

ISM UNIVERSITY OF MANAGEMENT AND ECONOMICS

Saulius Olencevičius

**FEEDBACK INTERVENTION INFLUENCE ON INDIVIDUAL
PERFORMANCE**

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This doctoral dissertation was prepared in 2012 – 2018 at ISM University of Management and Economics.

Scientific Supervisor: Prof. Dr. Ilona Bučiūnienė (ISM University of Management and Economics, Social Sciences, Management – S 003).

Scientific Co-supervisor: Prof. Dr. Mogens Dilling-Hansen (Aarhus University School of Business and Social Sciences, Economics – S 004).

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KEY TERMS

Constructive feedback is that which is specific in content, devoid of threats and internal attributions for poor performance, considerate, timely/prompt, and delivered in an appropriate setting (Sommer & Kulkarni, 2012).

Feedback avoidance is intentional, proactive, and purposeful individual behavior involving active tactics directed at evading feedback (Moss, Sanchez, Brumbaugh, & Borkowski, 2009).

Feedback intervention – actions taken by (an) external agent(s) to provide information regarding some aspect(s) of one's task performance (Kluger & DeNisi, 1996).

Feedback seeking is intentional and valuable individual behavior directed for obtaining useful information regarding task performance (Ashford & Tsui, 1991).

Feedback is a positive or negative reinforcement, as a result of which performance improves (Davis & Davis, 1998).

Feedback process is information exchange regarding one's potential for individual advancement (Nurse, 2005).

Negative feedback is a negative reinforcement geared at preventing the recurrence of disruptive incidents and at guiding behavior towards desirable paths (Bee & Bee, 1996).

Neutral feedback – stimuli without any meaningful information to recipient, involving possible reward or punishment (Holroyd et al., 2006).

Operant conditioning - changing of behavior by the use of reinforcement which is given after the desired response (Skinner, 1938/1966).

Performance is a total summary of individuals' behaviors and activities that are judged to be important for accomplishing the goals (Campbell et al., 1990).

Performance feedback is a process regarding individual effectiveness and achievements (McCarthy & Garavan, 2006).

Regulatory focus – dominant personality characteristics of individual self-regulation (Higgins, 1997).

Supervisory feedback is a communication targeted for controlling people performance (Jaworski & Kohli, 1991).

Task performance – individuals' proficiency to perform her or his job (Campbell et al., 1990).

Task-referenced feedback – information about the individual's own level of task performance (Anseel, Van Yperen, Janssen, & Duyck, 2011).

INTRODUCTION

Relevance of the research.

In recent years, individual performance management became a more important tool for leading organizations to success (Farndale, Hope-Hailey, & Kelliher, 2011; DeNisi & Murphy, 2017). Moreover, performance management and its concurrent part – feedback delivery, have received growing managers' and researchers' attention. However, there is no final agreement regarding definition of the concept of feedback (Ramaprasad, 1983). Despite a solid research little is known regarding implementation of feedback mechanisms and its complexity (Caemmerer & Wilson, 2010).

The outcomes of different types of feedback (e.g., formal performance appraisals, grades) on individuals' motivation and performance have received substantial theoretical and empirical attention, but no general principle which can predict the effectiveness of feedback interventions has arisen (Shao, Li, & Mawritz, 2018; DeNisi & Kluger, 2000).

Feedback intervention, defined as *"actions taken by an external agent to provide information regarding some aspects of one's task performance"* (Kluger & DeNisi, 1996, p.255), significantly influences motivation, behavior, and performance (Anseel, Lievens, & Schollaert, 2009; Anseel, Van Yperen, Janssen, & Duyck, 2011; Kuvaas, Buch, & Dysvik, 2016; Sully De Luque & Sommer, 2000). Also, as an organizational resource, feedback is seen as an important stimulus influencing individual behavior (Kuvaas & Buch, 2016; Lam, DeRue, Karam, & Hollenbeck, 2011; Sijbom, Anseel, Crommelinck, De Beuckelaer, & De Stobbeleir, 2017; Stajkovic & Luthans, 1997).

However, not all feedback interventions result in a performance increase: performance management and feedback delivery have been named by some CEOs as the most irritating and ineffective component of their organizations (Harms & Roebuck, 2010); moreover the meta-analytic evidence of Kluger and DeNisi (1996) shows that in more than one-third of cases, feedback negatively impacts performance; likewise negative feedback could lead individuals to amotivation (Gagne & Deci, 2005).

Therefore, previous research has not presented an unambiguous answer on how feedback intervention (positive, neutral, and negative) affects individual performance (Schoen, 2015; Van-Dijk & Kluger, 2004) and whether positive feedback serves as a “license to relax” or fosters greater efforts by the recipient (Jaworski & Kohli, 1991). Moreover, little is known regarding the implementation of feedback causality mechanisms in the total performance process (Caemmerer & Wilson, 2010; Goodman, Wood, & Chen, 2011; Whitman, Halbesleben, & Holmes, 2014).

Continual changes and progress have forced supervisors to find and implement cost-effective solutions for the information exchange and employee support by providing individual feedback regarding his or her professional behavior. Performance of individuals can be fostered by timely performed feedback intervention (Kuvaas, Buch, & Dysvik, 2016). Sometimes, subordinates want to know how they are performing; therefore, they seek for the feedback (Moss & Sanchez, 2004). Individuals have an instinctive interest in knowing how they are performing, particularly when their job evaluation depends on it (Sully De Luque & Sommer, 2000).

The importance of feedback intervention has been analyzed and discussed for many years. Managers believe that feedback has, or at least must provide, a positive impact on recipient performance (Lam et al., 2011; Kuvaas, Buch, & Dysvik 2016). At the beginning of the XXI century, feedback management, especially feedback delivery, becomes more important in daily life (Johnson, Rocheleau, & Tilka, 2015). Unfortunately, feedback is often wasted because of lack of knowledge of how feedback must be delivered to individuals. Therefore, feedback interventions are not an easy task (Harms & Roebuck, 2010), not always successful, relatively time costly and ineffective (Davies, 2010).

The goal of performance feedback is to improve the recipients' behavior measured by the observer or performance reviewer (Cavanaugh, 2013; Kuvaas & Buch, 2016). It was claimed that motivation and performance are significantly influenced by feedback (Ammons, 1956; Stajkovic & Luthans, 1997; Shao, Li, & Mawritz, 2018), and that feedback intervention is the most effective when it is more focused on a task rather than on a person (Kluger & DeNisi, 1996; Kuvaas & Buch, 2016).

Researchers have primarily concentrated on the dyadic effect of feedback on task performance and much less on the impact of other elements (e.g., personality, task specificity) on overall individual performance (Belschak & Hartog, 2009). Feedback delivery and reception are mutual actions influenced by many factors (Sully De Luque

& Sommer, 2000); no one feedback type fits all situations and congruence between feedback sign (negative vs. positive); some individual characteristics generate performance improvements (Van-Dijk & Kluger, 2011).

Research shows that task nature has an important relation to individual performance (Higgins, 1997, 1998; DeNisi & Kluger, 2000). By performing different types of tasks, the same individuals could demonstrate different performance.

Individual reactions to feedback intervention and future behavior are related to individuals' regulatory focus (Higgins 1997; Higgins et al., 2001; Kluger & DeNisi, 1998; Kluger & Van-Dijk, 2005). Previous research has considered individuals' regulatory focus, i.e., "*self-regulation with a promotion focus (accomplishments and aspirations) and self-regulation with a prevention focus (safety and responsibilities)*" (Higgins, 1997, p.1280). It shows that when a person's regulatory focus matches the task characteristics, it leads to a performance increase (Bianco, Higgins, & Klem, 2003; Van-Dijk & Kluger, 2004).

Promotion-focused individuals are more sensitive to positive feedback, where prevention-focused individuals are more influenced by negative feedback (Higgins, Shah, & Friedman, 1997; Kluger & DeNisi, 1996; Freitas, Liberman, Salovey, & Higgins, 2002; Park, Kim & Sung, 2017). This is a traditional approach in feedback-related research, where individuals' regulatory focus has been measured as bipolar salient regulation foci, i.e., promotion and prevention focus.

In this dissertation, the author measures the effects of the congruence of three factors on the recipient's task performance: feedback intervention, the recipient's regulatory focus, and task nature. Predictions are grounded on a congruence effect in which an individual's performance depends on the fit between the individual's chronic regulatory focus (i.e., promotion and prevention), task nature (i.e., promotion and prevention) and feedback sign (i.e., positive, negative or neutral).

Current state of research and remaining gaps.

Sully De Luque and Sommer's (2000) theoretical analysis reveals two research streams of feedback delivery research. One stream represents feedback as an organizational resource, where the research priority is targeted to incentives and intervention procedures. Another stream sees feedback delivery more from the perspective of the individual engagement of behavior evaluation and acquiring useful information for self-assessment. Part of the literature shows the effectiveness of

feedback intervention on future individual behavior and performance (Kluger & DeNisi, 1998; Koopman et al., 2016) while another part shows that not all feedback interventions ends up in improved performance (Lam et al., 2011; Kuvaas, Buch, & Dysvik, 2016) and often creating inconsistent results (Ross & Stefaniak, 2018). Moreover, negative feedback could lead individuals even to amotivation (Gagne & Deci, 2005). Such twofold findings indicate the complexity of feedback intervention effectiveness (Sully De Luque & Sommer, 2000). However, the value of feedback delivery regarding feedback outcomes is still an under-researched field (Baker et al., 2013).

Despite people understanding and common sense that feedback intervention affect motivation to perform better, the tremendous scientific literature has no clear answer regarding when and how feedback intervention (i.e., positive, neutral, and negative) increases or decreases such motivation (Baker et al., 2013; Van-Dijk & Kluger, 2004). Negative feedback effect is usually overestimated as well (Breevaart et al., 2016). However, if the recipient is in a defensive position regarding underperformance, then feedback will be ineffective (Dysvik et al., 2013).

Supervisory feedback is a tool for controlling subordinate performance and can be used at the initial stage, during a process, or at the final stage of the task. It is related to formative evaluation, when constant monitoring and support enhance individual development and, progress and fosters a better knowledge development, motivation, and performance increase (Sijbom et al., 2017; Park, Kim & Sung, 2017). However, different studies provide twofold information, where no clear evidence about unified feedback influence on individuals is present (Freitas et al., 2002; Ross & Stefaniak, 2018).

Positive and negative feedback intervention estimated to improve recipients' performance, as one strengthens the correct behavior and the other discipline incorrect behavior (Kluger & DeNisi, 1998; Anseel et al., 2011; Lempert & Tricomi, 2015). The extant research findings show that the effects of feedback intervention on performance have never been simple or consistent (Sully De Luque & Sommer, 2000). Therefore, few answers or theories describing feedback's influence on recipients' performance have been developed until now.

In the present scientific literature, feedback research have moved from a static view looking on the immediate effects of feedback to a more dynamic view looking on feedback-seeking, multiple sources of feedback, adaptive performance, and feedback

interventions to improve performance (London & Smither, 2002; Breevaart et al, 2016; Jundt, Shoss, & Huang, 2015; Schoen, 2015). It shows the change of the research towards higher complexity of different constructs, which can help to understand feedback mechanism better.

Feedback affects recipients' behavior and emotions, and those emotional reactions mediate the relationship between feedback and employee behavior (Belschak & Den Hartog, 2009). The more emotionally stable people are, the less likely they are experiencing destructive emotions, such as shame or anger, as a response to negative feedback (Niemann et al., 2011). These negative emotions influence individual future performance. Research show that unfavorable feedback, even delivered for individual developmental purposes only, is not perceived as efficient and can result in negative recipient reactions when one does not demonstrate one's intentions to change own behavior (Steelman & Rutkowski, 2004; Schoen, 2015).

Very limited attention to the congruence effect of multidimensional variables on feedback influence is present in the literature (Van-Dijk & Kluger, 2011; Breevaart et al., 2016; Sopina & McNeill, 2015), especially when used in combination with task type, feedback sign, and personality regulatory focus (Van-Dijk & Kluger, 2011). Scholars hypothetically assume, that the best results could be achieved when all constructs matching each other perfectly, e.g., task type is promotion-oriented, feedback sign is positive, and chronic regulatory focus is promotion-focused; or task type is prevention-oriented, feedback sign is negative, and chronic regulatory focus is prevention-focused (Van-Dijk & Kluger, 2011). However, scholars raised the question: "What happens, when three constructs are not matching each other perfectly?" e.g., the task is promotion and the person is prevention-focused, and more generally, what happens when the situational regulatory focus oppose the chronic regulatory focus (Van-Dijk & Kluger, 2011)?

In previous empirical research, individuals' regulatory focus has been measured as bipolar salient regulation foci with a promotion or prevention focus. However, individuals could have both a promotion and prevention focus (Brockner, Higgins, & Low, 2004). Also, a dual focus (i.e., high levels of prevention and promotion focus) is effective in some situations (Brennkmeijer, Demerouti, Le Blanc, & Hetty van Emmerik, 2010). However, data are lacking on individuals having no salient regulatory focus or with salient dual focus reactions to feedback delivery.

Human behavior is psychologically and physiologically designed to survive and feel safe. Therefore, always is dominating the principle of “safety first,” which humans activate in stress conditions (Freitas et al., 2002). This means that a prevention focus fosters a sense of urgency and a preference to initiate action earlier than a promotion focus. Therefore, a prevention effect will be obtained even if only one of the constructs (e.g., regulatory focus, task type) is prevention-focused (Freitas et al., 2002).

Research question, aim, and objectives.

By investigating possible combinations (congruence effect) of the three factors—task type, chronic regulatory focus, and feedback sign—the research question in the dissertation is how feedback intervention congruence and incongruence affect individual performance? The **aim of this research** is to measure the effect of feedback intervention congruence on individual performance. Considering the research question, and the aim, the **objectives of the research** are the following:

1. To provide a theoretical analysis of feedback intervention and to present feedback conceptualizations;
2. To disclose the mechanism of feedback delivery;
3. To develop a theoretical framework of feedback intervention influence on individual performance;
4. To disclose the relationship among feedback intervention, task type, regulatory focus, and individual performance;
5. To empirically evaluate the congruence effect of the three mentioned factors on individual performance;
6. To provide conclusions and managerial implications for performing feedback intervention.

Research methodology.

The theoretical part of the research was dedicated to defining a feedback intervention phenomenon and its effects on individual performance change. To achieve that, the scientific literature in the fields of psychology, human resource management, organizational behavior, sociology, and social sciences analysis was performed. It helped to identify existing gaps in the feedback intervention literature and to select factors for the present research. By disclosing different feedback signs and

complexity with the task nature and individual chronic regulatory focus the theoretical concept and research model were developed.

To test the hypotheses raised, an experiment using a sample of 256 Lithuanian students was performed. An experimental study was conducted according to the sequential model. Initially, participants' chronic regulatory focus was measured and based on results participants being divided into stable blocks. Then, participants were randomly assigned to perform promotion or prevention type tasks, after which accomplishment received manipulated feedback and participants performed a second similar task. The change in performance was measured.

Gathered data were analyzed using SPSS statistical software. For the evaluation of participants' chronic regulatory focus, exploratory factor analysis was performed. For the demonstrated performance measurement verification analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA) methods were used. For the feedback intervention, which influenced performance change, repeated measures ANOVA was implemented. To assess the internal reliability of data, Cronbach's alpha coefficients were calculated. Finally, the research findings were analyzed, summarized, and presented.

Scientific contribution.

The present dissertation contributes to the existing scientific knowledge about feedback intervention in several ways.

First, by analyzing a related theory of used multidimensional variables, a three-dimensional theoretical model was designed and empirically tested. The dimensions include individual personality type (chronic regulatory focus), performed task nature, and feedback intervention sign. It provides a new understanding and evidence regarding how the feedback intervention mechanism works. Most of the feedback intervention research has focused on two-dimensional (feedback performance) analyses of constructs (Sully De Luque & Sommer, 2000) and lacks empirical evidence on three-dimensional construct (feedback sign, task type, and regulatory focus) analyses (Van-Dijk & Kluger, 2011).

The second important scientific contribution is the disclosure of congruence effect on performance change among the constructs used. Such effects are not scientifically analyzed, resolved, and grounded by empirical evidence (Van-Dijk & Kluger, 2011; Sully De Luque & Sommer, 2000), especially, when it exists a conflict among

researched factors: when the nature of one factor contradicts another factor (e.g., when the performed prevention task type contradicts the individual's promotion regulatory focus or the positive feedback sign contradicts both—the individual's prevention regulatory focus and prevention task type). A different combination of variables has greater power to affect individual future behavior and performance. Therefore, all possible congruence combination effects of used factors on individual performance change were measured.

The third scientific contribution is that neutral feedback, and its influence on task performance of different regulatory focus individuals was evaluated. Positive and negative feedback interventions have received a lot of research and theoretical attention. However, the neutral feedback, which is described as feedback without any meaningful information, is still under-researched (Holroyd, Hajcak, & Larsen, 2006; Muller, Moller, Rodriguez-Fornells, & Munte, 2005). Therefore, in this research, the author stressed attention to possible outcomes of neutral feedback on different chronic regulatory focus groups. The existing theory discloses that neutral feedback does not influence performance change (Holroyd, Hajcak, & Larsen, 2006; DeMonbeun & Craighead, 1977). However, the empirical findings of the present study disclosed specific results and therefore, raise new questions and possibilities for the future research of neutral feedback.

Fourth scientific contribution is related to the further improvement and expansion of E. T. Higgins' (1997, 2001) described chronic regulatory focus personality types. Two types of individual regulatory focus—prevention and promotion—dominated scientific research. The present dissertation findings suggest that individuals could have a strongly expressed mixed regulatory dual focus as well when a chronic regulatory promotion and prevention focus are present together. Therefore, evaluation of their behavioral reactions to different feedback signs is valuable and new in the feedback management field and supplements Higgins' self-regulation theory.

The fifth contribution, which provides more practical value, is empirical evidence on how feedback intervention influences individual performance in Lithuanian context. The majority of feedback intervention research was performed in the United States and Western European countries. Therefore, this aspect is relevant for both the scientific and business communities, as it provides ideas about why some Western managerial methods are not fully adaptable and effective in Eastern European countries.

The additional value of the dissertation is that historical development of feedback intervention research is presented in chronological order. The historical feedback intervention research development review prepared by analyzing scientific experiments started in the year 1900, when Edward Thorndike introduced the first, and most influential, theory on feedback intervention—Law of effect (1905-1911).

Limitations of the dissertation and directions for future research.

Despite a solid theoretical background, the research has a few limitations, which are presented in this chapter. Some limitations are related to sampling, some to research methodology, and some to an analytical approach, what could be explained as a researcher's choice. Usually, there are few ways to organize and to analyze the data (Zikmund, 2013). Therefore, the choice depends on several criteria and must reflect the highest possible validity and reliability requirements (Gravetter & Wallnau, 2013).

First, the research was based on an experimental laboratory design using a student sample. Some scholars stating that student samples provide not an accurate estimation. However, Kardes (1996) reported that students are the perfect sample for the research, as they deliver results very close to the population.

The sample consists of relatively young undergraduate students from two universities in Lithuania, which can be argued in favor of generalizability, as this sample is not representative of the total population. From one side, this helps to minimize biases and side effects having good sample homogeneity; from another side, the research lacks a broader view of different age groups. Individuals with higher social and professional maturity could have different reactions to feedback intervention. Therefore, their performance could be influenced in a slightly different way. This moment requires the future attention of scholars.

The second limitation of the present research can be addressed to the mixed regulatory focus group individuals. Higgins and a number of other scholars focus only on two types of chronic regulatory emphasis—prevention and promotion. However, the received factor analysis results in the present study show that this is not the case, as some individuals had not demonstrated a clear dependence on one of these groups, as extreme locations could be named on the measurement scale. Self-reported data indicate mixed views of certain life situations (dual focus) and individuals cannot be assigned to the promotion or prevention group. Therefore, their performance has been

evaluated separately, and feedback intervention influence measured. As this outcome was not expected in the initial design of the experiment, the hypotheses for the mixed group were not raised. This phenomenon needs further international scientific research to gather more evidence about different regulatory focus groups. It could disclose that this is a peculiar culturally-influenced situation or general tendency.

