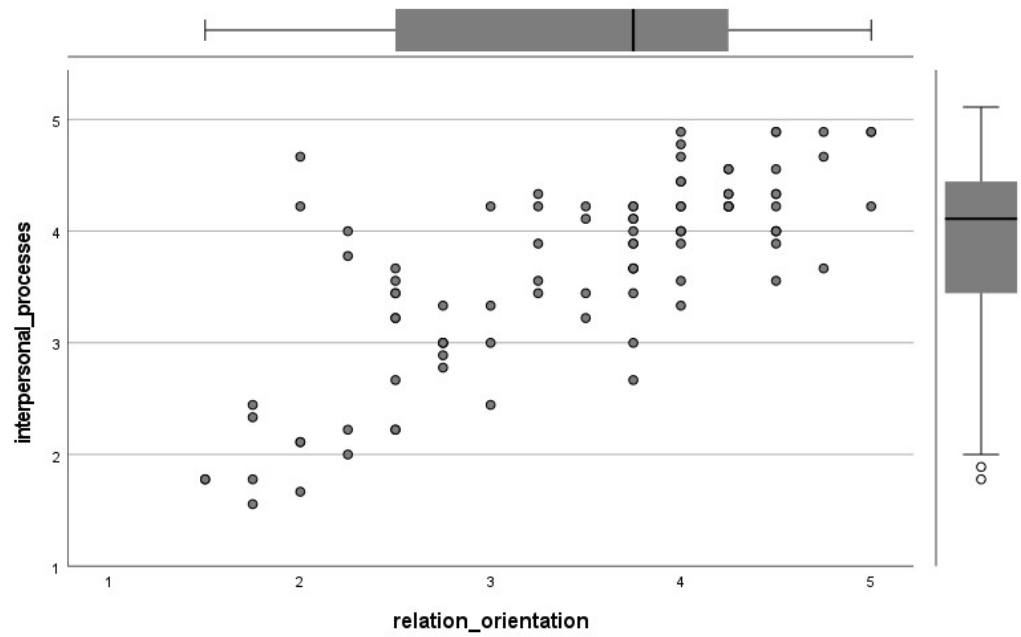
Note. b: external_orientation, relation_orientation, change_orientation