The above-mentioned issue leads to the third limitation of the research. The sample is based on Lithuanians only, possibly limiting the generalizability of the research findings. Even more, this type of study was not conducted previously in Lithuania. The cultural paradigm in feedback research is in the development process (Sully De Luque & Sommer, 2000; Steelman, 2004). What works in feedback intervention situations in one culture is not necessarily correctly perceived or works in a different culture (Ashford, 2001; Fletcher, 2001; Earley & Stubblebine, 1989). Therefore, feedback intervention may need to be considered within a cultural context (Sully De Luque & Sommer, 2000; Hsieh & Huang, 2018).

Societal norms usually shape the feedback process and influence the quality of the provided information (Aguinis et al., 2012). Therefore, from the generalizability perspective, there is a need to perform the same study in another country.

The fourth limitation could be addressed to the fairness of the delivered and perceived feedback. As feedback sign was manipulated, it had no direct reflection of the actual demonstrated result. Perception of fair feedback can reduce conflict between supervisors and employees and could affect performance change more intensely (Sommer & Kulkarni, 2012; Steelman & Rutkowski, 2004). Therefore, fairness aspect must be addressed in the future feedback research.

Structure of the dissertation.

The dissertation consists of several primary parts, which include an introduction, theoretical analysis, research methodology, empirical study, research results, conclusions, recommendations, and a list of references used.

The introduction indicates the relevance and importance of the study, research problem, and objectives. In this section, the novelty and significance of the work to the scientific world and knowledge were highlighted. Limitations of the dissertation are presented as well.

The theoretical part of the dissertation was dedicated to describing and revealing the phenomenon of feedback intervention, recipients' behavior, and regulatory focus,

feedback signs, task types, and their influence on individual performance. An analysis of the related research was performed, and the factors were described. A detailed analysis of feedback sign, task type, and chronic regulatory focus conceptualization was discussed, and key definitions were presented.

Based on theory review, the conceptual research model to measure the congruence effect of three used factors (i.e., task type, chronic regulatory focus, and feedback sign) was developed. A theoretical framework was designed, and hypotheses raised (possible congruence variations of three used factors). Empirical research was performed by using a laboratory experiment method.

The methodological approach and experimental design used in the dissertation were described in detail and grounded. The statistical analysis section presents results, validity, reliability, and the primary analytical procedures. As an outcome, analysis and interpretation of findings were prepared. Conclusions were presented, followed by scientific and practical implications.

A list of references used, and appendices was included as well.

Publications and conference presentations

Peer-reviewed journals

1. Olencevičius, S. & Dilling-Hansen, M. (2019). *Relation Between Proper Management, Feedback Frequency and Employee Age*. Journal of Organizational Psychology. Vol.19, No.2. ISSN# 2158-3609.
2. Olencevičius, S. (2019). *Feedback intervention research historical review: From single to multidimensional*. Journal of Contemporary Management Issues. Vol.24, No.1. ISSN# 1331-0194.

Conference presentations

1. Olencevičius, S., Dilling-Hansen, M., Bučiūnienė, I. (2018, June 13-15). *How does congruence of feedback sign, task type and regulatory focus affect individual performance*. 15th International Human Resource Management conference, Madrid (Spain).
2. Olencevičius, S. (2014, June 24-27). *Feedback management in post-Soviet countries*. 13th International Human Resource Management conference, Cracow (Poland).

1. Theoretical grounding of feedback intervention mechanism on individual performance

In the following section, based on the existing scientific literature, the following factors are analyzed: individual performance, task type, chronic regulatory focus, and feedback intervention. In the present study, the higher focus was dedicated to feedback intervention. Therefore, an analysis of this factor was expanded and described much broader. The conceptual framework was developed as well.

1.1. Individual performance

Individual performance is defined as a behavior relevant to an organization's provided task, as an individual's generated outcome measure (Koopmans et al., 2012), and can be evaluated by comparing demonstrated achievements with the settled goals (Johnson, 2003; Jundt, Shoss, & Huang, 2015; Azzam & Whyte, 2018). Further, individual performance can be conceptualized as completing a task as accurately as possible by following the required procedures or a formal job description (Fredericks et al., 2004). The behavior has quite a strong effect on performance (Shao, Li, & Mawritz, 2018), as individuals are fully capable of identifying themselves as personalities who are willing to be compared with others (Hurtz & Donovan, 2000). While performing dedicated tasks, feedback intervention is supposing to help to perform better (Fredericks et al., 2004; Van-Dijk & Kluger, 2011).

Individual performance is vital for an organization's success (Koopmans et al., 2012). Therefore, managers implement various performance measures in their organizations (Aguinis et al., 2012) where feedback intervention often is incorporated. Individual performance is one of the primary objects of study in organizational behavior and human resources management (Wood, 1986; Johnson et al., 2015), as it is directly related to the individual contribution to the organization goals (Campbell et al., 1990). At the same time, it is directly related to performance management, where individual performance is monitored continually and reinforced.

Performance management is a continual process and refers to the broad variety of different activities, internal policies, and procedures developed to help individuals to improve their performance (DeNisi & Murphy, 2017). From a managerial point of view, performance management is directly targeted to affect employee, to make decisions,

and perform related actions in the best possible interest for the organizations (Anthony & Govindarajan, 2007). However, the personal contribution can be positive or negative. Individual task performance is often used as an outcome measure in the occupational setting (Koopmans et al., 2012), where individual performance is measured by demonstrated achievements in relation to the settled targets.

Specific goals and feedback could have more influence on a performance increase than general goals and feedback (Azzam & Whyte, 2018). Based on nearly 400 studies analyzed, about 40,000 participants in 8 different countries, and who performed 88 various tasks, Harkins and Lowe (2000) found that providing individuals specific challenges to reach goals, people have demonstrated higher performance in comparison with people who were instructed to do their best. Such instructional feedback helps to shift individual focus to higher targets and to deliver better results (Azzam & Whyte, 2018).

Individual performance may fluctuate as a result of the equivalent of different resources persons apply to perform a task (Vancouver & Tischner, 2004). Scholars provide data that in some cases performance can increase as the number of allocated resources to the task increases.

1.2. Task performance as an individual performance measure

Task performance is one of the most important and often monitored individual performance measures in the workplace (Koopmans et al., 2012). Therefore, companies implement a number of various incentives and motivational options to support individuals to increase their task performance.

The task is usually a central construct in the organizational human behavior studies (Jundt et al., 2015; Wood, 1986; Campbell et al., 1990). Traditionally, the primary focus of the individual performance is directly related to task performance (Koopmans et al., 2012), and can be defined as individuals' proficiency to perform her or his job (Campbell et al., 1990). Task performance behaviors can be described as performing job quality, quantity, and job knowledge in general (Campbell et al., 1990; Koopmans et al., 2012).

To evaluate task performance, first, theoretical task characteristics must be defined a priori (Wood, 1986). Then they could be used in tests. In the present research, the author had followed the same theoretical traditional pattern, where based

on further described theories, one task is defined a priori as a promotion and the second one as a prevention.

Evaluating a task and its complexity, the research identified four separate theoretical frameworks that could be used to study tasks (Hackman, 1969):

- 1) "Task qua task. Tasks are defined as a pattern of stimuli influencing on the individual (Wood, 1986; p.61);"
- 2) "Task as behavior requirements. Tasks are defined in terms of the behavioral responses a person should emit in order to achieve some specified level of performance (Wood, 1986; p.62);"
- 3) "Task as behavior description. Tasks are described and grouped in terms of the kinds of behaviors that people exhibit when actually performing the task (Wood, 1986; p.62);"
- 4) "Task as ability requirements. Tasks are differentiated on the basis of the different skills that are required to perform them (Wood, 1986; p.62)."

To separate the individual from the task, the task must be described autonomously from individuals who perform the task (Wood, 1986). Concerning the "task qua task" framework, the task can be described as a construct alone, which is independent of individual phenomena.

However, tasks are not the same nature and have a specific classification. Based on a number of research results (DeNisi & Kluger, 2000; Harkins & Lowe, 2000; Van-Dijk & Kluger, 2011), different tasks reflect a different nature and can be divided into two types: promotion and prevention tasks.

Promotion tasks are those that require creativity and open-mindedness (e.g., assimilating new technology, setting goals, generating ideas, doing research and development, creative problem-solving) (Bianco, Higgins & Klem, 2003; Van-Dijk & Kluger, 2011). If tasks require creativity, supervisors need to communicate this clearly, as a favorable feedback environment indirectly influences the creative performance of individuals (Davidson & DeStobbeleir, 2011; Shalley & Gilson, 2004).

Prevention tasks are those that require accuracy, attention to detail, and vigilance (e.g., bookkeeping, detecting errors, maintaining safety, supervising, quality control, budget planning) (Bianco, Higgins & Klem, 2003; Van-Dijk & Kluger, 2011).

Both types of tasks are equally significant in daily life and require a demonstration of different individual skills and strategies (Harkins & Lowe, 2000). The nature of the

task sometimes can induce individuals' promotion or prevention foci (Van-Dijk & Kluger, 2011), which could lead to different personal behavior tendencies.

Research shows that promotion-focused individuals perform promotion type tasks better than prevention ones while prevention-focused individuals are better at prevention type tasks (Van-Dijk & Kluger, 2011).

1.3. Development of feedback intervention research

The documented history of feedback intervention research started in the XIX century. Scholars were interested to know how to predict individual behavior and what factors influenced performance change. In the following section, the author reviewed major feedback intervention studies since the initial theory development. In the beginning, research focused on simple factor analyses. Later, an evaluation of feedback-influenced individual performance and behavior became a more complex issue.

Looking back at the history, we can find information that the scientific approach, or experiment, on feedback interventions started at the beginning of the last century with Edward Thorndike's *law of effect* (1905-1911). Kluger and DeNisi (1996), in the historical perspective of early feedback intervention research, mentioned that *knowledge of results*, a form of feedback intervention, increases performance.

Kluger and DeNisi reviewed the research by Wright (1906), Thorndike (1927), Brand (1905), Gates (1917), Judd (1905) and others. Most of these researchers' studies suffered from significant problems, such as scarce methodology, lack of focus to inconsistent results, inaccurate usage of *knowledge of results* (part of feedback intervention involving measured results, or statistics, such as numbers, scales, etc. e.g., "You have read 20 articles") (Kluger & DeNisi, 1996). Some of these researchers manipulated preperformance expectations, such as "you are (un)able" to perform, others—*knowledge of results*, but named their manipulations as a consciousness of habit (Judd, 1905), reward and punishment (Thorndike, 1927), and incentive (Crawley, 1926; Wright, 1906). This shows that initially there was confusion about what *knowledge of results* meant.

After years of development, the latest solid feedback intervention research shows a high complexity of feedback delivery and recipient reaction to it. Kluger and DeNisi (1996) conducted significant research and proposed a new hybrid theory, where the

feedback intervention effect is based on different levels of control, such as task learning, task motivation, and meta-task. Scholars disclose that positive and negative feedback intervention can increase or decrease recipients' performance (Higgins, 1997; Van-Dijk & Kluger, 2004). The hybrid *Feedback intervention theory* (Kuger & DeNisi, 1996) is important in understanding the feedback delivery mechanism. Unfortunately, there are no more theories since Feedback intervention theory was developed in the feedback intervention concept.

Nevertheless, scientific feedback research went a long way. After an in-depth and detailed analysis of the scientific literature, the author in this dissertation presented the main breakpoints in feedback intervention historical theories development.

1.3.1. Law of effect by Edward Lee Thorndike

The origins of feedback intervention research started more than a hundred years ago. Just as now, people at that time thought that it was possible to predict people's individual behavior. At that time, the most influential theory in feedback intervention was Edward Lee Thorndike's *Law of effect* (1905-1911), which was developed using animals as test objects and later applied to human society. Thorndike (1911) stated:

“Of several responses made to the same situation, those which are accompanied or closely followed by satisfaction to the animal will, other things being equal, be more firmly connected with the situation, so that, when it recurs, they will be more likely to recur; those which are accompanied or closely followed by discomfort to the animal will, other things being equal, have their connections with that situation weakened, so that, when it recurs, they will be less likely to occur. The greater the satisfaction or discomfort, the greater the strengthening or weakening of the bond (Thorndike, 1911, p.244).”

According to this statement, it is possible to conclude that operant conditioning involves learning from the consequences of individuals' behavior. It means any behavior that is followed by pleasant outcomes is likely to be repeated, and any behavior followed by unpleasant outcomes is likely to be stopped (Thorndike, 1927). Based on this, positive feedback was associated with reinforcement and negative feedback with punishment (Lempert & Tricomi, 2015). Reinforcement and punishment alleviate learning, hence, performance as well.

Thorndike conducted his laboratory investigations with animals (cats) and humans (McLeod, 2007). Developing the "*Law of effect*," he performed an experiment with cats, which were placed in a specially designed experiment cage—called the "puzzle-box." The door of the cage was locked by a simple latch. Outside the cage, Thorndike placed a piece of a salmon. The cat was placed in the box and could freely move about the inside. It could see and smell the fish but could not reach it from the cage. After some time, the cat began maneuvers by extending its paws through the bars to reach the fish, unsuccessfully. After a few unsuccessful attempts, the cat started scratching at the bars of the cage and rushed around inside. Accidentally, it hit the latch on the door, and the door was opened. The cat went out and ate the fish. The total escape reaction time was measured.

The cat was placed back into the cage, and a new piece of fish was served again. The cat performed the same process as before and, by hitting the latch one more time, went out and successfully reached the fish. This process was repeated multiple times. Thorndike noticed that with the repetition of this experiment the total time spent to open the door became less and the releasing of the latch became faster. Gradually, the cat stopped extending its paws through the bars and focused its activities closer near the latch. Later, it began its activity immediately by trying to open the door by hitting the latch. After some time, the cat developed an efficient and fast way to open the door. Later, experiments with more complicated door opening schemes were performed where a few locking mechanisms were involved. This incorporated the learning process (McLeod, 2007).

Thorndike made a theory that the cat learned to escape the cage by trial and error, where positive reinforcement was involved. Analysis of this experiment shows that the behavior that made the desired effect became dominant; therefore, occurred faster (Thorndike, 1927).

A number of other animal intelligence measuring experiments were performed involving dogs, monkeys, chicks, etc. The learning process, by creating comfort or discomfort, was measured and described as well (McLeod, 2007).

Based on the *Law of effect*, responses that are followed by a satisfying state of affairs would occur with greater frequency over time (Thorndike, 1927). Moreover, oppositely, responses that were followed by an annoying state of affairs would occur less frequently over time (Thorndike, 1927).

Later, similar experiments were performed on humans, where positive and negative feedback (reinforcement) helped to develop required behavior: to strengthen positive behavior by using pleasant consequences and eliminating undesired behavior by using unpleasant consequences (McLeod, 2007).

1.3.2. Operant conditioning by Burrhus Frederic Skinner

Causes of an action and its consequences were widely analyzed by Burrhus Frederic Skinner (1904-1990). He believed that the best possibility to understand behavior is to look at the causes of an action and its outcomes (Iversen, 1992). Skinner (1938) introduced the term *operant conditioning* (adjusting the behavior by the use of reinforcement, which is given after the desired response), which evolved into *reinforcement theory* (Skinner, 1938; McLeod, 2007). Operant conditioning is a way of learning that takes place through rewards and punishments for demonstrated behavior (Skinner, 1938). Through operant conditioning, a direct association is made between a subjects' behavior and a consequence for that behavior (Skinner, 1963).

Skinner's theory of operant conditioning was developed following the work of Thorndike (1905). Skinner (1938) introduced a new term related to the law of effect—*reinforcement*: behavior, that is reinforced going to be repeated, and behavior that is not reinforced going to be extinguished (Skinner, 1938). He distinguished three types of responses, or *operants*, that can follow behavior (McLeod, 2007):

- Neutral operants. *Responses from environment, that neither increase, nor decrease, the probability of a behavior being repeated;*
- Reinforcers. *Responses from the environment, which increases the probability of a behavior being repeated. Reinforcers can be positive, or negative;*
- Punishers. *Responses from the environment, which decreases the likelihood of a behavior being repeated. Punishment weakens behavior (Skinner, 1948, p.168).*"

Skinner demonstrated how reinforcement operate by placing a hungry rat in his specially designed box, called a "*Skinner box*." It had a lever on the side wall and as a rat moved inside it accidentally could knock the lever. As soon as the rat knock the lever, a food pellet dropped into a special place close to the lever. The rats quickly realized and learned how to get food. Moreover, after some time, when they were put

in the box, they went straight to the lever. The consequence of getting food if they pressed the lever ensured that rats would repeat the action again and again. Skinner didn't say that they learned to press a lever just because they wanted food. He instead focused on analyzing the easily observed behavior that the animals acquired (Iversen, 1992; McLeod, 2007).

Skinner conducted similar experiments with pigeons (Skinner, 1948). He placed a bird into the box where during a similar learning process it learned to read two words: "*PECK*" and "*TURN*." When written actions were performed correctly, the pigeon was rewarded by food. Initially, the bird was taught to peck a small red disk to get a reward—food. To measure the bird's activity, food was intermittently provided every time the pigeon hit the disk. Skinner named this "the schedule of reinforcement" and measured quite broad frames in time (Skinner, 1963). He also directly compared this process and schedule of reinforcement with a human who played gambling machines by telling that it has the same effect. Humans played gambling machines because of "the schedule of reinforcement"—causes of behavior (Skinner, 1948).

Positive reinforcement fortify behavior by providing an outcome individual's find rewarding (Iversen, 1992). Negative reinforcement strengthens a behavior by removing an unpleasant reinforcer (discomfort) for the individual (Skinner, 1948). It strengthens behavior because it terminates, or removes, an obnoxious experience. Punishment is treated as the contrary of reinforcement as it is dedicated to weakening or even eliminating a response rather than increase it (Skinner, 1963). Same as reinforcement, punishment can be effective either by directly applying an unpleasant stimulus during the process, such as an electric shock after a undesired response or by eliminating a potentially rewarding stimulus (McLeod, 2007).

Skinner reveal how negative reinforcement worked by his experiment on rats (Skinner, 1948). He placed the rat in his modified Skinner box and then connected its floor to an unpleasant electric current, which caused some discomfort for the rat. Initially, as the rat moved inside the box, it accidentally pressed the lever. As soon as the rat did that, the unpleasant electric current was switched off. The rats quickly realized to go directly to the lever after a few times of being placed in the box. The consequence of terminating the electric current ensured that rats would repeat the same action again and again.

Skinner hypothesized that the humans learning behavior was similar in the way the rats learned to press a lever (Iversen, 1992). Therefore, as exists only a little

difference between the learning in humans and animals, research can be performed on animals as well as on humans (Skinner, 1948).

Since that time, various research was conducted, and theories were developed. However, the main points regarding behavior remain unchanged: reinforcement (positive feedback) and punishment (negative feedback) (McLeod, 2007; Iversen, 1992). One or another option is used to adjust people's behavior according to the desired direction of an organization, where many different motivation systems are implemented to develop employees' learning processes and increase individual performance.

1.3.3. Reinforcement sensitivity theory by Jeffrey Alan Gray

The next step in the feedback theory development was taken by Jeffrey Alan Gray (1934—2004). He introduced the biologically-based reinforcement sensitivity theory (RST) (1970, updated in 2000), which is the most influential motivation-based theory of personality (Corr, 2006). Reinforcement sensitivity theory is a biologically-based theory of personality that analyzing subsystems of the brain and is one of the few personality theories that does not eliminating impulsivity (Corr, 2006).

It is considered that received performance feedback is perceived as an affective event, which influences individuals' ephemeral affective state, followed by the influence of individual goals and behavioral regulation (Ilies & Judge, 2005). It is more of a psychoneurological process. At the basic motivational level, this affective event has a mediating role in the RST (Gray, 1990).

In the research, Gray focused on approach (promotion focus) and avoidance (prevention focus), as the two fundamental dimensions of behavior (Gray, 1990). In the RST Gray proposes, that two separate systems regulate individuals' behavioral motivation—the behavioral approach system (BAS) and behavioral inhibition system (BIS). These systems are related to different types or reinforcements (Gomez & Gomez, 2002). BAS is responsible for regulating appetitive (promotion), motivation, and could be activated by incentive signaling possible reward (or punishment avoidance), where BIS is responsible for regulating aversive (prevention) motivation and could be activated by stimulus signaling possible punishment (or non-reward) (Gray, 1990).

In addition to the mentioned behavioral intentions that they regulate, BAS and BIS contain emotional and cognitive components as well (Ilies & Judge, 2005). The BAS is responsible for regulating the experience of positive emotions, and BIS is responsible for regulating the experience of negative emotions (Gray, 1990). Different stimuli in the environment influence individuals' affective states, which reinforces further individuals' behavioral motivation and intention for corresponding actions (Gray & McNaughton, 2000).

The BIS is sensitive to the possibility of punishment, frustrated non-reward, and novelty. Therefore, its activation is targeted to decrease behavior toward such stimuli (Gomez & Gomez, 2002). The BAS is sensitive to the possibility of reward and non-punishment. Its activation is targeted to increase behavior towards mentioned stimuli (Gomez & Gomez, 2002).

For example, positive reinforcement (appetitive stimulus) activates individuals' approach behavior, which leads to reward (Gray, 1970). Such experience of positive affect reinforces the approach response in the future and should increase individual performance (Ilies & Judge, 2005). Vice versa, when people experiencing negative emotions, which is an unpleasant situation, the negative emotions trigger and reinforce avoidance behavior, because it related to BIS (Gray, 1970). It shows that performance feedback indicating success or failure in achieving the raised goals, therefore, influences person's positive or negative affect, which leads to the activation of behavioral approach (promotion) or avoidance (prevention) systems (Ilies & Judge, 2005).

The BAS motivates avoidance and escape behaviors, where the BIS is a part of negative feedback system targeted to eliminate the discrepancy between the threat and safety (Gray & McNaughton, 2000; Corr, 2006). The BAS still to be treated as the appetitive motivation system and related with the positive emotions (Gray, 1987; Corr 2004). Impulsivity is induced by reward motivation and regulated by the BAS (Gray & McNaughton, 2000), which is responsive to all positive valence stimuli (Smillie & Jackson, 2006).

The second central factor of reinforcement sensitivity theory is the BIS, which is responsible to manage the core functions of anxiety (Gray, 1987). The BIS explicitly responsible for resolving conflicts among conflicting goals (Smillie & Jackson, 2006; Gray & McNaughton, 2000), and could be the neural substrate that underlies emotion and anxiety (Smillie, 2006).

People high in anxiety could be hypersensitive to punishment stimuli, whereas people high in impulsivity would be hypersensitive to reward stimuli (Gray, 1970, 1982, 1991). The relationship of these systems to personality is challenging to determine. Sensitivity to punishment reflects a major BIS functioning, whereas sensitivity to reward reflects a major BAS functioning (Corr, 2004; Gray & McNaughton, 2000).

In Gray's RST, the BIS and BAS are more related to sensitivities than to the actual behavior (Gomez & Gomez, 2002). Following this argument, scholars even had developed BIS and BAS measurement scales, where BIS scale measures sensitivity regarding anxiety-provoking events and BAS scales measure sensitivity to possible events that could induce impulsive responses (Gomez & Gomez, 2002).

BIS and BAS sensitivity demonstrate different moderating effects on the affect-goal personal revision relationship (Richard & Diefendorff, 2011). These effects are directly related to individual behavior on feedback approach or avoidance.

Gomez and Gomez (2002) stated that impulsivity and BAS sensitivity are positively related to pleasant emotional information processing means, where anxiety and BIS sensitivity are positively related to unpleasant emotional information processing means. Such findings reflect a cognitive perspective to Gray's personality theory (Gomez & Gomez, 2002).

RST had supported feedback intervention research development by analyzing and explaining the psychoneurological process in human brains (Richard & Diefendorff, 2011). The research linked cognitive, motivational reactions to positive and negative feedback delivery. RST disclosed that individual reactions to received feedback sign are caused by intrinsic processes and affective states (Richard & Diefendorff, 2011).

1.3.4. Self-regulation theory by Edward Tory Higgins

A significant step in the feedback development was Edward Tory Higgins (1997) *self-regulation theory*. He suggested that people have two basic self-regulation systems: one system regulates the achievement of reward and concentrate individuals on promotion goals while the second one regulates the avoidance of punishment and concentrate individuals on prevention goals (Higgins, 1997). Each regulatory focus has different consequences for perception, for decision-making, and emotions (Higgins, 1998; Forster, Higgins, & Idson, 1998). Once individuals act within a prevention focus,

they are more likely to be sensitive to the presence or absence of punishments and prefer to use avoidance as a strategy. When individuals act within a promotion focus, they are more likely to be sensitive to the presence or absence of rewards and prefer to use the approach as a strategy (Higgins, 1997).

Some parallels to Higgins' differentiation could be found in other theories of motivation (e.g., Herzberg, Mausner) where scholars proposed a few factors in work motivation: hygiene and social (Higgins et al., 2001). Atkinson has provided a personality model of achievement motivation, where he proposed a fundamental distinction between "fear of failure" and "hope of success." Deci and Ryan (1985) explained differences between extrinsic and intrinsic motivation, where other scholars have presented data on organizational and vocational commitment, distinguished between continuance and affective commitment (Meyer, Allen, & Smith, 1993). Also, the theory describes that the regulation of prevention goals is reflected in the "negative activation" system of mood while the regulation of promotion goals is reflected in the "positive activation" system of mood (Watson et al., 1999). Hygiene factors, performance orientation, commitment, and the "negative activation" system somewhat correspond to a prevention focus (Higgins et al., 1997). Other motivators, such as affective commitment, learning goals, intrinsic motivation, and the "positive activation" system correspond to promotion goals (Van-Dijk & Kluger, 2004).

The theory of self-regulatory focus assume that the hedonic principle should operate differently when serving essentially different needs, such as the distinct survival needs of nurturance (e.g., nourishment) and security (e.g., protection) (Higgins, 1997). Human survival need adaption to the surrounding environment, especially in the everyday social environment (Higgins, 1998).

Regulatory focus theory proposes that nurturance-related regulation involves a promotion focus, as security-related regulation involves a prevention focus (Higgins, 1997). A promotion focus or a prevention focus could be temporarily induced by momentary situations as well (Higgins, Shah, & Friedman, 1997).

The focus of self-regulation (prevention or promotion) is determined by a minimum of three antecedents (Higgins, 1998), which can trigger a prevention focus. These antecedents are activation of security needs, strong obligations, and the evaluation of the situation in "loss vs. non-loss" terms. Alternatively, a promotion focus can be provoked by the activation of nurturance needs, strong ideals, and the evaluation of the situation in "gain vs. non-gain" terms (Higgins, 1998). Van-Dijk and Kluger (2004)

stated that each regulatory focus has different consequences for perception, decision-making, and emotions (Higgins, 1998). When people are under a prevention focus, they are sensitive to punishment related to poor performance, and when people are under a promotion focus, they are sensitive to reward that is related to superior performance (Higgins, 1997, 1998; Higgins, Shah, & Friedman, 1997). Therefore, Higgins stated, that fit (or congruence) between the salient regulation focus and type of salient outcome increases motivation.

Table 1 is a summary of Higgins' different sets of psychological variables that describes and separates the promotion and the prevention focus. It helps to see and understand the possible individuals' future behavior easier.

Table 1. RST psychological variables.

Psychological variables	Regulatory focus	Behavioral outcomes
Nurturance needs; Strong ideals; Gain – Non-gain situations.	Promotion focus	Sensitivity to presence or absence of positive outcomes; Approach as strategic means; Insure hits and insure against errors or omissions; Cheerfulness – dejection emotions.
Security needs; Strong oughts; Non-loss – loss situations.	Prevention focus	Sensitivity to absence or presence of negative outcomes; Avoidance as strategic means; Insure correct rejections and insure against errors of commission; Quiescence – agitation emotions.

Note: Higgins E.T. (1997). Psychological variables with distinct relations to promotion focus and prevention focus and behavioral outcomes.

Higgins' regulatory focus theory has been used in a number of different studies, but still, a little attention has been dedicated to the mechanism of how regulatory focus affects individual creative, or analytical, performance (Beuk & Basadur, 2016).

1.3.5. Feedback intervention theory by Avraham Kluger & Angelo DeNisi

After investigating and analyzing a number of theories and research paradigms related to feedback, Kluger and DeNisi (1996) proposed a hybrid theory – *Feedback intervention theory* (FIT).

Feedback intervention theory stating:

“Feedback Interventions (FI) change the locus of attention among three general and hierarchically organized levels of control: task learning, task motivation and meta-tasks (including self-related) processes. FI effectiveness decreases as attention moves up the hierarchy closer to individual and away from task (Kluger & DeNisi, 1996; p.254).”

Feedback intervention theory is oriented toward integrating the existing feedback theories, considering the known processes that are not addressed by those theories, and trying to explain the observed inconsistencies in the effects of feedback intervention on performance (Kluger & DeNisi, 1996). FIT was presented as a preliminary theory although lacking very detailed and specific predictions.

According to the authors, FIT has five basic arguments:

- 1) *“Behavior is regulated by comparisons of feedback to goals or standards;*
- 2) *Goals or standards are organized hierarchically;*
- 3) *Attention is limited and therefore only feedback-standard gaps that receive attention actively participate in behavior regulation;*
- 4) *Attention is normally directed to a moderate level of the hierarchy;*
- 5) *FIs change the locus of attention and therefore affect behavior (Kluger & DeNisi, 1996; p. 259).”*

These arguments are closely connected. Also, each further argument is built on the previous one. The first four arguments are already common and present in various feedback-intervention-related theories. The fifth argument, that feedback interventions change the spot of attention, is special to FIT and is pivotal for understanding the feedback intervention—performance link (Kluger & DeNisi, 1996).

Task performance in FIT is regulated by three abstract hierarchical levels of linked processes: meta-task processes involving the self, task-motivation processes involving the focal task, and task-learning processes involving the task details of the focal task (Kluger & DeNisi, 1996). Meta-task processes are the most important in the hierarchy, where task-learning processes are located at the bottom. These three level

hierarchy processes are abstract, but this abstraction alleviate the exposition of the significant processes proposed in feedback intervention theory (Kluger & DeNisi, 1996). Therefore, FIT changing previous treatments of feedback intervention, differentiating between FI-induced motivation and learning processes that are task-related, and those that are not related to the task (Kluger & DeNisi, 1996).

Below is presented a short review of all three hierarchical level processes in relation to feedback intervention theory.

Task-Motivation Processes. Feedback intervention theory involves the mechanisms of feedback sign assessment and the outcome on how to behave to the perceived feedback sign (Kluger & DeNisi, 1996). Feedback intervention is compared with a task related standard and if the feedback sign is negative then dedicated efforts are increased. If the feedback sign is positive, then future efforts are maintained or even could be decreased. Even more, a positive feedback sign may lead to raising the standard for performance and accordingly improving future performance (Lewin et al., 1944; Van-Dijk & Kluger, 2011). Moreover, the evaluation of these processes needs to be as interdependent and probabilistic (Kluger & DeNisi, 1996).

Task-Learning Processes. Learning processes can be activated if the feedback sign is negative, extra efforts are insufficient, and the selected strategy for eliminating the perceived feedback-standard gap is not enough to change behavior (high goal commitment) (Kluger & DeNisi, 1996). If people want to overcome subjective failure, first, they should work harder, which is the output of the motivational process. If that fails, individuals could work smarter by generating a new idea regarding means for improved performance.

The universal and the task-specific strategies correlate to the task-motivational and the task-learning levels in feedback intervention theory (Kluger & DeNisi, 1996). The learning process can also be activated if feedback intervention content refers to components of the task.

When the task is well skilled, attention to task details can interrupt the performance of automated processes and lower performance. Feedback influences a motivated recipient to try new strategies regarding more efficient possibilities to perform a task. However, the feedback intervention effects on strategy do not necessarily influence general performance because the alternative strategy can be less effective (Kluger & DeNisi, 1996).

If focus is directed to learning processes, but the information value of a feedback is superfluous with the previous knowledge, no feedback intervention effect on learning should be expected (Kluger & DeNisi, 1996). Feedback interventions influence the learning process by shifting attention to discrepancies between the strategies/standards regarding the details of the task performance and the outcomes of on these strategies. If the feedback is not influencing to reject incorrect strategies, it may force the recipient to create a variety of new ideas that can lessen consistency and performance in general (Kluger & DeNisi, 1996).

Meta-Task Processes. The change of attention in hierarchy level can activate at least *“four independent mechanisms: mode of resolving feedback-self discrepancies, attention to the self, depletion of cognitive resources for task performance, and affective processes. These processes are complex and interdependent”* (Kluger & DeNisi, 1996, p.265).

In the routine of resolving feedback-self, the related discrepancy can be minimized by continuing to work on the task that induced the processes or by a multitude of other ways. Individuals with high self-efficacy are less likely to skip a task even if they face a failure, comparing to those individuals with low self-efficacy. Anxious individuals, whose self-related goals were activated, most probably will shift attention away from the task and will concentrate on the unmet goals of the self (Kluger & DeNisi, 1996).

In the mode of attention to the self-case, individuals use strategy to improve the performance of the dominant task and reduce the performance of the non-dominant task. This was proposed by few theories, e.g. objective self-awareness theory (Wicklund, 1975) and control theory (Carver & Scheier, 1981). In this case, both negative and positive feedback interventions have been linked in shifting attention to the self (Kluger & DeNisi, 1996).

In depletion of cognitive resources for task performance cases, only if the task is automated and little resources are needed for its accomplishment, then the motivation induced by the feedback intervention may help individuals to increase performance successfully (Kluger & DeNisi, 1996).

After a preliminary investigation of feedback intervention theory, Kluger and DeNisi suggested that three groups of factors determine the effect of feedback interventions on performance: the cues of the feedback message, the type of the task performed, and momentarily (related to personality) factors. The cues of the feedback message related to recipients' standards and the actions they take. The type of the

task shows how sensitive it is to shift attention. The momentarily (related to personality) factors are responsible for the recipient's decision on how to eliminate the standard-feedback intervention gap (Kluger & DeNisi, 1996).

Preliminary hybrid feedback intervention theory integrates a wide range of feedback intervention theories and covers task-related motivation, task-related learning, self-related and other meta-task processes (Kluger & DeNisi, 1996). However, the preliminary FIT has some limitations. One of these limitations is that feedback intervention theory lacks detailed and specific predictions. The processes, described by FIT, need to be tested directly in the future, as no additional research was performed until now.

1.4. Individual chronic regulatory focus

The concept of individuals' chronic regulatory focus was described by Edward Tory Higgins (1997), as *"a principle that underlies the hedonic principle, but differs radically in its motivational consequences"* (Higgins, 1997, p.1280) and is directly related to personality type. It is based on people's motivational approach to seek pleasure and avoid pain. Goal seeking behavior is managed by two distinct motivational systems—promotion and prevention (Higgins et al., 2001). By analyzing these two different approaches, it is possible to identify diverse principles that underlie hedonic self-regulation (Higgins, 1997).

A regulatory focus is responsible to adjust how individuals approach pleasure outcomes and avoid painful outcomes. It signifies that differences in performance, emotions, decision-making, etc. could occur as a role of regulatory focus irrespective of the hedonic principle per se (Higgins, 1997).

The chronic regulatory focus starts by assuming that the hedonic principle should operate differently when serving fundamentally different needs—survival needs of nurturance and security (Higgins, 1997). The two systems, named promotion and prevention, both serve a different survival function (Higgins et al., 2001).

Regulatory focus theory states:

"The human promotion system is concerned with obtaining nurturance (e.g. nourishing food) and underlies higher-level concerns with accomplishment and advancement. The promotion system's hedonic concerns relate to the pleasurable presence of positive outcomes (i.e. gains)

and the painful absence of positive outcomes (i.e. non-gains). In contrast, the human prevention system is concerned with obtaining security and underlies higher-level concerns with safety and fulfillment of responsibilities. The prevention system's hedonic concerns relate to the pleasurable absence of negative outcomes (e.g. non-losses) and the painful presence of negative outcomes (e.g. losses) (Higgins, 1997, p.1281; Higgins et al., 2001; p.4)."

These mentioned two basic self-regulation systems (Higgins, 1997) or syndromes (Koopmann, Lanaj, Bono, & Campana, 2016; Van-Dijk & Kluger, 2004): promotion and prevention. Each regulatory focus has different consequences on individuals' perceptions, decision-making, and emotions (Anseel & Lievens, 2009; Anseel et al., 2009; Crowe & Higgins, 1997; Gino & Margolis, 2011; Higgins, 1997; Koopmann et al., 2016; Van-Dijk & Kluger, 2004).

The promotion syndrome regulates the achievement of rewards and focuses on maximal goals (Higgins, 1997; Shah, Higgins, & Friedman, 1998), long-term perspective, attunement to intrinsic needs, development, change, and ideals (Van-Dijk & Kluger, 2011). People with a salient promotion focus are sensitive to rewards (Brockner & Higgins, 2001; Higgins, 1997). Promotion-oriented individuals are focusing on and motivated by accomplishments and aspirations (Higgins, 1997; Shah, Higgins, & Friedman, 1998). They want to achieve something new, motivated by rewards and focuses on maximal goals (Brockner & Higgins, 2001; Higgins, 1997). This group has a higher favorable sensitivity to positive feedback than negative (Van-Dijk & Kluger, 2004). Prevention and promotion foci are both oriented and relevant to task performance; however, for different reasons (Lanaj et al., 2012). Individuals of both types can demonstrate high performance and not be evaluated as one better than others.

The prevention syndrome regulates the avoidance of punishment and is based on prevention, i.e. the maintenance and conservation of goals (Higgins, 1997; Idson, Liberman, & Higgins, 2000), short-term perspective, sensitivity to social pressures, and keeping the status quo (Forster, Higgins, & Idson, 1998; Kluger & DeNisi, 1996; Shao et al., 2018; Van-Dijk & Kluger, 2011). Prevention-oriented individuals are focusing on and motivated by safety and responsibilities (Higgins, 1997; Shah et al., 1998). They want to maintain the present "safe" situation and not to lose anything; avoid punishment is sensitive to social pressure and focuses on short-term perspective (Higgins, 1997; Idson, Liberman, & Higgins, 2000; Forster, Higgins, & Idson, 1998).

Therefore, these individuals are more sensitive to negative feedback than positive (Kluger & DeNisi, 1996; Van-Dijk & Kluger, 2011).

These two types of individuals demonstrate a different attitude in approaching pleasure and avoiding painful outcomes (Higgins, 1997). Therefore, the decision-making process is very different between promotion and prevention focus groups (Higgins, 1997; Higgins, Shah, & Friedman, 1997). They are significantly different in its motivational consequences too (Higgins, 1997), but this is not the way to tell that one regulatory type is better than another. It is just a general description of two different personality types, represented in *self-regulation theory*. Self-regulation theory was built based on Freud's research. In the article "Beyond pleasure and pain" Higgins (1996) referred:

"It seems that our entire psychical activity is bent upon procuring pleasure and avoiding pain, that is automatically regulated by the PLEASURE-PRINCIPLE. (Freud, 1920/1952, p. 365)."

Theory suggests that promotion-focused individuals demonstrate higher performance on promotion type tasks than prevention, where prevention-focused individuals are more capable of performing prevention type tasks than promotion ones (Higgins, 1997; Forster, Higgins, & Bianco, 2003; Baas, De Dreu, & Nijstad, 2008; Van-Dijk & Kluger, 2011). Beuk and Basadur (2016) stated that promotion-focused individuals tend to demonstrate higher creative performance, where prevention-focused individuals are linked to higher analytical performance.

Motivation increases when there is a congruence (or fit) between regulatory focus and feedback and decreases when they are incongruent (Higgins, Shah, & Friedman, 1997; Kluger & DeNisi, 1996; Van-Dijk & Kluger, 2011). The congruence effects of negative feedback with prevention focus, as well as positive feedback with promotion focus, have been shown empirically (Brockner et al., 2004; Crowe & Higgins, 1997; Farndale, Hope-Hailey, & Kelliher, 2011; Forster et al., 1998; Higgins et al., 2001; Higgins et al., 1997; Kluger & DeNisi, 1996; Parker, Laurie, Newton, & Jimmieson, 2014; Van-Dijk & Kluger, 2011).

In addition to the congruence effects, adequate feedback can also induce a regulatory focus (Brockner & Higgins, 2001; Crowe & Higgins, 1997). Positive feedback from supervisors can trigger individuals' momentary promotion focus. By contrast, when individuals receive negative feedback, their prevention focus can be elicited (Brockner & Higgins, 2001; Cropanzano et al., 2008).