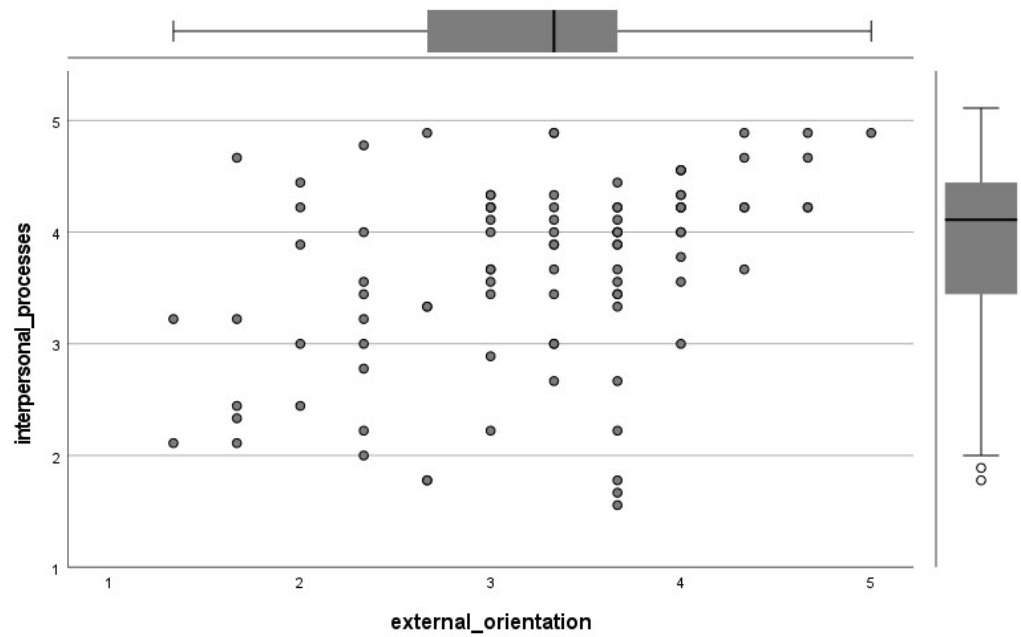
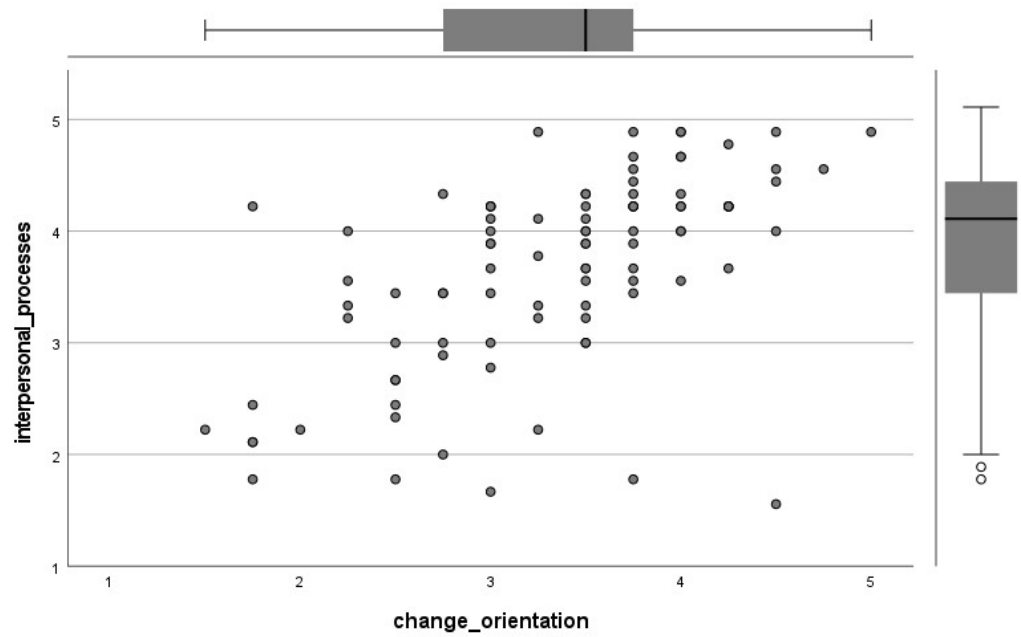
Note. c: age, gender, team_size

Excluded Variables		Beta In	t	p	Partial r
Step 1: a	relation_orientation	0,343	3,989	0,000	0,386
	change_orientation	0,413	4,955	0,000	0,461
	external_orientation	0,295	3,515	0,001	0,346
	team_size	0,022	0,263	0,793	0,028
	age	0,184	2,229	0,028	0,228
	gender	-0,095	-1,117	0,267	-0,116
Step 2: a, b	team_size	0,028	0,367	0,714	0,039
	age	0,142	1,927	0,057	0,201
	gender	-0,119	-1,561	0,122	-0,164

Note. a: task_orientation

Note. b: task_orientation, external_orientation, relation_orientation, change_orientation

Appendix G Regression Assumptions H3**Appendix G1 Linearity of Regression Coefficients**

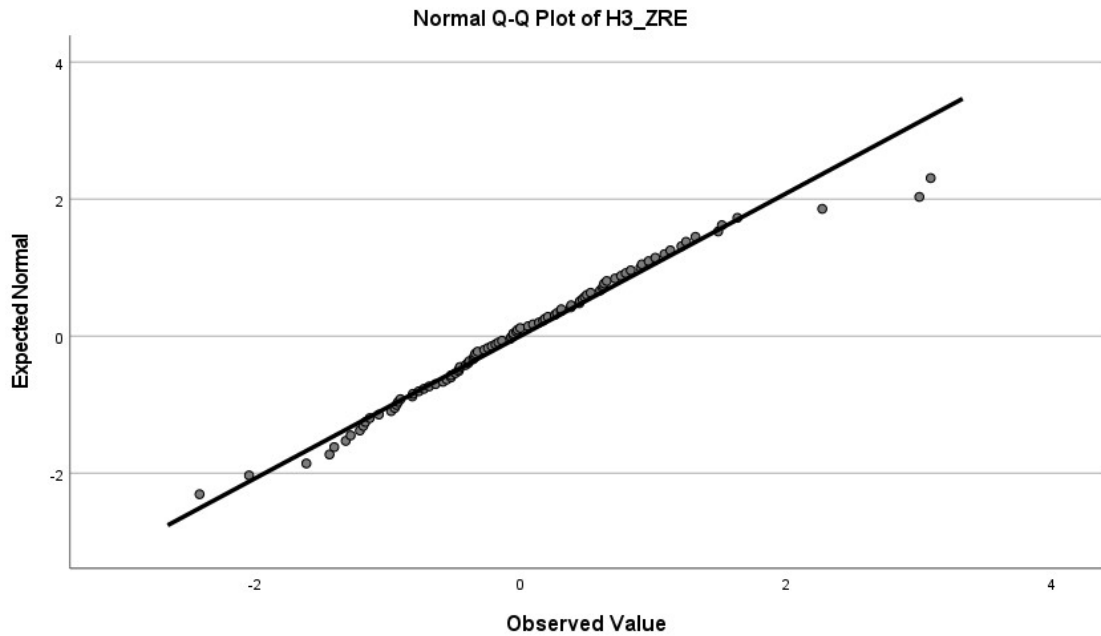


Appendix G2 Collinearity Diagnostics

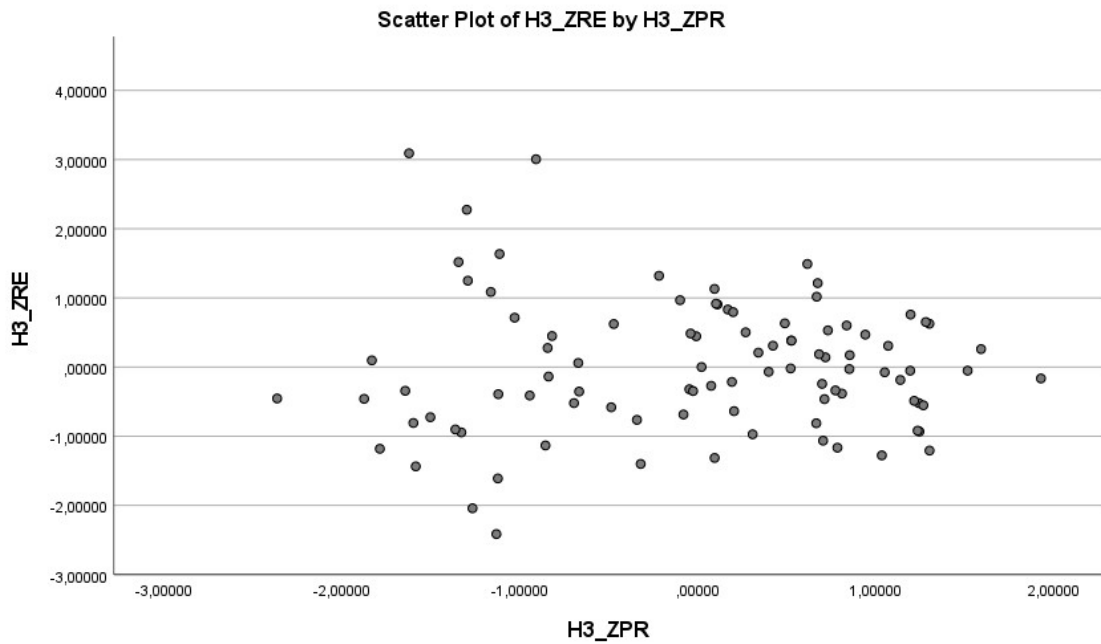
interpersonal_processes	Collinearity Diagnostics	
	<i>Tolerance</i>	<i>VIF</i>
relation_orientation	0,535	1,868
task_orientation	0,763	1,311
change_orientation	0,506	1,975
external_orientation	0,641	1,560

Appendix G3 Normal Distribution of Residuals

Normality	Shapiro-Wilk		
	<i>Stat</i>	<i>df</i>	<i>p</i>
H3_ZRE	0,977	94	0,098



Appendix G4 Homoscedasticity and Independence of Residuals



Appendix G5 Additional Material

Model Summary	R	R²	adj. R²	SE
Step 1: a	0,763	0,582	0,578	0,563
Step 2: a, b	0,777	0,603	0,585	0,557
Step 3: a, b, c	0,795	0,632	0,602	0,546