An individual regulatory focus is related to emotions as well, where it can influence the nature and value of individual's emotional experience (Brockner & Higgins, 2001). Success and failure leave an imprint that people associate themselves with and make strategies related to past conditions. People consider what strategy to choose and what possible emotional outcomes will be (Crapanzano et al., 2008).

The chronic regulatory focus is likely to influence individuals' choice of his/her occupation as well. The scholars described that artistic and investigative interests correspond negatively with "harm avoidance" and positively with intellectualism and "openness to experience"—demonstrating a promotion focus (Van-Dijk & Kluger, 2004). As a contrast, the conventional interests correlate positively with "conscientiousness," "control" and "traditionalism"—demonstrating a prevention focus (Van-Dijk & Kluger, 2004). It means that people working in creative and investigative professions are more likely to have a promotion focus when people working in conventional and realistic professions are more likely to have a prevention focus (Van-Dijk & Kluger, 2004).

However, sometimes, individuals can have a joint presence of promotion and prevention foci (Brockner et al., 2004). There is a lack of research and evidence related to dual focus individuals, especially individuals having low prevention and low promotion self-regulation syndromes (Brennkmeijer, Demerouti, Le Blanc, & Hetty van Emmerik, 2010). Such dual focus individuals could be more resilient to feedback than those having a single focus (Kuntz et al., 2017).

1.5. Feedback intervention

Feedback intervention is an essential element of individual performance management (Anseel & Lievens, 2009). In this chapter, the theoretical concept of feedback intervention is disclosed; information about multidisciplinary relation and possible performance outputs are presented.

Feedback is a multifaceted term in psychology, organizational behavior, and other social science literature (Sully De Luque & Sommer, 2000; Johnson et al., 2015). At the same time, feedback intervention is an essential element of performance management (Kuvaas et al., 2016). McCarthy and Garavan (2006) described performance feedback as a critical input into individual effectiveness. However,

performance management research is quite limited, as even the term “performance management” is relatively novel (DeNisi & Murphy, 2017).

Feedback research focuses more on an interdisciplinary view, involving organizational behavior, social sciences, and psychology fields (Sully De Luque & Sommer, 2000). This provides a better understanding of contextual interrelations and shows the complexity of feedback per se.

There are a number of different views in the literature to feedback as a process, reinforcement, information, etc. (Ashford & Tsui, 1991; Davis & Davis, 1998; Nurse, 2005; Westerman et al., 2014). Research indicates the direct relationship between feedback, as a tool, and recipient, to whom it is targeted, to increase performance or to inform about achieved results (Kuvaas & Buch, 2016; Kuvaas, Buch, & Dysvik, 2016; Kluger & Van-Dijk, 2005; Van-Dijk & Kluger, 2004).

Feedback delivery in the scientific literature has been defined as information regarding one’s potential for advancement within the organization (Nurse, 2005), or as the degree to which one is generally respected or valued by the organization (Baron, 1993; Chory & Kingsley-Westerman, 2009). Davis and Davis (2001) stated that feedback is interpreted as positive or negative reinforcement, as a result of which performance may improve. On the same time, feedback defined as the process of performance evaluation and discussion of both employees and managers (Harms & Roebuck, 2010). Feedback intervention is a specific part of communication to a person concerning targeting his behavior to meet required standards and individual performance.

Human resources is developing in a way that performance feedback delivery is one of the most critical managerial activities that influences individual effectiveness (McCarthy & Garavan, 2006). Supervisory feedback may not just support employee development, his or her knowledge and abilities increase, but may also influence other activities not directly related to performance management. It could signal the information about personal abilities for promotion in the organization or show the degree to which someone is respected and valued (Sommer & Kulkarni, 2012).

However, the published research results suggest, that managers and employees frequently are skeptical about performance management importance, as it is treated as a waste of time and resources (Aguinis et al., 2011). The primary reason for that is that performance feedback is not realized to its full potential and performance management is narrowly focused only on performance appraisal, which is only

evaluative (Aguinis et al., 2011). Therefore, scholars recommend switching from performance appraisal systems to performance management systems, where dialog between managers and employees is emphasized and frequent feedback engaged. Multisource feedback is advised only once per year when achievements toward objectives must be evaluated and needed improvement areas identified.

Studies show that feedback about employee behavior and feedback about employee performance must have a different effect. Jaworski and Kohli (1991) tried to differentiate feedback influence on motivation and performance. Their results from an empirical study with salespeople show that positive feedback serves an informational and motivational function and has a significant influence on salespeople's performance and satisfaction.

Opposite negative feedback serves more as an informational function, but not a motivational function, therefore, improves performance to a relatively small extent (Jaworski & Kohli, 1991). Moreover, positive feedback focused on output is found to have the strongest effect on performance, where positive feedback focused on behavior appears to have the strongest effect on satisfaction (Jaworski & Kohli, 1991). Challenging some other research concerning negative feedback, targeted to output or behavior, is not reducing individual's satisfaction with supervisors. Moreover, contrary to assumptions, individual's acceptance of supervisory feedback does not appear to moderate these relationships in general (Jaworski & Kohli, 1991).

Having this information in mind, Markose (2011) tried to analyze how different types of supervisory feedback; such as positive output feedback, negative output feedback, positive behavioral feedback, and negative behavioral feedback; influence performance-prove orientation, performance-avoid orientation, and learning orientation of salespeople. Markose (2011) presents findings that supervisory orientations have a significant influence on these goal orientations. It means that managers can influence the goal orientation of individuals a great deal. Jaworski and Kohli (1991) have reported that output feedback has a stronger effect on salespersons' performance than positive behavioral feedback. By referring to Kohli (1989), Markose (2011) explained that more experienced salespeople could be less responsive to supervisory influence than new, less experienced, ones.

Feedback intervention is a valuable and cost-effective tool for supervisors, which helps to improve individual employee performance. Zeithaml, Parasuraman, and Berry (1990) have reported that, through the feedback process, people evaluate the

organization's performance compared to their own expectations. If the feedback process is well prepared and results are fully utilized in all levels of the organization, it positively impacts the performance of the employees (Zeithaml et al., 1990). Talking about constructive feedback, researchers targeted a few things: constructive feedback content should emphasize problematic behaviors over employee weaknesses, make explicit reference to the required standards for performance, and show specific strategies for fixing poor performance (Sommer & Kulkarni, 2012). Therefore, specifically designed feedback is more influential and valuable than general feedback.

Presently, rapid changes and high competition level on the market feedback are essential and valuable tools that can serve as a reward for good performing employees, or as directional supports for poor performers. Rasiah and Ming (2010) have presented possible benefits of feedback usage, where it can help companies to improve. Scholars have stated that by using feedback organizations not just developing employees, but also identifying services and products development needs, reducing personnel turnover, and support sharing of best practices among teams and individuals.

Individuals frequently receive performance feedback from their supervisors and then positive or negative emotions arise, having an impact on their attitudes and behavioral intentions (Belschak & Den Hartog, 2009). It also has an impact on counterproductive behavior, turnover intentions, citizenship, and affective commitment as well (Belschak & Den Hartog, 2009). Using feedback, managers can control and influence recipients' emotions, behavior, and future intentions supporting or forcing individuals to change and align their behavior with organizational needs (Sijbom et al., 2017; Shao, Li, & Mawritz, 2018).

Providing performance feedback improves individual performance over time (Anseel et al., 2009; Azzam & Whyte, 2018). Aguinis et al. (2012) recommended using a strengths-based approach during feedback when focusing on individual strengths of the recipients and by highlighting them. Such positive feedback intervention helps to understand what kind of individual behavior leads to success.

By recommending people focus further on their strengths, managers expect improved performance (Aguinis et al., 2012). However, this is not always so simple. Quite frequently, managers perceive feedback as one of the many tasks that they must do. Moreover, this raises some anxiety (Baker et al., 2013) because they worry about the feedback recipients' reaction and the delivery is not always a pleasant process.

For the recipient, feedback intervention is not easy as well. In the psychology literature, there is evidence presented that positive feedback increases the striatal part of brain activity, whereas negative feedback decreases it (Lempert & Tricomi, 2015). Negative feedback usually is associated with unpleasant emotions and positive feedback with positive emotions (Brockner & Higgins, 2001).

Feedback delivery conflict, or duality, of different views, exists all the time. Fletcher and Williams (1976) stated that there is a conflict of attitudes concerning the effects of providing performance feedback during an appraisal interview. They have reported that negative feedback, like information about employee performance weaknesses, has a negative effect on goal achievement. However, the positive feedback has a little influence. As a contrast, Fletcher and Williams (1976), Cummings (1973), and Beveridge (1974) stated that using more positive perceptions of appraisal and showing constructive criticism can be helpful if it is directed towards performance, but not to the individual himself.

Another critical issue is the amount of criticism about someone's performance that could be delivered during an interview. Individuals who received more than an average amount of criticism afterward gave poorer performance than those who received less criticism (Fletcher & Williams, 1976; Meyer et al., 1965). However, Fletcher and Williams (1976) also stated that interviews containing a component of negative feedback appears to be much more successful. They were raising an issue that could be related to interviewers' professionalism when they were trained not to discuss more than two weaknesses in any of one interview at the same time using a participative and problem-solving approach.

Further, Ilgen et al. (1979) designed a feedback process model that served as a foundation for the majority of later developed feedback delivery models (Anseel et al., 2011). Of primary importance of that model was an acknowledging of the intermediate psychological functions that are taking place between an individual's reception of a feedback message and his or her succeeding behavioral response to the feedback (Anseel et al., 2011).

The influence of feedback interventions on the feedback recipient's response is mediated by the initial behavior reactions of the feedback recipient (Anseel et al., 2011). As an outcome, the authors suggested that only when individuals react positively, they are likely to change their behavior in response to the provided feedback

message. High-quality feedback is essential in the learning process (Mayhew, 2016; Tayebi et al., 2017).

Performance feedback, especially when learning new practices, could be a more efficient and effective way for improving employees' performance than training or various incentives alone (Cavanaugh, 2013; Shu & Lam, 2016). The psychological need for autonomy and competence in the learning process is not only an intrinsic motivation, which is rewarding by itself (Dysvik et al., 2013; Gagne & Deci, 2005). Intrinsically motivated individuals are rewarded by the task itself, as the extrinsically motivated persons focus more on the outcome to which the activity leads (Dysvik & Kuvaas, 2013).

Individuals are different, and their involvement in feedback management differs as well (Moss et al., 2003). People demonstrate feedback-seeking behavior for their performance to the degree to which they feel comfortable, supportive, and valued. Feedback-seeking behavior could be referred to an individual's initiative in seeking feedback (Hsieh & Huang, 2018). If these criteria are violated or make people uncomfortable, then individuals demonstrate feedback avoidance because people want to maintain their image and protect their ego. Tuckey et al. (2002) stated that increased feedback-seeking is associated with the desire to obtain useful information when individuals dependent on the source of feedback (Hsieh & Huang, 2018), where feedback avoidance is related to the ego defense and defensive impression of management motives. The willingness for useful information mediated the performance-proven goal orientation for individuals (Tuckey et al., 2002). Feedback intervention about individual performance is useful, not just for the person himself or herself, but also for the organization in general, for the entire internal processes, as it provides individuals with information about their own performance level in comparison to colleagues (Anseel et al., 2011).

Feedback could be provided from more than the supervisor to subordinate (top-bottom feedback). For the sake of better and healthier cooperation, supervisors might seek feedback from their subordinates too (upward feedback). Subordinate feedback can provide valuable information to the leaders about follower perceptions of their strengths and weaknesses, and the degree to which leaders' perceptions correspond those of the followers (Atwater et al., 1995). In this case, feedback could be positive or negative, but most important—it must be constructive and targeted to measure

performance dimensions reflecting interpersonal relationships, such as supervisor efforts to develop subordinates (Adsit et al., 1997).

In both cases—top-bottom or upward feedback, perceived fairness, and adequacy in interpersonal communication are vital. Perceived adequacy of explanations regarding weak individual performance results is an association with enhanced perceptions of fairness and can reduce conflict between supervisors and employees (Sommer & Kulkarni, 2012). Nonspecific criticism implies internal causes for poor performance and leads to higher anger and tension on the part of the feedback recipient, as well as higher intentions to respond to future conflict with avoidance, or let us say, demonstrating feedback avoidance behavior. Individuals who received a destructive feedback made greater concessions in negotiation with the criticizer, reported lower self-efficacy, and set lower performance goals for future tasks (Sommer & Kulkarni, 2012). These revealed points clearly explaining why, in some cases, people are seeking feedback and in some, demonstrating feedback avoidance behavior.

However, feedback avoidance behavior can be demonstrated for a number of other reasons too. Whitman et al. (2012) researched the mediating effect of exhaustion on the relationship between abuse and feedback avoidance. Results show that feedback avoidance is also associated with subsequent exhaustion. It means that there is a link between subordinates' reaction (exhaustion) and coping behavior (feedback avoidance) when supervisory abuse is perceived. Therefore, when abusive supervisor-subordinate relationships are demonstrated, people tend to demonstrate feedback avoidance behavior to reduce stress and save their own resources. So, it is an intentional, proactive, and purposeful feedback management tactic to avoid future abuse (Whitman et al., 2012).

The probability of feedback-seeking increases as learning goal orientation became greater than performance goal orientation, and performance-avoid goal orientation is significantly negatively related to feedback-seeking (Tuckey et al., 2002). This information provides grounds for predicting a positive relationship between learning goal orientation and the likelihood of feedback-seeking, and a negative relationship with feedback avoidance, at least for the performance-avoid orientation (Tuckey et al., 2002).

People can demonstrate their preeminent ability by trying to render a responsibility image by seeking positive feedback after their high performance, which shows a

positive relationship between assertive impression management and the prove dimension. People with a performance-avoid orientation regulate their behavior according to potentially adverse outcomes. Scholars propose that there is a positive relationship between a performance-avoid orientation and defensive impression management (Tuckey et al., 2002). An opposite group, learning-oriented people, are less likely concerned about potentially negative judgments of ability inferred from the feedback-seeking behavior and the motivation to use a defensive impression management strategy is likely to be much less notable (Tuckey et al., 2002).

Markose (2011) suggested that when people, goals, and feedback are individualistic, recipients show a higher learning orientation: positive feedback enhances learning orientation by supporting successful development, and negative feedback fosters a learning orientation by showing the need and area for improvement. It is usually the case that people are more sensitive to external interventions and evaluations when they feel individual attention, more specifically, when feedback content is more personally-oriented and requires recipients to leave their comfort zone (Baker et al., 2013). Individuals want to avoid negative emotions. Therefore, their learning orientation is continually monitored and evaluated according to the settled goals, seeking to maintain needed standards (Azzam & Whyte, 2018).

Individuals usually believe it is worth seeking feedback. Personal feedback-seeking decisions appear by evaluating three types of costs:

- *“effort costs – the effort necessary for the feedback search;*
- *face costs – the evaluative effects of others on the individual for seeking;*
and
- *inference costs – the implications of inferential errors resulting from inaccurately interpreting feedback (Sully De Luque & Sommer, 2000, p.833)”.*

It shows that every person, before acquiring feedback, going through an internal decision-making process and scaling, it is worth doing no matter what benefit or disadvantage it will provide through self-monitoring or public self-consciousness concepts (London & Smither, 2002).

1.5.1. Positive and negative feedback.

To achieve settled goals, individuals are influenced by supervisors' feedback intervention. The result of a comparison of feedback to a goal, or standard, creates a feedback sign: positive or negative. It could be a positive or negative evaluation of someone's performance relative to the goal. Depending on personality type, positive or negative feedback has a higher impact on recipients' behavior (DeNisi & Kluger, 2000; Higgins, 2005; Kluger & Van-Dijk, 2005; Van-Dijk & Kluger, 2011). This part is widely covered and agreed by scholars, but the assumption that behavior is regulated through feedback-goal standard comparison and discrepancy reduction is too simple (Kluger & DeNisi, 1996).

Positive feedback intervention is a valuable tool to foster creative employees to perform better and develop creativity in work environments (Dahling et al., 2017; Dul & Ceylan, 2010). Positive feedback, given in time and correctly, supports higher performance and motivation of employees. Atwater and Brett (2006) discovered that more positive feedback ended up in greater commitment, where more negative feedback ended up in reduced commitment. Received results suggest that positive feedback intervention has a greater benefit on people commitment in comparison to the commitment of people who received negative feedback. However, if supervisors deliver only positive feedback, they can lose effectiveness in managing their subordinates, especially in reducing their undesirable behavior (Choi et al., 2018).

Positive feedback is related to positive recipient emotions, and negative feedback usually results in negative emotions (Cropanzano et al., 2008). Positive feedback (positive reinforcement) can be targeted either to employee performance or an individual, where negative feedback (negative reinforcement) must be targeted only to performance and not to an individual itself (Grant, Nurmohamed, Ashford, & Dekas, 2011). Feedback provided with greater fairness appear to be more favorable, acceptable and beneficial to the organization overall (Steelman & Rutkowski, 2004).

Some research provides recommendations to use a mixture of positive and negative feedback. Harms and Roebuck (2010) provided a recommendation that 80% of all provided feedback should be positive feedback. This will help to avoid a number of adverse reactions among individuals.

However, there is no statistically significant difference in performance change when using a mixture of positive and negative feedback together (Choi et al., 2018).

Examining how characteristics of the feedback and the style of the feedback source affect employee creativity, Zhou (1998) found that when individuals receive positive feedback presented in an informative and constructive style, they are more likely to generate creative ideas. In contrast, negative feedback delivered in a controlling way hinders creative performance (Davidson & DeStobbeleir, 2011). De Stobbeleir et al. (2011) suggest that if creative performance is one of an organization's goals, there is value in stimulating employees to seek feedback beyond the traditional source, their supervisor, and to consider peers and even external sources. Constructive feedback shows to people an area where the performance needs improvement not by criticizing them, but by describing the situation and directing them to the needed action in a dialog form, not the monolog.

Researchers in the organizational behavior field have emphasized the importance of delivering negative feedback (Johnson et al., 2015). This type of feedback could be an essential tool, which is needed to prevent repeated disruptive incidents and guide individuals' behavior towards settled goals (Niemann et al., 2011). Steelman and Rutkowski (2004) claimed that negative feedback, indicating individuals' work performance is not meeting expectations, suppose to demonstrate development support to an individual and strategic value to companies. At the same time, it is very risky, because negative feedback can cause negative emotions of the recipient, such as shame or anger, and they are directly related to personal performance (Niemann et al., 2011).

Even having understanding and knowledge of the benefits of well-designed feedback approaches, in real life, daily feedback in organizations is mostly negative and delivered unconstructively, which makes unproductive outcomes (Baker et al., 2013). It means that supervisors during the feedback intervention frequently focus on how subordinates are not performing according to the required standards and not reaching settled targets (Baker et al., 2013).

Feedback intervention targeting interpersonal standards can produce adverse affective reactions (Anseel et al., 2011). Managers should deliver negative feedback in such a way that recipients would understand and accept it. Therefore, supervisors tend to distort negative feedback in a way that it sounds more favorable to the subordinate (Liden & Mitchell, 1983). Fisher and Jacobs (1984) disclosed that managers are unwilling to communicate negative interpersonal evaluations but ready to transmit favorable messages. The same is confirmed by Steelman and Rutkowski

(2004), that just a few supervisors enjoy providing negative feedback about subordinates' performance; therefore, more frequently supervisors delay or avoid doing so.

Sometimes, to avoid unpleasant situations, supervisors even provide positive feedback for the poor performers instead of giving negative feedback (Steelman & Rutkowski, 2004). People are reluctant to provide negative feedback due to the likelihood of negative interpersonal repercussions (Larson, 1986; Argyris, 1991). It means that supervisors are uncomfortable providing negative feedback as they perceive the recipient may reject it, become defensive, and demonstrate negative feelings as a response (Steelman & Rutkowski, 2004).

Supervisors who delivered unfavorable feedback were often perceived as biased and insensitive (Steelman & Rutkowski, 2004). We can call this situation a side effect of negative feedback and the scientific community must find remedies to cure it. However, the broader mediating effect of feedback factors has received relatively limited attention (Sommer & Kulkarni, 2012).