Note. a: relation_orientation

Note. b: task_orientation, external_orientation, change_orientation

Note. c: age, gender, team_size

ANOVA		Σ^2	df	M²	F	p
Step 1: a	Regression	40,556	1	40,556	128,122	0,000
	Residual	29,122	92	0,317		
	Total	69,678	93			
Step 2: a, b	Regression	42,018	4	10,504	33,799	0,000
	Residual	27,660	89	0,311		
	Total	69,678	93			
Step 3: a, b, c	Regression	44,065	7	6,295	21,137	0,000
	Residual	25,613	86	0,298		
	Total	69,678	93			

Note. a: relation_orientation

Note. b: task_orientation, external_orientation, change_orientation

Note. c: age, gender, team_size

Excluded Variables		Beta In	t	p	Partial r
Step 1: a	task_orientation	0,045	0,600	0,550	0,063
	change_orientation	0,181	2,119	0,037	0,217
	external_orientation	0,017	0,210	0,834	0,022
	team_size	0,004	0,063	0,950	0,007
	age	0,096	1,422	0,158	0,147
	gender	-0,157	-2,379	0,019	-0,242
Step 2: a, b	team_size	-0,007	-0,102	0,919	-0,011
	age	0,085	1,251	0,214	0,132
	gender	-0,162	-2,374	0,020	-0,245

Note. a: relation_orientation

Note. b: relation_orientation, task_orientation, external_orientation, change_orientation

Appendix H Regression Models H3 - Gender Effect

Appendix H1 Regression Model Mutual Motivation

Model Summary		<i>R</i>	<i>R</i> ²	<i>adj. R</i> ²	<i>SE</i>		
Step 1		0,742	0,550	0,541	0,664		
<i>Note. gender, relation_orientation</i>							
ANOVA		Σ^2	<i>df</i>	<i>M</i> ²	<i>F</i>	<i>p</i>	
Step 1	Regression	49,124	2	24,562	55,704	0,000	
	Residual	40,125	91	0,441			
	Total	89,249	93				
<i>Note. gender, relation_orientation</i>							
Coefficients		<i>B</i>	<i>SE</i>	β	95% CI		<i>p</i>
					<i>LL</i>	<i>UL</i>	
(Constant)		1,775	0,321		1,138	2,412	0,000
relation_orientation		0,759	0,073	0,728	0,613	0,904	0,000
gender		-0,375	0,151	-0,174	-0,676	-0,075	0,015

Appendix H2 Regression Model Emotion Regulation

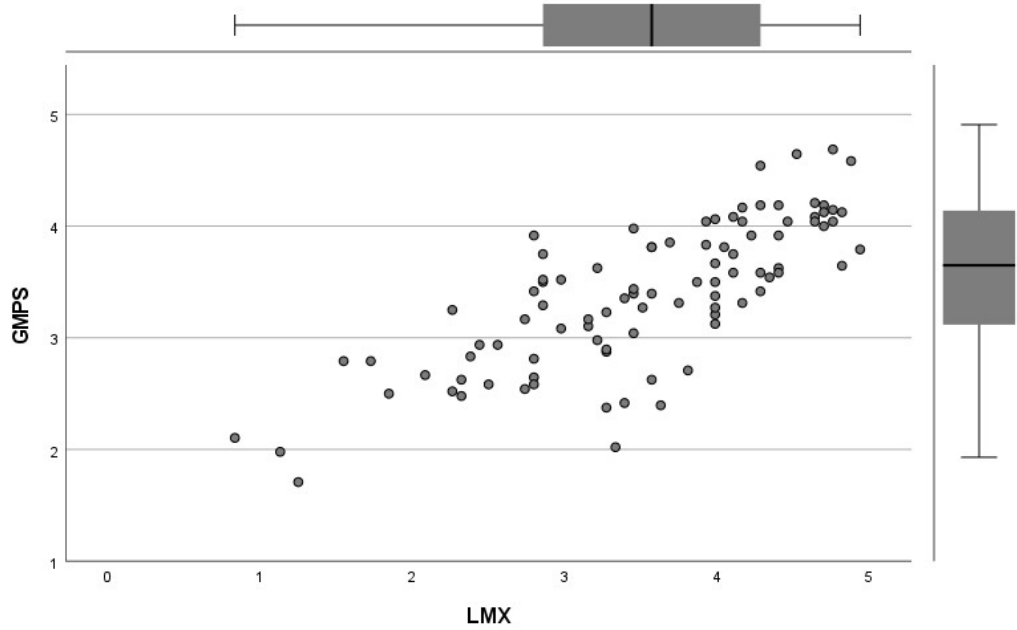
Model Summary		<i>R</i>	<i>R</i> ²	<i>adj. R</i> ²	<i>SE</i>		
Step 1		0,715	0,511	0,501	0,636		
<i>Note. gender, relation_orientation</i>							
ANOVA		Σ^2	<i>df</i>	<i>M</i> ²	<i>F</i>	<i>p</i>	
Step 1	Regression	38,518	2	19,259	47,616	0,000	
	Residual	36,806	91	0,404			
	Total	75,324	93				
<i>Note. gender, relation_orientation</i>							
Coefficients		<i>B</i>	<i>SE</i>	β	95% CI		<i>p</i>
					<i>LL</i>	<i>UL</i>	
(Constant)		1,644	0,307		1,035	2,254	0,000
relation_orientation		0,677	0,070	0,707	0,537	0,816	0,000
gender		-0,278	0,145	-0,140	-0,566	0,010	0,059

Appendix H3 Regression Model Conflict Management

Model Summary		<i>R</i>	<i>R</i> ²	<i>adj. R</i> ²	<i>SE</i>		
Step 1		0,700	0,490	0,479	0,673		
<i>Note. gender, relation_orientation</i>							
ANOVA		Σ^2	<i>df</i>	<i>M</i> ²	<i>F</i>	<i>p</i>	
Step 1	Regression	39,632	2	19,816	43,796	0,000	
	Residual	41,173	91	0,452			
	Total	80,805	93				
<i>Note. gender, relation_orientation</i>							
Coefficients		<i>B</i>	<i>SE</i>	β	95% CI		<i>p</i>
					<i>LL</i>	<i>UL</i>	
(Constant)		1,365	0,325		0,720	2,010	0,000
relation_orientation		0,689	0,074	0,695	0,542	0,837	0,000
gender		-0,240	0,153	-0,117	-0,545	0,064	0,121

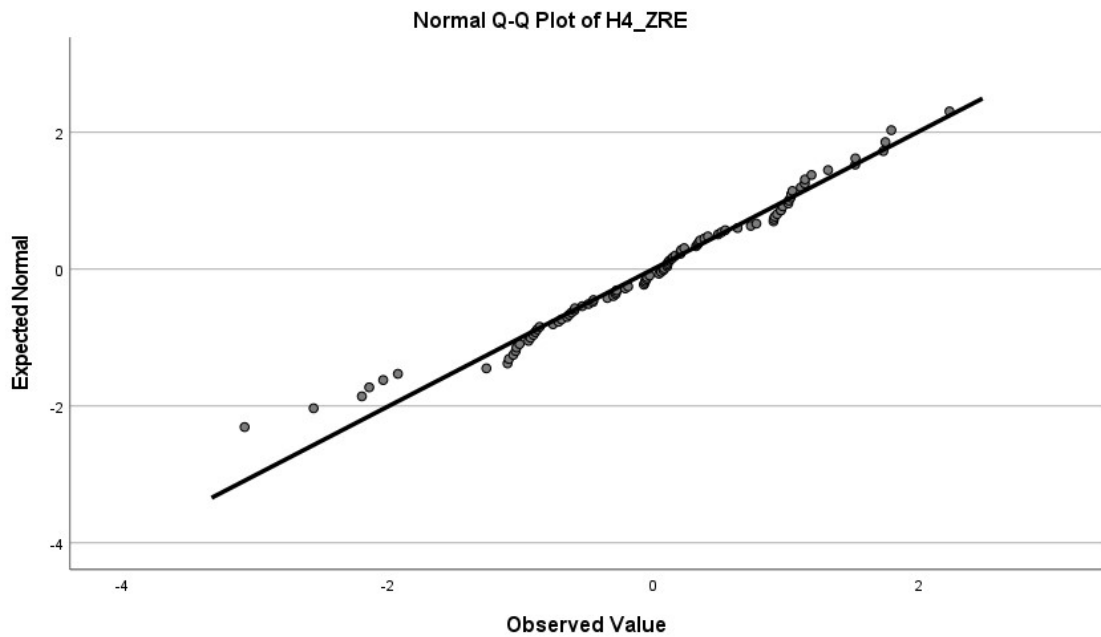
Appendix I Regression Assumptions H4

Appendix I1 Linearity of Regression Coefficients

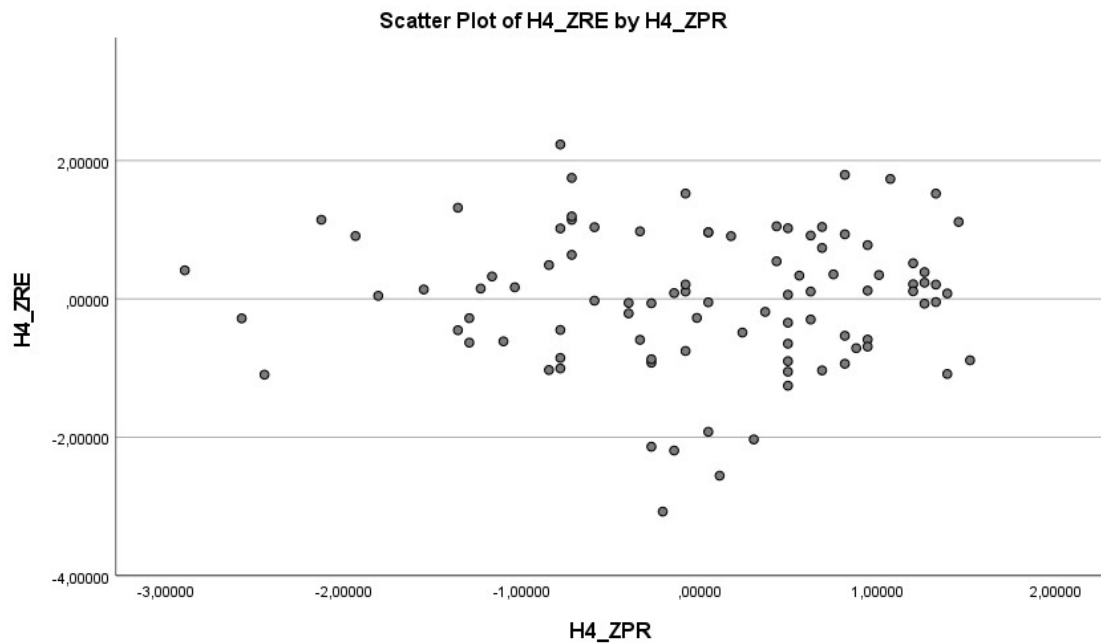


Appendix I2 Normal Distribution of Residuals

Normality	Shapiro-Wilk		
	Stat	df	p
H4_ZRE	0,978	94	0,120



Appendix I3 Homoscedasticity and Independence of Residuals



Appendix I4 Additional Material

Model Summary	<i>R</i>	<i>R</i> ²	<i>adj. R</i> ²	<i>SE</i>
Step 1: a	0,776	0,602	0,598	0,412
Step 2: a, b	0,785	0,616	0,599	0,411

Note. a: LMX

Note. b: age, gender, team_size

ANOVA		Σ^2	<i>df</i>	<i>M</i> ²	<i>F</i>	<i>p</i>
Step 1: a	Regression	23,628	1	23,628	139,338	0,000
	Residual	15,601	92	0,170		
	Total	39,229	93			
Step 2: a, b	Regression	24,180	4	6,045	35,750	0,000
	Residual	15,049	89	0,169		
	Total	39,229	93			

Note. a: LMX

Note. b: age, gender, team_size

Excluded Variables		<i>Beta In</i>	<i>t</i>	<i>p</i>	<i>Partial r</i>
Step 1: a	team_size	0,033	0,495	0,621	0,052
	age	0,054	0,807	0,422	0,084
	gender	-0,112	-1,726	0,088	-0,178

Note. a: LMX

Declaration of Authenticity

I, Sven Niklas Langer, hereby declare that the work presented herein is my own work completed without the use of any aids other than those listed. Any material from other sources or works done by others has been given due acknowledgment and listed in the reference section. Sentences or parts of sentences quoted literally are marked as quotations; identification of other references with regard to the statement and scope of the work is quoted. The work presented herein has not been published or submitted elsewhere for assessment in the same or a similar form. I will retain a copy of this assignment until after the Board of Examiners has published the results, which I will make available on request.



Sven Niklas Langer, Kamp-Lintfort, 27.07.2023