Acceptance of negative feedback is more complicated. When a manager gives negative feedback to an employee, it usually signals that behavioral changes are required (Fedor et al., 2001; Azzam & Whyte, 2018). Employees need feedback, especially if their performance is below expected standards. Then, they can perform corrective activities and improve task performance (Ilgen & Davis, 2000; Ross & Stefaniak, 2018). When delivering negative feedback to subordinates, managers can show specific behavior that facilitates subordinates' experience of positive emotions and willingness to accept and use negative feedback (O'Malley & Gregory, 2011). They should show a constructive pattern rather than destructive. Therefore, negative feedback delivered in a positive manner repeatedly will become more receptive to employees (O'Malley & Gregory, 2011). This statement is lacking clarity and evidence on how such feedback can be performed without destroying negative feedback intentions.

Feedback, especially negative, must be delivered in time (Westerman et al., 2014). It means delivering feedback straightaway after the behavior occurs. In this case, there is a relation between the behavior and the consequence; therefore, a greater probability that the individual will change the behavior (Moss & Sanchez, 2004). Sometimes, negative feedback is delivered indirectly because it is more convenient for the supervisor, but in this way, the subordinate may have difficulty to

respond directly to the feedback (Harms & Roebuck, 2010). Therefore, negative feedback must be delivered directly because the recipient will be more likely to understand the message and can ask for proposals to improve their own behavior (Ross & Stefaniak, 2018).

Quite frequently, supervisors believe that providing negative feedback will harm the friendship and disrupt the working relationships with their subordinates. Therefore, anything that can damage a harmonious environment may tend to be avoided (Fisher & Jacobs, 1984; Dahling et al., 2017). It shows that subordinate performance has an influence on supervisor attitude and behavior with respect to providing feedback to their subordinates. Therefore, conclusions forming feedback studies with subordinates cannot indiscriminately be used to make inferences regarding leaders (Niemann et al., 2011).

Generally, both negative and positive feedback can increase or decrease employee performance (Kluger & DeNisi, 1998; Van-Dijk & Kluger, 2011; Westerman et al., 2014). To explain these equivocal findings, Van-Dijk and Kluger (2004) suggested that regulatory focus (Higgins, 1997, 1998) moderates the effect of feedback sign on motivation. Using number of experiments, they demonstrated that positive feedback is a better motivator than negative feedback when individuals are promotion-focused, whereas negative feedback was more effective than positive feedback when individuals are prevention-focused (Anseel & Lievens, 2009; Crowe & Higgins, 1997; Van-Dijk & Kluger, 2011). Individuals who wish to have more feedback than they are receiving often suffer from the absence of clear goals (Kluger & DeNisi, 1998; Gino & Margolis, 2011). Therefore, if the feedback is quite frequent, accurate, guided, and honest individuals are more likely to accept it, and it will have a higher motivational effect and support for orientation as well (Markose, 2011).

Feedback is effective in promoting future learning and improvements in decision-making (Balzer et al., 1994; Mayhew, 2016). Tuckey et al. (2002) found a negative relationship between learning goal orientation and fear of negative evaluation. So, learning-oriented people, who are developing new personal skills, are less disposed to using assertive impression management to prove their abilities. Therefore, learning goal orientation negatively correlates with both—defensive and assertive impression management, led by negative feedback (Tuckey et al., 2002).

Individuals are willing more to improve their performance when the feedback is provided by a credible source (Steelman & Rutkowski, 2004). It means feedback

source expertise and reputation in the interest field are vital. Managers with high perceived expertise or referent power will tend to motivate performance improvement following negative feedback (Fedor et al., 2001).

The credibility of the feedback source is essential from the cultural context as well (Azzam & Whyte, 2018). In high power distance cultures, the primary source must be the direct supervisor, rather than feedback from colleagues, subordinates, customers, etc. In a collectivistic context, non-confrontational and indirect communication for performance feedback delivery is recommended (Aguinis et al., 2012).

According to Dysvik and Kuvaas (2011), contemporary organizational behavior models show that intrinsic motivation mediates work performance. Therefore, it could be related to intrinsic motivation as well. For example, promotion-oriented individuals are more oriented to enjoyable and interesting tasks, which are rewarding and motivating in itself, and by having a higher autonomy level, they can generate a higher performance (Dysvik & Kuvaas, 2011).

When subordinates-supervisor relationship quality is low, people can demonstrate feedback avoidance behavior. They are afraid of a penalizing reaction or feel a general lack of support (Whitman et al., 2012). Negative feedback tends to trigger the person to search for more effective behaviors than positive feedback because the individual was probably unaware of weaknesses, which negative feedback exposed (Atwater et al., 1995). Unlike negative feedback, positive feedback usually shows strengths and supports individuals to maintain a certain level of performance and raising self-confidence. So, generally, feedback—positive or negative—promotes changes in the individual's behavior, and this is the primary target of feedback ideology (DeNisi & Kluger, 2000; Harkins & Lowe, 2000).

When individuals participate in both – setting of goals and measurement of their achievements processes – there is always a higher chance that results will be better, and incorporated feedback will strengthen the effect (Bandura, 1977). It is not fully disclosed how feedback mechanisms work in complex (Caemmerer & Wilson, 2010) and limited amount of empirical research has explored which factors may influence supervisors' feedback mechanisms. It is important to understand this aspect, as the implementation of such combined schemes (setting of goals and achievement measurement) tend to improve individual performance (Costanzo & Tzoumpa, 2008; Currie & Procter, 2005).

Regular feedback, as organizational behavior, supports employee creativity and productivity that lead to higher employee performance (Sommer & Kulkarni, 2012). Moreover, contrary employees can support and develop a feedback-friendly environment, which will lead the organization to higher competitiveness on the market. By providing constructive feedback, supervisors can align employee task behavior with organizational goals and can foster specific skills and competencies that are needed for their career development (Sommer & Kulkarni, 2012). Feedback intervention that performs a clarifying function, or is anchored in behavioral detail, allows employees to understand better their roles and responsibilities in task context.

When people comprehend received feedback as specific and directed to improve their skills and performance, they feel that their supervisors and company are supporting them. Moreover, alternatively, when feedback is lacking constructive and clear guidance for the improvement, it causes stress and lower overall satisfaction (Sommer & Kulkarni, 2012). The satisfaction of the recipient does not depend on whether the feedback is delivered in oral or written form (Tayebi et al., 2017). However, positive feedback delivered in oral form rather than text message is associated with better organizational justice (Westerman et al., 2014).

People appreciate and value feedback quality more when it is more specific and consistent than general, lacking specific details (Liden & Mitchell, 1983). Individual misperceptions and non-acceptance of negative feedback might be adjusted by providing more specific information (Liden & Mitchell, 1983). However, research also shows, that unfavorable specific feedback is not preferred over nonspecific feedback. Therefore, specific feedback was valued higher only in those cases when it was treated as favorable (Liden & Mitchell, 1983).

The primary goal of constructive feedback is to help people to understand their standpoint in relation to expected task fulfillment or final performance. Also, it is essential to keep the recipient focused on possibilities for improvement. Employees are feeling more respected and perceived greater opportunities for promotion in an organization when managers have delivered constructive feedback (Sommer & Kulkarni, 2012). It also has influenced higher job satisfaction. The research findings stress the importance of delivering performance feedback in a way that underlines problematic behavior over personal weaknesses and provides recommendations for improvement (Sommer & Kulkarni, 2012). It is also important to mention that when recipients know that their performance, or weaknesses, are perceived as a deficiency

by important people in the organization, recipients may increase efforts to show their competence and change the situation (Seifert et al., 2003).

Kuvaas et al. (2016) paid attention that feedback must not be just constructive, but immediate and frequent as well. In this case, feedback intervention has a higher probability of improving performance. However, too much feedback has the opposite result, where feedback frequency moderates performance results based on the inverted U relationship (Lam et al., 2011). This can lead to a decrease in performance, as too frequent feedback intervention could become interfering.

Performance feedback is a potentially effective way to increase individuals' use of desired behavior (Cavanaugh, 2013). Feedback intervention from another person has a social component as well. However, it is not fully clear how it contributes to the effectiveness of performance feedback on recipients' desired behavior (Cavanaugh, 2013).

Feedback can be obtained in a few ways: by monitoring the related situation and behavior of colleagues, or by asking for feedback directly (Tuckey et al., 2002). A later way offers people some control over the amount and time of feedback received and increases the probability of it being accepted (Tuckey et al., 2002).

Research shows that feedback can be ineffective and reduce performance (Lam et al., 2011; Ross & Stefaniak, 2018), especially if gathered information will be used as an extra control and punishment tool. According to Rasiah and Ming (2010), feedback can be undesirable, especially in companies where staff morale is low, and there is robust internal competition among employees.

Balcazar et al. (1986), and Ilgen et al. (1979) have disclosed that the usefulness and efficacy of performance feedback may depend on such characteristics as the perceived credibility of the feedback source and the power of control it has within the institution. This is related to control theory where feedback intervention is used more to control individuals, rather of making strategic decisions. The theory describes feedback as a possibility to maintain individuals' performance level following to the company's described standards. However, it can lead that some employees decreasing their standards because performance level and organization standards must be met (Bandura, 1986). In relation to control theory, people could be more motivated to change their behavior when self-ratings are higher than from others (Seifert et al., 2003). Studies indicate that subordinates frequently think they are

performing better than their supervisors think about them, so self-ratings could be inflated (Fisher & Jacobs, 1984).

Feedback may be delivered from various sources—multisource feedback, when information is gathered from different sources—surrounding the environment of the recipient. This way has several important benefits. First, the information is treated as more objective and more useful for decision-making. Second, developmental feedback is less likely to be ignored, as the sources of information have more power and status than subordinates (Seifert et al., 2003).

Effective developmental feedback promotes a more precise view of current employee state by showing his or her strengths and weaknesses (O'Malley & Gregory, 2011). Negative feedback may be discounted if recipients perceive the source of information being biased or uninformed, but when feedback is delivered from multiple sources, and it is consistent, the recipient is more likely to perceive it as accurate and will be willing to change his behavior (Seifert et al., 2003). The results from field experiments on multisource feedback show evidence of higher potential effectiveness than just using supervisors alone as a source of information (O'Malley & Gregory, 2011).

However, supervisor and coworker feedback is treated as the most important from the recipient's point of view (Ashford, 1989). Also, individuals are more motivated to improve their task performance when the feedback is provided by a trustful source; feedback is high quality and delivered in an attentive manner (Steelman & Rutkowski, 2004).

To support the individual learning process and influence positive development, feedback must be delivered as soon as possible after the event (Kuvaas et al., 2016), especially negative feedback, which is assumed to create awareness and influence people to change behavior (Steelman & Rutkowski, 2004). Postponed feedback and feedback via formal sessions are not sufficient, or very effective (Kuvaas et al., 2016). Feedback intervention is more everyday interaction between supervisor and subordinate, rather than formal performance appraisal feedback session (Sopina & McNeill, 2015; Steelman et al., 2004). There is an option to use feedback together with reflection combined. In this case, the feedback has a higher effect on performance improvement than feedback alone (Anseel et al., 2009). To some extent, this is related to feedback constructiveness.

Generally, research suggests that feedback enhance learning outcomes (Sopina & McNeill, 2015). Many different theories, roles, and factors are highlighted, but there is little empirical evidence that has been presented regarding their influence on the instructiveness of feedback (Van Hell et al., 2009). From an educational perspective, it is assumed that feedback is most instructive when the supervisor has observed the subordinate's behavior (Davis & Davis, 2001; Smith & Irby, 1997). It means that feedback should be based on directly obtained information about someone's performance. Therefore, feedback on individual behavior that has been observed is supposed to foster learning first because the supervisor can provide precise information and can compare subordinate performance to required standards (Van Hell et al., 2009).

Feedback appears to be more instructive when it was initiated from the subordinate side rather than by the supervisor. This is related to the received details and more precise request of information, rather than a general overview of the situation (Van Hell et al., 2009).

1.5.2. Feedback congruence effect.

Research findings suggest that no one unique feedback system can fit all situations; therefore, congruence between the feedback system and task type should be maintained (Van-Dijk & Kluger, 2011).

Promotion focus individuals who received a positive feedback, or prevention focus individuals who received a negative feedback, will demonstrate a higher motivation than individuals who received incongruent feedback (Van-Dijk & Kluger, 2011). An initial test of such a hypothesis was reported by Idson and Higgins (2000), where they operationalized regulatory focus with personality measures and feedback with false success versus failure information in an experiment with students. Scholars reported that individuals with a promotion focus increased their performance over time following positive feedback rather than negative. However, people with a prevention focus increased their performance over time following negative feedback rather than positive (Idson & Higgins, 2000). It shows that the difference between a prevention and promotion focus can originate in a person's value profile.

Motivation is highest when the person is chronically promotion-focused, the task requires creativity, and the feedback is positive, or when the person is chronically

prevention-focused, the task requires attention to detail, and the feedback is negative (Van-Dijk & Kluger, 2011). Scholars presented that other combinations of the constructs produce lower motivation. The study clearly demonstrates that in delivering an effective feedback intervention, the combination of feedback sign and task type must be considered (Van-Dijk & Kluger, 2011). This is a theoretical assumption and lacks more in-depth theoretical and empirical investigation.

Further, Table 2 presents a number of relevant feedback intervention studies in chronological order. They show how feedback research has evolved and what concepts scholars used, what hypotheses were analyzed, and what results were achieved. The data show how feedback intervention research morphed from simple analyses with few variables into more multidimensional research combinations.

In Table 2, there is information regarding scholars' research samples. More important is that the number of studies focused on students as a targeted sample of the research. This moment is directly related to the present study, as participants for the experiment were students. The grounding, explanation, and validity of such choices are described in the section "Participants."

Table 2. Development of feedback research.

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
1	1976	Journal of Occupational Psychology	The influence of performance feedback in appraisal interviews	Clive Fletcher; Richard Williams	Positive and Negative feedback. Performance feedback in an appraisal interview.	Interviews perceived as containing varying degrees of performance feedback (both positive and negative, positive only, negative only and none at all) were compared on a number of variables indicating the effectiveness of the appraisal.	Influence on appraisal interviews of the nature and extent of the discussion on the individual's performance is complex. Interviews containing an element of negative feedback seem to have been much more successful than other studies would lead one to expect.	Employees
2	1983	Academy of Management	The Influence of Negative Feedback Specificity and Favourableness on Subordinate Reactions	Robert C. Liden; Terence R. Mitchell	Negative feedback.	<i>Hypothesis 1.</i> Subordinates will rate specific feedback more positively than nonspecific feedback.	Subjects felt that the quality of feedback was greater when the feedback was specific than when the feedback was more general. Subordinate misperceptions and non-acceptance of negative feedback might be corrected by providing more specific feedback.	Students
3	1984	Report, Basic research	The transmission of positive and negative feedback to subordinates	Cynthia D. Fisher; T. Owen Jacobs	Positive and Negative feedback.	<i>Hypothesis 1.</i> Feedback will be delayed longer when subordinate performance is poor than subordinate performance is good. <i>Hypothesis 2.</i> Superiors who give negative feedback will expect giving feedback to be less pleasant for them than will superiors who give positive feedback. <i>Hypothesis 3.</i> Superiors who give negative feedback will think that their subordinates like them less than superiors who give positive feedback.	Ratings of subordinate performance made for feedback purposes were inflated significantly when subordinate performance was medium low but not when subordinate performance was medium high. Contrary to the hypothesis, feedback was delayed longer when subordinate performance was medium high rather than medium low.	Students

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
4	1991	Journal of Marketing Research	Supervisory Feedback: Alternative types and their impact on salespeople's performance and satisfaction	Bernard J. Jaworski; Ajay K. Kohli	Positive and Negative feedback. Output feedback and behavioural feedback.	<p><i>Hypothesis 1a.</i> The greater the positive output feedback provided by supervisors, the greater the salespeople's output role clarity.</p> <p><i>Hypothesis 1b.</i> The greater the negative output feedback provided by supervisors, the greater the salespeople's output role clarity.</p> <p><i>Hypothesis 2a.</i> The greater the positive output feedback provided by supervisors, the greater the salespeople's output performance.</p> <p><i>Hypothesis 2b.</i> The greater the negative output feedback provided by supervisors, the greater the salespeople's output performance.</p>	Positive feedback serves an informational and a motivational function and has a significant effect on salespeople's performance and satisfaction. In contrast, negative feedback serves an informational function, but not a motivational function, and improves performance to a relatively small extent. Further, whereas positive output feedback is found to have the strongest total effect on performance, positive behavioural feedback appears to have the strongest total effect on satisfaction.	Employees
5	1995	Personnel Psychology	The influence of upward feedback on self- and follower ratings of leadership	Leanne Atwater; Paul Roush; Allison Fischthal	Upward feedback effect on leader's self- evaluation	<p><i>Hypothesis 1.</i> The overall effect of feedback will be improvements in behaviour as measured by follower ratings of leadership, and improvements in self-ratings.</p> <p><i>Hypothesis 3.</i> Supervised practice will improve self-evaluations following feedback to a greater extent than feedback alone.</p> <p><i>Hypothesis 4.</i> Leaders receiving negative feedback (follower ratings substantially below self-ratings) will change their subsequent behaviour while those receiving follower ratings in agreement with or higher than self-ratings will not change their behaviour.</p>	Leaders' behaviours as rated by followers improved after feedback. Leaders' self-evaluations following feedback became more similar to the evaluations provided by followers. Self-evaluations for leaders receiving negative feedback (high self- relative to followers' ratings) went down, while self-evaluations for leaders receiving positive feedback (low self- relative to follower's ratings) went up.	Students
6	1997	The International Journal of Human Resource Management	Cross-cultural differences in upward ratings in a multinational company	Dennis J. Adsit; Manuel London; Steven Crom; Dana Jones	Upward feedback and cultural differences, Hofstede dimensions.	<i>No Hypothesis, just testing multinational corporation.</i>	Upward feedback is different in various continents.	6400 employees in 10 countries

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
7	2000	Academy of Management	The impact of culture on feedback-seeking behaviour: an integrated model and propositions	Mary F. Sully de Luque; Steven M. Sommer	How feedback-seeking behaviour is influenced by the individual's cultural orientation.	<p><i>Proposition 1a:</i> Organizations operating in a holistic-oriented culture will convey feedback more through context, using indirect and implicit messages.</p> <p><i>Proposition 1b:</i> Organizations operating in a specific-oriented culture will convey feedback more through information exchanged by direct messages.</p> <p><i>Totally 10 propositions.</i></p>	No results, just theoretical article with lots of propositions.	Non
8	2002	Journal of Occupational and Organizational Psychology	The influence of motives and goal orientation on feedback seeking	Michaëlle Tuckey; Neil Brewer; Paul Williamson	Feedback seeking and Feedback avoidance.	<p><i>Hypothesis 1.</i> Proposed the likelihood of feedback seeking would be (a) positively related to the desire for useful information; (b) negatively related to the desire to protect one's ego; (c) negatively related to defensive impression management; and (d) positively related to assertive impression management.</p> <p><i>Hypothesis 2.</i> The likelihood of feedback seeking should also be (a) positively related to learning goal orientation; (b) negatively related to performance-avoid goal orientation; and (c) shaped by the interaction between performance level and goal orientation described above.</p>	Increased feedback seeking was associated with the desire for useful information motive, and reduced feedback seeking with the ego defence and defensive impression management motives.	Students, Employees
9	2003	Journal of Applied Psychology	Effects of Multisource Feedback and a Feedback Facilitator on the Influence Behaviour of Managers Toward Subordinates	Charles F. Seifert; Gary Yukl; Robert A. McDonald	360 degree. Multisource Feedback.	360 degree. One objective of study was to find more definitive evidence about the effectiveness of a multisource feedback workshop for changing managerial behaviour. A second objective was to explore the proposition that a skilled, neutral facilitator can enhance the effectiveness of multisource Feedback.	The feedback was perceived to be more useful by managers who received it in a workshop with a facilitator than by managers who received only a printed feedback report.	Employees

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
10	2004	Journal of Managerial Psychology	Moderators of employee reactions to negative feedback	Lisa A. Steelman; Kelly A. Rutkowski	Negative feedback.	<p><i>Hypothesis 1.</i> Source credibility will have a significant effect on feedback reactions beyond the effects of negative feedback itself.</p> <p><i>Hypothesis 2.</i> Feedback quality will have a significant effect on feedback reactions beyond the effects of negative feedback itself.</p> <p><i>Hypothesis 3.</i> Feedback delivery will have a significant effect on feedback reactions beyond the effects of negative feedback itself.</p>	Employees are more motivated to improve their job performance based on unfavourable feedback when the feedback source is perceived to be credible, the feedback is of high quality and the feedback is delivered in a considerate manner.	Employees
11	2006	Journal of Occupational and Organizational Psychology	Feedback format: Does it influence manager's reactions to feedback?	Leanne Atwater; Joan Brett	Positive and Negative feedback. This study investigated the influence of feedback format (text versus numeric/normative) on leaders' reactions to 360-degree feedback received from bosses, direct reports, and peers.	<p><i>Hypothesis 1.</i> Feedback recipients receiving negative feedback in text format (Time 1) will have more positive reactions to the feedback (Time 1) than feedback recipients receiving negative feedback in numeric/normative format (when controlling for the amount of negative feedback received).</p> <p><i>Hypothesis 2.</i> Feedback recipients receiving negative feedback in text format (Time 1) will make more positive changes (i.e. will have fewer development needs) as measured approximately 9 months following feedback (Time 2) than those who receive feedback in numeric/normative format.</p>	Leaders who received numeric/normative feedback reacted more favourably than those who received text feedback regardless of the source. Those who reacted negatively had a larger number of development needs reported post feedback while those who had positive reactions showed fewer development needs post feedback.	Employees

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
12	2009	Applied psychology	Consequences of Positive and Negative Feedback: The Impact on Emotions and Extra-Role Behaviours	Frank D. Belschak; Deanne N. Den Hartog	Positive and Negative feedback. Emotional reactions to performance feedback from their supervisors as well as subsequent effects on attitudes and affect-driven work behaviours (counterproductive behaviour, turnover, citizenship, and affective commitment).	<p><i>Hypothesis 1.</i> Positive emotions are significantly higher when receiving positive feedback than when receiving negative feedback, and vice versa, negative emotions are significantly higher when receiving negative feedback than when receiving positive feedback.</p> <p><i>Hypothesis 2.</i> Both positive and negative emotional experiences are significantly higher when receiving feedback in public than when receiving the same feedback in private.</p>	In both samples, positive feedback comes with increased positive affect and decreased negative affect, and negative feedback with increased negative affect and decreased positive affect.	Students, Employees
13	2009	Medical Teacher	Instructiveness of feedback during clerkships: Influence of supervisor, observation and student initiative	Elisabeth A. Van Hell; Jan B.M. Kuks; A.N. (Janet) Raat; Mirjam T. Van Lohuizen; Janke Cohen-Schotanus	The influence of the supervisor, observation and student initiative on the perceived instructiveness of feedback.	<p><i>Hypothesis 1.</i> Specialists' feedback is perceived as most instructive, followed by feedback from residents. Feedback from nursing and paramedical staff is perceived as least instructive.</p> <p><i>Hypothesis 2.</i> Feedback based on observation of behaviour is perceived as more instructive than feedback not based on observation of behaviour.</p>	Feedback from specialists and residents did not differ significantly. However, both were perceived to be more instructive than feedback from nursing and paramedical staff. In addition, observation of behaviour was found to be important for the perceived instructiveness of feedback. Students reported feedback to be more instructive when it resulted from student initiative or a joint initiative than when it was initiated by the supervisor. The fact that no interactions were found between 'supervisor', 'observation' and 'initiator' indicates that each of these variables influences the perceived instructiveness of feedback independently.	Students
14	2010	Business Communication Quarterly	Teaching the art and craft of giving and receiving feedback	Patricia L. Harms; Deborah Britt Roebuck	Negative feedback.	<p><i>BET and BEAR feedback delivery model.</i> <i>No hypothesis.</i></p>	BET and BEAR feedback models and assignments for students.	Non

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
15	2011	Academy of Management	Know your boss: the influence of emotional stability on the affective and attitudinal feedback reactions of powerful leaders	Jana Niemann; Barbara Wise; Diana Rus; Nico W. Van Yperen; Kai Sassenberg.	Negative feedback.	<p><i>Hypothesis 1.</i> With higher levels of emotional stability only high (vs. low) power individuals are less likely to experience anger and shame in response to negative feedback.</p> <p><i>Hypothesis 2.</i> Anger towards the feedback provider mediates the effects of emotional stability and power of the feedback receiver on perceived ability and liking of the feedback provider and feedback acceptance.</p>	In two studies, authors have consistently shown that power moderates the effects of emotional stability on individuals' affective reactions to negative feedback. Specifically, with higher levels of emotional stability, high power individuals, in contrast to low power individuals, are less likely to experience negative emotions, such as anger and shame, in response to negative feedback.	Not clear. Called "Participants".
16	2011	International Journal of Business Insights & Transformation	Influence of moderators in the relationship of supervisory feedback with goal orientation of salespeople – An empirical study	Binu Markose	Positive and Negative feedback. Output feedback and behavioural feedback.	<p><i>Hypothesis 1a.</i> The greater the positive output feedback, the greater the learning orientation of salespeople.</p> <p><i>Hypothesis 2a.</i> The greater the positive behavioural feedback, the greater the learning orientation of salespeople.</p> <p><i>Hypothesis 3a.</i> The greater the positive output feedback, the greater the performance-prove orientation of salespeople.</p> <p><i>Hypothesis 4a.</i> The greater the positive behavioural feedback, the greater the performance-prove-orientation of salespeople.</p> <p><i>Hypothesis 5a.</i> The greater the positive output feedback, the greater the performance-avoid orientation of salespeople</p>	Experience, age, feedback acceptance, and self-efficacy significantly moderates the relationship of different types of supervisory feedback with the three dimensions of goal orientation of salespeople.	Employees

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
17	2011	Journal of Occupational Psychology	Feedback type as a moderator of the relationship between achievement goals and feedback reactions	Frederik Anseel; Wouter Duyck; Nico W. Van Yperen; Onne Janssen	Comparative feedback, Task-referenced feedback.	<p><i>Hypothesis 1:</i> Individuals who pursue PAp goals and receive comparative feedback will react more unfavourably to feedback than PAp goal individuals who receive task-referenced feedback, and MAp goal individuals who receive either comparative or task-referenced feedback.</p> <p><i>Hypothesis 2:</i> The more favourable feedback reactions, the more participants will improve their task performance.</p> <p><i>Hypothesis 3:</i> The interaction effect of achievement goals and feedback type will indirectly affect task performance through its effect on feedback reactions.</p>	PAp goals yielded equally favourable feedback reactions as MAp goals when <i>task-referenced</i> feedback was provided. However, when participants received <i>comparative</i> feedback, PAp goals led to more unfavourable feedback reactions than MAp goals. Furthermore, as feedback reactions were predictive of performance improvement, authors found support for a mediated moderation model: the interaction effects of achievement goals and feedback type indirectly affected task performance through feedback reactions.	Employees, 939
18	2011	The Psychologist – Manager Journal	Don't be such a downer: using positive psychology to enhance the value of negative feedback	Alison L. O'Malley; Jane Brodie Gregory	Negative feedback.	Positive psychology to enhance the value of negative feedback.	Theoretical representation of literature review. Positive psychology has impact on acceptance of negative feedback.	Non
19	2011	Organizational Behavior and Human Decision Processes	The impact of feedback frequency on learning and task performance: Challenging the "more is better" assumption	Chak Fu Lam; D.Scott DeRue; Elizabeth P.Karam; John R.Hollenbeck	Frequency of the feedback.	The relationship between feedback frequency and task performance exhibits a curvilinear, inverted-U relationship such that feedback frequency positively impacts task performance to a point; beyond this point, the relationship between feedback frequency and task performance becomes negative.	The relationship between feedback frequency and task performance takes the shape of an inverted-U.	86 students

No.	Year	Journal name	Article title	Authors	Analysed	Hypotheses	Results	Sample
20	2011	Organizational Behavior and Human Decision Processes	Feedback specificity, information processing, and transfer of training	Jodi S. Goodman ; Robert E. Wood; Zheng Chen	Effects of feedback specificity on transfer of training.	<p><i>Hypothesis 1.</i> Feedback specificity will be negatively related to the level of explicit information processing over the course of training.</p> <p><i>Hypothesis 2.</i> The extent of exposure to different task conditions will be related to the level of explicit information processing.</p>	Specificity of feedback affects explicit information processing. Feedback specificity negatively related to the level of explicit information processing participants engaged in during training.	52 students
21	2012	Human Resource Development Quarterly	Does Constructive Performance Feedback Improve Citizenship Intentions and Job Satisfaction? The Roles of Perceived Opportunities for Advancement, Respect, and Mood	Kristin L. Sommer; Mukta Kulkarni	Constructive and Critical feedback (Negative). The present investigation explored the impact of constructive, critical feedback on organizational citizenship behaviour (OCB) intentions and job satisfaction.	Does the <i>constructiveness</i> of negative supervisory feedback predict feelings of respect, mood at work, perceived opportunities for career advancement, job satisfaction, and organizational citizenship intentions?	Employees whose supervisors used constructive feedback felt more respected by their supervisors and perceived greater opportunities for advancement within the organization.	Employees

No.	Year	Journal name	Article title	Authors	Institution	Hypotheses	Results	Sample
22	2012	Journal of Organizational Behavior	Abusive supervision and feedback avoidance: The mediating role of emotional exhaustion	Marilyn V. Whitman; Jonathon R. B. Halbesleben; Oscar Holmes IV	Feedback avoidance. This study tested a model linking abusive supervision to feedback avoidance through emotional exhaustion.	<p><i>Hypothesis 1.</i> Abusive supervision is associated with feedback avoidance.</p> <p><i>Hypothesis 2.</i> Emotional exhaustion mediates the relationship between abusive supervision and feedback avoidance.</p> <p><i>Hypothesis 3.</i> Feedback avoidance behaviour is positively associated with subsequent emotional exhaustion.</p>	Suggested a mediating effect for exhaustion on the relationship between abuse and feedback avoidance. Findings also revealed that feedback avoidance was associated with subsequent exhaustion, representing a loss spiral.	Employees
23	2013	Education and treatment of children	Performance feedback and teachers' use of praise and opportunities to respond: a review of the literature	Brian Cavanaugh	Feedback in teaching. Praise and Opportunity to respond in combination.	<p>Feedback can improve performance in teaching by combining praise and opportunity to respond.</p> <p><i>No explanation positive or negative FDB.</i></p>	Feedback improving performance in teaching.	Non
24	2016	Human Resources Management	Constructive supervisor feedback is not sufficient: immediacy and frequency is essential	Bard Kuvaas; Robert Buch; Anders Dysvik	Perceived constructiveness, immediacy and frequency of feedback.	<p><i>Hypothesis 1</i> Perceived constructiveness of supervisor performance feedback relates positively to work performance.</p> <p><i>Hypothesis 2</i> Perceived immediacy and frequency of supervisor performance feedback relates positively to work performance.</p> <p><i>Hypothesis 3</i> The relationship between perceived constructiveness of supervisory feedback and work performance is moderated by perceived immediacy and frequency of supervisor performance feedback.</p>	Hypotheses 1 and 3 were supported.	278 executive education students
25	2017	Journal of Applied Psychology	Performance appraisal and performance management: 100 years of progress?	Angelo S. DeNisi; Kevin R. Murphy	Review 100 years of research on performance appraisal and performance management.	<p>Reviewed trends and changes of the research progress during the last century in JAP journal.</p> <p><i>No hypotheses.</i></p>	JAP made important contribution to the field by addressing many of the critical questions raised.	Non

1.6. Conceptual framework

In this part of the dissertation, the theoretical framework is presented and analyzed, which shows the logic flow of the feedback intervention process and the idea of a three-dimensional model's (i.e., task type, feedback type, and chronic regulatory focus) influence on individual performance. It is constructed by the author, based on significant works from researchers and the latest findings of Higgins' self-regulation theory and Kluger and DeNisi's feedback intervention theory.

The direct relation of feedback intervention to individual behavior and performance is not so easily explainable, and therefore, still quite complicated. As Ilgen et al. (1979) mentioned, the results can be very contradictory. Feedback does not evenly increase individual performance for everyone (Balcazar et al., 1985). Therefore, performance measurement can be quite a complicated procedure as a task performance viewed more like a multidimensional construct. Therefore, one scale usually cannot be treated as a reliable task performance measure (Campbell et al., 1990). However, for one specific and fundamental task, clearly described factors could be used to evaluate and measure the achieved individual performance (Campbell et al., 1990).

The comparison of the achieved result to the initially settled goal and communication about that are usually made by using feedback intervention. If the achieved result is equal or higher than the goal, then usually it creates positive feedback, or in some circumstances, it could be neutral. If the achieved result is lower than the expected goal, then it usually creates negative feedback.

Despite the generally accepted idea that positive and negative feedback interventions must improve performance, because one reinforces the correct individuals' behaviour and the other punishes the incorrect one, it is wrong to assume that feedback intervention consistently improves performance (Kluger & DeNisi, 1996; Balcazar et al., 1985). The same type of feedback in some conditions can increase individual performance, but has no effect at all in other conditions, or can even decrease it. These conditions could be named significant moderators. The cultural mentality is maintained as one of the most important moderators by scholars. At the same time, if the feedback is too negative, then individual performance hardly can be increased at all.

For the present research, the theoretical model developed requires some explanation. As the first step in the explanation of the theoretical model used, there is

a need to focus on Higgins' (1997) self-regulation theory. It suggests that people have two basic self-regulation systems: one system regulates the achievement of reward and focuses individuals on promotion goals while the other regulates the avoidance of punishment and focuses individuals on prevention goals. Once individuals operate within a prevention focus, they are more likely to be sensitive to the presence or absence of punishments and use avoidance as a strategy (*FI avoiding behavior*) (Higgins, 1998). When individuals operate within a promotion focus, they are more likely to be sensitive to the presence or absence of rewards and use the approach as a strategy (*FI seeking behavior*) (Higgins, 1998). Feelings are responsible for making shifts in motivational flow and influence work behavior (Belschak & Den Hartog, 2009; Lempert & Tricomi, 2015).

As a second step in the logic sequence explanation, the author incorporates Kluger and DeNisi's (1996) feedback intervention theory. According to scholars, FIT involves the mechanisms of feedback sign consideration and the decision on how to react to one of the perceived feedback signs—positive, neutral, or negative.

The received task is usually evaluated by how important it is to the recipient's self-goals (related to meta-task processes) and targeted to reduce the discrepancy between required standard and task performance—increased. Generally, feedback intervention affects the individual learning process (Mayhew, 2016). Then, people focus their attention on the inadequacy between the standards regarding the details of task performance and the results of following on these standards (Kluger & DeNisi, 1996). Feedback delivery changes the locus of recipients' attention and affects future behavior. However, following feedback intervention theory, feedback effectiveness lessens as attention moves up the hierarchy closer to the person and away from the task.

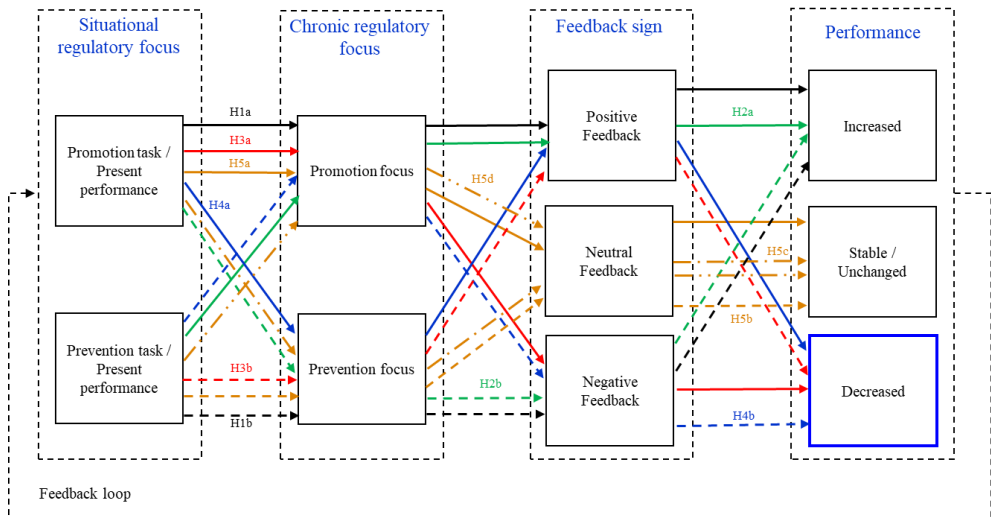
If feedback intervention is used correctly, or congruently, according to the described theories, it should increase individual performance. The correct way could be the following: positive feedback must be provided for the promotion-focused individuals while performing promotion types of tasks, where negative feedback was delivered for the prevention-focused individuals while performing prevention type tasks. It is named a full congruence of variables. All other combinations will lead to less effective, or even decreased, performance.

There is a lack of empirical evidence of performance change in relation to neutral feedback (Holroyd et al., 2006), as this area is still under-researched (Muller et al.,

2005). This aspect must be taken into serious consideration as well. Therefore, in the present research, neutral feedback was used, and its moderated performance change was measured.

By summarized theory, an overview of the theoretical concept of the feedback intervention process was designed. Such visualization helps to understand the logical sequence of possible congruence effects on performance change outcomes and to develop a research model further. Figure 1 presents possible ways of changing individual behavior and performance by using feedback intervention, where colored arrows represent developed research hypotheses as well.

Figure 1. Conceptual framework of congruence and hypotheses.



Note: Congruence effect of variables represented by used hypotheses:

- | | |
|----------------|----------------|
| H1a – ———▶ | H4a – ———▶ |
| H1b – - - - -▶ | H4b – - - - -▶ |
| H2a – ———▶ | H5a – ———▶ |
| H2b – - - - -▶ | H5b – - - - -▶ |
| H3a – ———▶ | H5c – ———▶ |
| H3b – - - - -▶ | H5d – - - - -▶ |

The primary “responsibility” for the variable manipulation in this scheme belongs to the feedback sign. By providing positive, negative, or neutral feedback, we can influence the change of individual performance (Higgins, 1997; Freitas et al., 2002;

Forster et al., 2003; Anseel et al., 2009; Kluger & Van-Dijk, 2005). The synergistic effect on performance presumably will be stronger when the feedback sign corresponds to task type (situational regulatory focus) and individual chronic regulatory focus, where we encounter a congruence effect (Van-Dijk & Kluger, 2011; Bouskila-Yam & Kluger, 2011; Crowe & Higgins, 1997; Higgins et al., 2001). When no congruence among all three independent variables is present, then the influence of feedback intervention on individual performance will be lower, and in some combinations, presumably, performance will decrease. Neutral feedback intervention hypothetically should demonstrate the stability of individual performance.

The most crucial aspect of observing performance change is the congruence effect among all three mentioned variables: feedback sign, task type, and individual regulatory focus. If no contradiction among their nature (type/sign) is observed, then performance has a higher chance of being increased. If at least one contradiction is present, the performance increase will be questionable, or even a decrease will be observed.

In the feedback delivery process (see Figure 1), positive feedback must be delivered to the promotion-focused individual and negative feedback to the prevention-focused individual. Hypothetically, this will help to increase individual performance. Following the theoretical assumptions, if the positive feedback will be delivered to the prevention-focused individual or negative feedback to the promotion-focused individual, the performance will decrease. The neutral feedback sign shall help to maintain efforts with respect to demonstrated performance, as no gap between goal and result is identified. These ideas lead to the following dissertation section for hypotheses development.

1.7. Hypotheses development

As an outcome of the theory analysis in the field of feedback intervention, supplemented by the task type and chronic regulatory focus theories, the five hypotheses were raised. The core idea for building hypotheses is that congruence of all three variables is vital to achieving higher individual performance. Based on the theory review the author hypothesized, that feedback sign congruence with an individual regulatory focus and task type will increase recipients' performance, where

incongruence will have lower or even negative effects on recipients' performance change.

The idea of fit (or congruence) was tested by Shah, Higgins, and Friedman (1998). They operationalized a regulatory focus with personality, chronic prevention focus, or promotion focus. Scholars found that when people were induced to think about reward, then motivation was in positive correlation with a chronic promotion focus and negative correlation with a prevention focus (Shah, Higgins, & Friedman, 1998). Thus, the opposite, when people were induced to think about losing money, motivation had a negative correlation with a chronic promotion focus and a positive correlation with a chronic prevention focus.

In summary, the motivation increases when there is congruence (or fit) between a regulation focus and outcome, and a decrease when they differ or are incongruent. These findings provide assumptions that negative feedback is congruent with a prevention focus, whereas positive feedback is congruent with a promotion focus.

According to Beuk and Basadur (2016), promotion tasks mediate the positive effect on the creative potential of promotion-focused individuals. Therefore, these individuals must demonstrate better results by performing such type of tasks on daily duties. Prevention-focused individuals usually are linked with higher analytical performance (Beuk & Basadur, 2016). Therefore, they must show better performance in performing such tasks.

It is important to highlight that the following hypotheses, with their mention of "increase, decrease" and "remain unchanged" individual performance, are based on comparisons. In this study, they are performance comparisons in two tasks assigned to the test subjects. Between the tasks, the individuals were given feedback.

In line with the traditional approach of Higgins (1997, 2001), Van-Dijk (2004, 2011), and Kluger (1996, 1998, 2005), the author hypothesized that the congruence of the feedback sign, individual regulatory focus, and task type generates the highest individual performance of all possible combinations.

Hypothesis 1 is the most important in the research because no empirical results of such combinations of tests are present, just theoretical assumptions. Both options of the hypothesis (H1a and H1b) show full congruence among all three variables. Based on a theoretical review, in these cases, the highest increase in individual performance should be noticeable (Van-Dijk & Kluger, 2011).

Hypothesis 1 – *Individual performance will increase most when:*

a) *task is promotion type, an individual's regulatory focus is promotion-oriented, and feedback is positive;*

b) *task is prevention type, an individual's regulatory focus is prevention-oriented, and feedback is negative.*

The essence of this situation is that an individual in such circumstances is not facing any personal contradictions and his “safety first” principle is not hurt or initiated. Therefore, the congruent feedback intervention effect must show the highest motivational influence.

Previous studies show the crucial role of the feedback sign and the individual's regulatory focus congruence (Bouskila-Yam & Kluger, 2011; Kluger & DeNisi, 1998; Van-Dijk & Kluger, 2011). Therefore, authors suppose that when the individual's regulatory focus and feedback sign fit, and the task nature is opposite, individual performance increases less compared to full congruence, as feedback still supports personality (Anseel et al., 2009).

Hypothesis 2 – *Individual performance will increase when:*

a) *task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is positive;*

b) *task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is negative.*

In these situations, an opposite task type should not interfere with motivational intentions to perform better, as feedback still supports personality.

When the feedback intervention sign is contrary to the personal regulatory focus, individual performance decreases (Crowe & Higgins, 1997; Higgins et al., 2001; Kluger & Van-Dijk, 2005; Van-Dijk & Kluger, 2004, 2011). However, following the FIT, congruence between task type and individual regulatory focus should offset the motivational loss from contrary feedback to some extent (Kluger & DeNisi, 1996).

Hypothesis 3 - *Individual performance will decrease when:*

a) *task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is negative;*

b) *task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is positive.*

When the nature of a task and feedback sign are opposite an individual's regulatory focus, the task performance must decrease (Van-Dijk & Kluger, 2011). In this situation, the nature of the task and feedback intervention reduce intrinsic motivation, which fosters the individual's efforts and behavior (Ryan & Deci, 2000). Therefore, the author hypothesizes:

Hypothesis 4 - *Individual performance will decrease most when:*

a) *task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is positive;*

b) *task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is negative.*

Hypothesis 4 is the most complicated and risky because of individual regulatory focus incongruent to both task type and feedback sign, which led to decreased performance (Van-Dijk & Kluger, 2011). In this situation, feedback intervention initiating the "safety first" principle (Freitas, Liberman, Salovey, & Higgins, 2002) and task type do not support motivation for higher performance as well (Forster et al., 2003). Therefore, there is an assumption that individual performance will decrease the most from all possible variables' combinations.

Based on existing research (Holroyd et al., 2006; Muller et al., 2005) neutral feedback does not provide any vital information for a recipient, so his/her performance does not change. Individuals do not tend to distort the neutral feedback as positive or negative (DeMonbeun & Craighead, 1977). Thus, the author supposes that neutral feedback will not influence performance change and it will remain constant.

Hypothesis 5 – *Individual performance will remain unchanged when:*

a) *task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is neutral;*

b) *task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is neutral;*

c) *task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is neutral;*

d) *task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is neutral.*

Hypothesis 5 represents different possible combinations of neutral feedback sign, personal regulatory focus, and task type.

All hypotheses raised are summarized and listed in Table 3.

Table 3. List of hypotheses.

Hypotheses	
H1	Individual performance will increase most when: <ul style="list-style-type: none">a) task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is positive;b) task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is negative.
H2	Individual performance will increase when: <ul style="list-style-type: none">a) task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is positive;b) task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is negative.
H3	Individual performance will decrease when: <ul style="list-style-type: none">a) task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is negative;b) task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is positive.
H4	Individual performance will decrease most when: <ul style="list-style-type: none">a) task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is positive;b) task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is negative.
H5	Individual performance will remain unchanged when: <ul style="list-style-type: none">a) task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is neutral;b) task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is neutral;c) task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is neutral;d) task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is neutral.

For better understanding and visual explanation of all the raised hypotheses, see Table 4, where there is a tabular summary presented.

Table 4. Relations of variables and expected performance change in hypotheses.

Hypotheses	Task type	Individual regulatory focus	Feedback sign	Hypothesized performance change*
<i>H1 Full congruence</i>				
H1a	Promotion	Promotion	Positive	Strongest increase
H1b	Prevention	Prevention	Negative	
<i>H2 Task nature is incongruent</i>				
H2a	Prevention	Promotion	Positive	Increase
H2b	Promotion	Prevention	Negative	
<i>H3 Feedback sign is incongruent</i>				
H3a	Promotion	Promotion	Negative	Decrease
H3b	Prevention	Prevention	Positive	
<i>H4 Regulatory focus is incongruent</i>				
H4a	Promotion	Prevention	Positive	Strongest decrease
H4b	Prevention	Promotion	Negative	
<i>H5 Neutral feedback</i>				
H5a	Promotion	Promotion	Neutral	No change
H5b	Prevention	Prevention	Neutral	
H5c	Promotion	Prevention	Neutral	
H5d	Prevention	Promotion	Neutral	

Notes: *Hypothesized performance change is related to feedback sign influenced individual behavior change moderated by task type and individual regulatory focus.

The primary moderator for the performance change is feedback sign. By providing positive feedback, we can influence the change in individual performance. The synergistic effect on performance could be stronger when the feedback sign is congruent to task type and individual regulatory focus.

2. Research methodology

In this part of the dissertation, research methodology is explained and grounded. First, is the epistemological idea of experimental research and an explanation of why this research method was chosen. Second, the research procedure and sample are described and presented, and task performance measures prepared. Finally, the data

analysis techniques and results are provided. This setup enables the disclosure of the research strategy and guidance that was used by the researcher.

In this research, a deductive approach was used, performing descriptive and experimental empirical analyses methods. The theoretical analysis of the existing historical literature about feedback was performed and the scientific gap identified (descriptive part). A three-dimensional (feedback sign, chronic regulatory focus, task type) conceptual framework was developed (see Figure 4), and hypotheses were formulated and tested in experimental laboratory conditions (empirical part).

Testable hypotheses required creative heuristics in category V, a necessity to collect new data, and quantitative subcategory N (McGuire, 1997). Received results are analyzed and outcomes discussed. In the end, conclusions and implications are presented.

2.1. Research context

Research context usually relates to the cultural influence of sample individuals used (Kung et al., 2016; Sully De Luque & Sommer, 2000; Steelman, 2004). The present research is about the Lithuanian social environment and feedback related to managerial culture.

Post-Soviet countries are a unique region, as 50 years of Soviet regime made an imprint on performance management and feedback intervention style, where managers preferred critics to recognition and focused more on negative feedback than positive (Brewster, Morley, & Bučiūnienė, 2010). Negative feedback is oriented towards showing discrepancies between individual performance and goal standards. Post-Soviet organizations relied on authority as a primary managerial tool, similar to the United States entities in the 1960s and early 1970s (Sears & Tamulionyte-Lenz, 2000). This geographic territory is not historically well documented in the management and human resource literature (Brewster et al., 2010) and is still under-researched (Kazlauskaitė & Bučiūnienė, 2010).

Looking at the time when the Soviet Union collapsed, post-Soviet countries had faced dramatic changes in the human resource area. Lithuania is no exception. The transition from a planning (command) economy to a free market economy for some of the managers was very painful and can be named the biggest challenge in their life. Fifty years of specific management style, based on fear, authoritarian mode, mistrust,

and one truth has left a strong imprint in citizens' heads (Kazlauskaitė & Bučiūnienė, 2010; Lucas et al., 2004). It was a time when employees' opinions were nothing, and the manager's opinion was everything. Mostly, all communication and information flow were just one way—from top to bottom, directive style.

During the Soviet time, positive feedback was rarely used to motivate individuals to increase their performance (Brewster, Morley, & Bučiūnienė, 2010; Lucas et al., 2004). Theory discloses that negative and unfavorable feedback induce defensiveness and the dissatisfaction of the feedback recipient. Therefore, the primary strategy individuals use to reduce the impact of negative feedback is to reject it (Steelman & Rutkowski, 2004). Such a feedback delivery style negatively influenced individuals' motivation and left a specific imprint in their mind. This phenomenon has growing importance with the processes of globalization when multinational companies invest and create subsidiaries in the Eastern European region. The feedback sign has different influential power to individuals of different cultures. Some studies suggest that in Western culture positive feedback is more powerful and in Eastern culture negative feedback (Lam & Shu, 2016; Kung et al., 2016).

Restitution of country independence and focus on democracy path had an impact on feedback delivery. Feedback intervention became a very important action, which provided two options: use it wisely and succeed or misuse it and mess up one's relationships (DeNisi & Murphy, 2017). It became clear that managers should be able to provide constructive feedback in such a way that employees increase their performance (Moss & Sanchez, 2004).

Desirable individual behavior can be influenced by providing positive or negative feedback (Kluger & DeNisi, 1998). Positive feedback (positive reinforcement) makes people more satisfied and feel valued for their demonstrated efforts. Negative feedback (negative reinforcement) was targeted to weaken or eliminate undesirable employee behavior. However, most of the managers in post-Soviet countries were trained under the political, or command, economy. They had no experience and knowledge of how to provide constructive feedback. So, Lithuanian entities had some chances to change this situation by hiring new young managers, who do not have a command economy imprint and are willing to learn new management techniques. Discussions with employees became a regular habit and behavior that boosted the new entrepreneurial culture and provided possibilities for rapid further development of the feedback intervention (Pieper, 1992; Sparrow & Hiltrop, 1997).

Cultural issues may affect the behavior and interaction between supervisors and their subordinates (Kung et al., 2016; Sully De Luque & Sommer, 2000; Steelman, 2004), especially in the international arena. It influences how subordinates see a supervisor from both the content of the perceptions and the structure (Adsit et al., 1997). The present trend towards considering international management implications brings with its proposition that U.S. techniques for managing information for evaluations of a people's behavior may not be universally effective across different cultures (Sully De Luque & Sommer, 2000; Kung et al., 2016). These statements support the idea that feedback intervention is also different and needs to be investigated.

An international study, where 97 multinational corporations (having subsidiaries in Eastern Europe countries) were examined, revealed that interpersonal aspects such as which supervisors and how delivering feedback related to performance, are quite customized and based on the local culture (Aguinis et al., 2012).

Most of the research has been performed in Western Europe and the United States, where the expertise and knowledge are accumulated. The results show that cultural context is crucial (Communal & Brewster, 2004; Kung et al., 2016). Therefore, the cultural context of the present dissertation supports and expands the scientific evidence of existing feedback intervention research.

2.2. Epistemological approach of experiment

All research is influenced by the researcher's experience and his or her philosophical assumptions, nature of the study, and objective. The research design is constructed by focusing on the research question and previous studies in the feedback variable area. By reviewing the majority of the studies in the feedback field, the author supports other scholars' decisions and continues to use an experimental research method.

“Experiment—a test under controlled conditions that is made to demonstrate a known truth, examine the validity of a hypothesis or determine the efficacy of something previously untried (Shadish, 2002, p.1)”. In this case, the experiment allows receiving objective quantitative results by precise manipulation of chosen variables. Consequently, it allows testing feedback intervention influence on individual performance.

Critics of the experimental research method tell that experimental design is too focused on artificial settings, counts on participants too heavily, and does not present realistic solutions to utilitarian problems because they are performed in artificial laboratory settings (Kardes, 1996). As opposition to these claims, in his research, Kardes (1996) showed that natural empirical settings are often overrated, artificial empirical settings are often underrated, and participants deliver exceptionally useful data. He also explained that scholars consciously construct artificial conditions and settings in the experiment because this is a perfect way to isolate the effects of particular causal variables of probabilistically-related causes and effects (Kardes, 1996).

Shadish (2002) raised a question, why experiments are so important to science, especially to social science, where theory and explanation are often the coins of the realm? He also provided an answer: the dichotomy between descriptive and explanatory causation is less evident in scientific practice than in abstract discussions about causation. He explained that many causal explanations consist of chains of descriptive causal links in which one event causes the next.

Experiments help to test the links in every separate chain. Then, experiments help to differentiate between the validity of competing explanatory theories. Also, experiments test whether a descriptive causal relationship differs in strength or direction under condition A versus condition B. Last, some experiments add quantitative or qualitative observations of the links in the explanatory chain (mediator variables) to generate and study explanations for the descriptive causal effect (Shadish, 2002). Therefore, control, manipulation, and comparison are necessary for understanding the complex issues of interrelated causes and effects (Kardes, 1996).

The critical feature, mutual to all experiments, is to vary something to disclose what happens to something else afterward, to discover the effects of presumed causality (Shadish, 2002). An experimental research method can be used in causal research designs. Researches in organizational studies using it to assess the impact of new reforms or policies (Bryman, 2008). The researcher's goal in performing experiments is to evaluate whether changing an independent variable influences changes in the targeted dependent variable (Zikmund, 2013).

Experimental research provides the possibility of an experimenter to control the research situation in a way that causal relationships among variables can be evaluated. The researcher can manipulate one or more independent variables (in the

present research, feedback sign, and task type) were manipulated and other possible independent variables were held constant (in the present research, individual chronic regulatory focus) while observing effects on the dependent variable (in the present research, individual performance change). In other words, sometimes, it is required to manipulate the independent variable to identify whether it does have an influence on the dependent variable (Bryman, 2008).

Experimental events can be controlled to the extent that it is not possible in a simple survey. Usually, experimental subjects are allocated to one of two experimental groups, each of which represents different types of the independent variable. In some cases, depending on research design, such groups can be more. Then, we can compare how differences between the groups are influenced by variations in the level of dependent variables. It helps, by this manipulation, to determine which way is closer to our goal. In this experimental study, participants were divided into six groups, which allowed for measuring different combinations of variables used.

Selection of dependent variables is essential in experimental design. Unless the dependent variables are relevant and truly represent an outcome of interest, the experiment will not be useful (Zikmund, 2013). It could be that, in some cases, the dependent variable is quite apparent, but sometimes, clearly defining the dependent variable is not such an easy task. Therefore, defining the right dependent variable must be part of the problem definition process. Sometimes, especially in social research, some independent variables cannot be manipulated (e.g., social groups, gender).

In the present study, individual performance was assigned as the dependent variable and measured twice: time point one, pre-feedback performance; and time point two, post-feedback performance. Such a setup allowed measuring individual performance change for each participant.

An experiment's quality is judged by two types of validity: internal and external. Internal validity exists to the extent that an experimental variable is genuinely responsible for any variance in the dependent variable (Zikmund, 2013). It means, does the experimental manipulation directly influence changes in the specific result of interest. If external factors influenced the received results, the researcher would have problems making valid conclusions about the relationship between the experimental treatment and the dependent variable (Zikmund, 2013). External validity is the described as accuracy with which experimental results can be generalized. External validity can be increased when subjects, composing the sample, truly represent the

population and when the results extend to other market segments or groups of people (Zikmund, 2013). The higher the external validity, the closer observed experimental results are to reality or practice.

In this dissertation, the author more focused on internal validity and used a laboratory experiment. A *laboratory experiment* is a research project conducted in an artificial setting (Zikmund, 2013), where a higher level of variable control is present. In the present experimental research, the author followed described methodological guidelines for a laboratory experiment and focused first on internal validity.

A *field experiment* is a research project involving experimental manipulations that are implemented in a natural environment (Zikmund, 2013). Therefore, field experiments usually have higher external validity than laboratory experiments, but laboratory experiments have higher internal validity because of the possibility to have more controlled factors—variables. Researchers have recommended establishing internal validity first and to focus on external validity afterward (Zikmund, 2013). Therefore, the results from laboratory experiments can be tested in the field tests. This will provide stronger evidence for the final results in confirmation and managerial implications.

Kardes (1996) provided a research-based statement where laboratory and field experiments are very close in their results and identical given their phenomenon. He provided a study made by Locke (1986), where a group of leading researchers was asked to review and to compare a number of studies performed in the field and laboratory environment. To their surprise, the outcomes of field versus laboratory studies focused on the same phenomenon were virtually identical. The studies were made in organizational psychology, organizational behavior, and human resources management fields. What is more interesting, is that results derived from students in laboratory settings were similar to results derived from non-students in field settings (Kardes, 1996). It means that laboratory research performed with student participants is much more efficient and cost-effective than field research performed with non-student participants (Kardes, 1996).

In experimental research, scholars usually provide pre-testing of the subjects, or situation, then manipulating the independent variable for the experimental group, or set, and post-testing subjects, or situations. Then, the change is evaluated, frequently by comparing to the test group. Such an approach helps to identify some differences between comparable test groups.

2.3. Research objectives

The present research intended to evaluate feedback intervention influence on individual performance. It led to the research question: “How does feedback intervention congruence and incongruence affect individual performance?”

The primary independent variable, feedback intervention, which in combination with two other factors (chronic regulatory focus and task type) provided a moderating effect on individual performance (see Figure 2). The main foci are congruence effect of higher mentioned three variables (feedback sign, chronic regulatory focus, and task type) on the individual performance change. By manipulating feedback sign (i.e., positive, neutral, or negative) and task type (i.e., promotion or prevention) in experimental conditions, and keeping a constant individual regulatory focus, it is possible to evaluate a three-dimensional feedback intervention effect on individual performance. This allows measuring what impact feedback intervention has on individual performance and empirically evaluating under which conditions performance increases, remains unchanged, or decreases. By being able to understand and know possible changes, people can stimulate individuals to increase their performance; it means to have benefited from correctly applied feedback intervention.

To be able to answer the research question, the following research objectives were raised:

- 1) To develop an experimental procedure and setup measures/scales for variables;
- 2) By manipulating feedback sign and task type to measure individual performance change; and
- 3) To disclose feedback intervention influence on individual performance change.

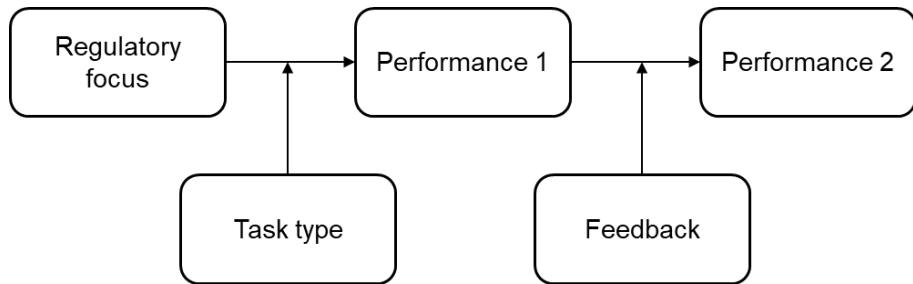
The experiment was conducted, and data gathered during September 2016-February 2017 in Vilnius, Lithuania, where undergraduate students from two universities were involved. For the laboratory experiment process, programming, and data collection “QuestBack” Internet-based software was used. This solution allowed for the collection of initial information needed from distantly-located participants and to perform the laboratory experiment onsite, a university computer classroom.

2.4. Research design

Scholars underline that research design selection must reflect the research question and existing knowledge in the research area. Therefore, the author focused on dominating research designs in the feedback intervention field and reflected the Kluger and DeNisi (1996-2011), Higgins et al. (2000-2007), Sassenberg et al. (2007), Spiegel et al. (2004), Freitas et al. (2002), and other scholars' existing works.

After the detailed analysis of the existing theories and current state of research evaluation, an experimental process model was designed (see Figure 2). Research design helped to construct and understand the whole research process. It shows how all parts of the research fit together and lead to answering of the research question.

Figure 2. Experimental process model.



The model design shows that task type and individual regulatory focus have a moderating effect on individual performance while performing a dedicated task. The moderation effect of the feedback sign after the first task is the focus on individual performance. It was measured by analyzing performance results before and after the feedback intervention.

To test raised hypotheses, the mixed research design (2 x 2 x 3) in this experimental study was used. Task type was manipulated using the between-person level, and the feedback sign was manipulated using the within-person level.

To test raised hypotheses about the congruence effect of feedback sign, chronic regulatory focus, and task type; the MANOVA and repeated measures ANOVA were used.

There are statements in the literature that insights from the between-person level of analyses are often implicitly and incorrectly generalized to the within-person level of analyses (Brose et al., 2015). This generalization leads to some problems because

the reasons and causes of covariation can vary between these two mentioned levels in a significant way (Brose et al., 2015). Scholars provided evidence that the within-person level is different from the between-person level, and their variation requires separate analyses, as they are not substituting for each other (Brose et al., 2015). Therefore, the choice of both levels of analyses provided better insights and a more solid background for the present research.

In the present research, three independent variables were indicated:

- Task type is assigned as independent variable 1. It was manipulated by using two different tasks—one promotion (idea generation) and one prevention (error detection) (Bianco et al., 2003). Tasks are chosen based on Van-Dijk and Kluger's (2011) research results.
- Chronic regulatory focus is assigned as independent variable 2. The regulatory focus of the experiment participants was measured by using the *Regulatory Focus Questionnaire* designed and tested by Higgins et al. (2001). Participants had filled a questionnaire before the tasks were performed. The moderation effect of this independent variable was measured only during the data analysis process, not during the experiment.
- Feedback sign is assigned as independent variable 3. It was manipulated by providing three different feedback interventions—positive feedback, negative feedback, and neutral feedback. The feedback delivery process was designed by using Van-Dijk and Kluger's (2011) method and by adding neutral feedback (Holroyd et al., 2006; Muller et al., 2005) as well. Each participant had received only one type of feedback and only once.

In this experimental research, two dependent variables were indicated:

- Individual pre-feedback performance during the first task was assigned as the dependent variable 1 (performance 1). It was measured after the accomplishment of the first dedicated task.
- Individual post-feedback performance during the second task was assigned as the dependent variable 2 (performance 2). It was measured after the accomplishment of the second dedicated task.

The ultimate goal of this research was to evaluate feedback-influenced performance change. Therefore, the performance change in this experiment was measured by using the repeated measure function on within-subject and between-subject level designs. It allowed measuring different feedback signs' influence on

individual performance in combination with more-often-mentioned variables—task type and personal regulatory focus.

2.5. Participants

The first important question during the selection of participants was who they can be, or who can provide reliable response data for the empirical evaluation of the selected experimental model. It was a possibility to focus on employees of a number of entities in Lithuania or to focus on the students of few universities. Both target groups are of high interest. Table 2 presents information has an important point related to the targeted research sample, which shows how frequent students and employees were involved in the research. Looking at the existing studies in the feedback intervention field and having in mind the possibility to compare study results in the future internationally, the second option was chosen—undergraduate students.

Based on the existing studies conducted by Kardes (1996), students are entirely suitable laboratory experiment participants; therefore, the decision to use students was finally confirmed. Scholars showed that results using students in experimental laboratory settings are much like results received from non-students in field settings. This means that the received results can be applied in practice with a high confidence level. At the same time, aggregated higher homogeneity of the sample had less chance for possible sampling errors.

The second important question was the sample size. Usually, the larger the sample size, the better, because the means of the sample size, in this case, are closer to the population means (Gravetter & Wallnau, 2013). Scholars referred to the existing law of large numbers: *“The Law of large numbers states that the larger the sample size (n), the more probable it is that the sample mean is close to the population mean”* (Gravetter & Wallnau, 2013, p.207).

The means from the small samples will be more widely scattered. Gravetter and Wallnau (2013) referred to a mathematical proposition known as the *central limit theorem*, which provides a precise description of the distribution that is possible to obtain if every possible sample is selected and every sample mean calculated. This major theorem is used in most cases of inferential statistics. The central limit theorem states: *“For any population with mean μ and standard deviation σ , the distribution of sample means for sample size n will have mean of μ and a standard deviation of σ/\sqrt{n} ”*

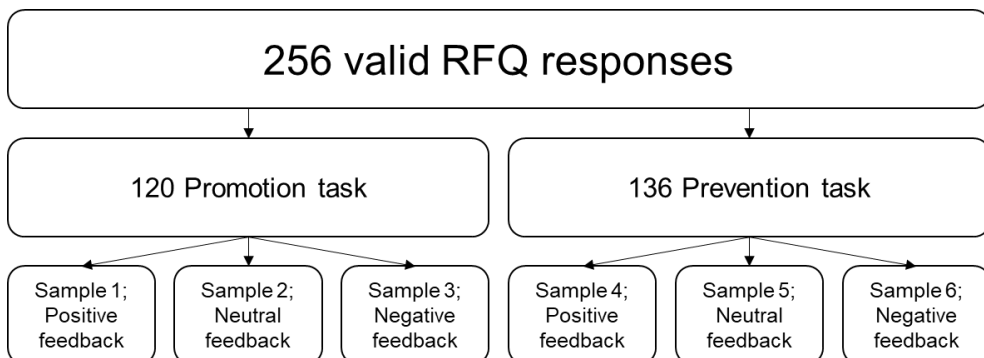
and will approach a normal distribution as n approaches infinity” (Gravetter & Wallnau, 2013, p.205).

The importance of this theorem is that it describes the distribution of sample means for any population and that the distribution of sample means reaches a normal distribution very rapidly (Gravetter & Wallnau, 2013). This is very important for smaller sample sizes, as it is in the present research situation. Scholars described that when the sample size reaches $n = 30$, the distribution is almost perfectly normal. Therefore, referring to these conditions, it is possible to predicate that sample validation requirements in the present experiment are met.

In the present experimental study, close to 300 subjects have participated. All of them are first-year undergraduate students. This selection was made purposively to keep a sample close and unified as much as possible and eliminating, or at least minimizing, side effects. After the final stage of the experiment and data validation, 256 responses were chosen for further analysis (see Figure 3).

Participation was voluntarily, and the research ethics code followed. As a reward for participation, some small incentives (e.g. chocolate bars) were offered to the respondents. The initial questionnaire to evaluate subjects’ chronic regulatory focus was provided and, according to the results obtained, individuals were randomly assigned to the separate groups (samples). Schematic sampling procedures are provided in Figure 3.

Figure 3. Distribution of sample.



A number of participants in each of the six evaluated samples varied from 40 to 52 individuals. Such stratified sampling meets needed validity requirements and

helped to split participants into almost equal groups, which allowed for avoiding domination of any single sample group. The manipulated independent variables for each sample were different and the following:

Sample 1 had 16 males and 24 females. In this group were 20 promotion-focused and 20 prevention-focused subjects. They had to perform a promotion type of task (generation of ideas) and received positive feedback.

Sample 2 had 15 males and 25 females. In this group were 16 promotion-focused and 24 prevention-focused subjects. They had to perform a promotion type of task (generation of ideas) and received neutral feedback.

Sample 3 had 11 males and 29 females. In this group were 12 promotion-focused and 28 prevention-focused subjects. They had to perform a promotion type of task (generation of ideas) and received negative feedback.

Sample 4 had 14 males and 26 females. In this group were 20 promotion-focused and 20 prevention-focused subjects. They had to perform a prevention type of task (error detection) and received positive feedback.

Sample 5 had 17 males and 27 females. In this group were 20 promotion-focused and 24 prevention-focused subjects. They had to perform a prevention type of task (error detection) and received neutral feedback.

Sample 6 had 18 males and 34 females. In this group were 20 promotion-focused and 32 prevention-focused subjects. They had to perform a prevention type of task (error detection) and received negative feedback.

This set of samples allow one to measure and compare individual performance change using different possible combinations of feedback intervention sign and task type. Detailed information about subjects can be found in the analysis of the results section.

2.6. Procedure

Initially, subjects were briefed by email that they would participate in a laboratory experiment by filling in the personality test (the Regulatory Focus Questionnaire [RFQ]) and solving a few tasks. Each participant received a personal email with a unique link to the RFQ and could respond at his or her most convenient time. During the first stage, responses were gathered, and participants were randomly divided into six separate equal groups (samples) for the next stage of the laboratory experiment, as described

previously. The descriptive information and data are presented in the “Participants” section.

Further, the schedule for the next aspect (laboratory) was concluded, and participants were invited at the determined time to arrive at the computer classroom to perform their tasks—the second part of an experiment.

Upon arrival at the computer classroom, participants were instructed about the experiment procedure and tasks they must perform. After that, they started to work on their assignment. Depending on the subject, one of the tasks (promotion or prevention) was provided. Subjects were advised to perform at their best and not to use any external help, including electronic calculation devices. Two minutes were provided for the promotion task and, after time passed, participants were asked to proceed further. For the prevention task, the maximum time of five minutes was allocated.

After the first task was accomplished, each participant received individual, on-screen positive, neutral, or negative preprogrammed individual feedback. The feedback sign was manipulated and had no relation with the actual individual performance. Then, the same type of task was provided a second time—generation of ideas or error detection. The achieved result after another two minutes was registered in case of the promotion task and five minutes in case of the prevention task.

In the end, participants were debriefed by informing them about the true goal and objectives of the experiment and rewarded for their participation.

2.7. Measures

Performance measure.

To measure individual performance, there are a number of generic scales developed that can be used for specific task performance measurement. In this research, the author used Van-Dijk and Kluger’s (2011) scale of individual performance measurement before and after the provided individual feedback intervention. The same scale was used in many other experimental studies, e.g., Ilies and Judge (2005), Harkins and Lowe (2000), Locke (1982).

Performance was assigned as a dependent variable. Pre-feedback performance was named dependent variable *performance 1*, and post-feedback performance was named dependent variable *performance 2* (see Figure 2). For each task, performance was measured separately. On the prevention task (error detection), performance was

measured by the number of correct answers—errors detected. Ten provided arithmetical calculations needed to be reviewed by the participant, who marked each one as correct or incorrect. Initially, 40% of them were incorrect. On the promotion task (ideas generation), performance was measured by the number of ideas generated. The higher the number of ideas a participant proposed, the higher the performance he or she demonstrated.

Pre-feedback and post-feedback performance differences were measured using the MANOVA method.

For the measurement of the final performance change, a repeated measures ANOVA method was used. It allowed evaluating individual performance results in pre-feedback and post-feedback situations. In this way, the feedback intervention influence on individual performance can be evaluated.

Regulatory focus measure.

The chronic regulatory focus of experiment participants in the present research was measured by using a dedicated *Regulatory Focus Questionnaire* (Higgins et al., 2001) and remained a constant unmanipulated variable. This allows measuring feedback sign effects on all regulatory focus groups.

The RFQ (see Appendix 1) was designed and tested by Higgins et al. (2001), which allowed for evaluating persons' regulatory focus based on his or her historical experience. Questionnaire construction is based on person's subjective histories of success and failure, where promotion and prevention self-regulation are present. The set of questions equally represents the promotion and prevention of candidate items. The questionnaire includes aspects of parental content and non-parental content. As Higgins (2001) described, the parental prevention item included in, e.g., the question "*How often did you obey rules and regulations that were established by your parents?*", where non-parental prevention item included in, e.g., the question "*Not being careful enough has gotten me into trouble at times.*" A similar pattern of construction is followed in other questions as well.

The questionnaire contains 11 questions in total, which are tested and analyzed using psychometric, reliability, and exploratory factor analyses (Higgins, 2001). Questions 1, 3, 7, 9, 10, and 11 are promotion-oriented items. Questions 2, 4, 5, 6, and 8 are prevention-oriented items. During the data analysis process, a few needed

question scales were inverted, as this was required to obtain the correct correlation sign.

In this research, the author used two versions of the RFQ: the original in English and a version translated into Lithuanian (Appendix 2). The reason for this is that not every respondent is capable of understanding and responding in English properly. Respondents had the possibility to choose the preferred language freely. It helped to collect and use a higher number of answers for the data analysis.

To have higher validity of the research results and the possibility to perform needed statistical tests, the use of the original RFQ English version was confirmed without any changes.

To translate RFQ into Lithuanian, the author used a systematic translation and back-translation method recommended by Brislin (1970) and used by many researchers. The method consists of the proposed seven-step procedure, which allows adequate translation from English into Lithuanian. The summary procedure is as follows (Brisling, 1970):

1. Prepare an English form that is likely to be translatable—here, the original RFQ was used in English.
2. Use competent translators—a professional interpreter was chosen.
3. One person must translate from English into Lithuanian, and another to blindly back-translate from Lithuanian into English.
4. Use several raters to examine the original, translated, and back-translated versions for errors and different possible meanings.
5. Pretest and revise the translation.
6. Administer the prepared material with research area specialists.
7. Prepare and report the final version of the translation.

The translation and back-translation were conducted in cooperation with a professional interpreter to ensure that linguistic validation was followed precisely. After the cooperative discussion and revision, the second version of the questionnaire was prepared. This version of questionnaire in Lithuanian was administered and revised by the author and the supervisor. Following the joint insights and experience, the final version of the RFQ in Lithuanian was prepared and pretested. After the pretest, the questionnaire was confirmed and used in the present research.

In real life situations, there is another possibility to evaluate an individual chronic regulatory focus. The difference between prevention and promotion foci can emerge

in a person's values profile (Van-Dijk & Kluger, 2004). More specifically, individuals who prioritize security, tradition, and conformity values usually tend to have a prevention focus, whereas individuals who prioritize self-direction and stimulation values usually tend to have promotion focus (Van-Dijk & Kluger, 2004). According to this explanation, we can find the participants' values profile and assign them to the dedicated chronic regulatory group. This could be another, more practical way to identify individuals' regulatory focus on daily life, than scientific use of regulatory focus questionnaire.

2.8. Manipulation

Manipulation of task type.

According to the scholars, different regulatory focus group members must show different performance in fulfilling the provided tasks (Koopmans et al., 2012; Campbell et al., 1990; Van-Dijk & Kluger, 2011). Tasks that requires detailed attention, e.g., finding mistakes in various reports, following instructions, bookkeeping, maintaining safety, handling customer complaints, keep individuals focused on detecting what is wrong and what they need to avoid (Van-Dijk & Kluger, 2011; Bianco et al., 2003; Bass et al., 2008). Alternatively, tasks that require eagerness, e.g., generating new ideas, product development, creative problem-solving, assimilating new technology, keep individuals focused on finding what is right and what they can gain (Van-Dijk & Kluger, 2011; Bianco et al., 2003; Bass et al., 2008). So, as these tasks require different individual behavior and attitude, the group members having a different regulatory focus must demonstrate different performance. Therefore, two types of tasks were selected: a promotion task and prevention task.

Participants were randomly assigned to perform only one type of task. There was an equal number of participants in each group.

From the list of different tasks developed by Van-Dijk and Kluger (2011) (Appendix 3), one promotion task, "generation of ideas" and one prevention task, "error detection" were chosen. These tasks were selected because they reflect a promotion focus and prevention focus. Therefore, this helps to measure and evaluate experimental results more precisely.

The selected generation of ideas task requires individuals to demonstrate creativeness and open-mindedness to write as many ideas as possible for presumed

usage of a simple construction brick (first task) and office paper clip (second task). The more ideas presented, the higher the performance a participant demonstrates.

The error detection task requires demonstrating attention to detail and accuracy, as well as basic knowledge of arithmetic. For the participants, a list of 10 arithmetical calculations was presented (for the first and second tasks). The list was based on simple and basic arithmetical functions—multiplication, division, addition, and subtraction. They had to find mistakes and to decide which solution provided is correct or incorrect. From the whole list, 40% of the arithmetical solutions presented were intentionally incorrect. The more correct answers provided, the higher performance the participant demonstrated.

Task type (prevention and promotion) was assigned as an independent variable.

Manipulation of feedback sign.

As was hypothesized, feedback sign has an influence on individual future efforts and performance (Higgins, 1997, 1998; DeNisi & Kluger, 200; Harkins & Lowe, 2000; Van-Dijk & Kluger, 2011). Therefore, in this experiment, the author decided to use and manipulate not just two feedback signs (positive and negative) but to add neutral feedback as well. This provided extra analytical information and evidence for the expansion of present scientific knowledge.

Manipulating the feedback sign in this experiment had a significant role in combining, or disruption of, the congruence effect among all variables. This means that results could show the possible combinations of variables wherein a historical feedback review, done by Kluger and DeNisi, mentioned the 30% of decreased performance cases coming from.

The individual feedback intervention during an experimental manipulation was conducted based on Van-Dijk, and Kluger's (2011) method and added neutral feedback. Words such as "good job," excellent," and "well done" are related to verbal and social reinforcers (Choi et al., 2018). Alternatively, words such as "not so good," "poor job," and "not your best," are associated with verbal and social punishers (Choi et al., 2018). After the first pre-feedback performed task, for each participant, only one type of individual written feedback was provided. Three forms of feedback intervention were used:

Positive – *"Well done! Up to now your performance on this task has been above average. Please continue."*

Neutral – *“Your result is registered. Please proceed further.”*

Negative – *“Not so good! Up to now your performance on this task has been below average. Please continue.”*

After the written message that individual response was registered, and performance evaluated, the individual feedback was delivered to each participant on the computer screen. This method allows demonstration of an impression that real evaluation of results was performed, and feedback looks more realistic. The feedback delivered was manipulated and entirely unrelated to real performance.

Feedback sign (i.e., positive, neutral, or negative) was assigned as the independent variable.

3. Analysis of the results

In this section, the data analysis process used and techniques are presented, and the results are reported and explained. For the statistical data analysis, SPSS software version 23 was used. The individual chronic regulatory focus of participants was evaluated by using exploratory factor analysis and principal component analysis, which allow an examination of the potential interrelationship among a number of questions (variables). Exploratory factor analysis is used when there is a need to discover the number of factors influencing variables and to analyze which variables can be grouped (Yong & Pearce, 2013). Individual performance was measured using within-subject and repeated measure designs by implementing the ANOVA.

The process was divided into four separate stages. During the first stage, participants' chronic regulatory focus was evaluated. The second two stages were dedicated to measuring dependent variable pre-feedback performance 1 and dependent variable post-feedback performance 2. The last stage was dedicated to the individual performance change measurement that allowed evaluation of how feedback intervention could influence the individual performance of the participants. The congruence effect of all three variables (i.e., task type, chronic regulatory focus, and feedback intervention sign) was evaluated using MANOVA.

The reliability of results was assessed by calculating Cronbach's alpha coefficient. Further, detailed descriptive results of the performed experiment are presented and explained.

3.1. Demographical results

For the data analysis responses, 256 students were used. As demographical determinants in the survey, age and gender variables were included. However, not enough scientific information and evidence exist regarding gender influence and attitude to the feedback intervention (Bear et al., 2017). Therefore, it is essential to include gender differences in future research about the feedback (Van Hell et al., 2009). In this research, the author included gender as an extra variable; however, the gender differences will be compared in later studies.

In Table 5, the demographic characteristics of participants are presented. The larger segment (64.5%) of participants was female, where male participants formed 35.5% of the total sample. According to the Lithuanian Students' Association, in Lithuania in 2016, the total population of students consists of 57.8% females and 42.2% of males. The slight sample shift to the female side can be explained through a few arguments. First, female students are more willing to participate in surveys and respond to questionnaires provided. Second, surveyed students were from economics and social sciences programs, where the natural distribution of female students is higher than average. Therefore, sample gender distribution was normal and could be used for further data analysis.

Table 5. Demographic characteristics of participants.

Demographics of participants		N	%
Gender	Female	165	64,5
	Male	91	35,5
Age	18	24	9,4
	19	103	40,2
	20	65	25,4
	21	40	15,6
	22	12	4,7
	23	12	4,7
Total:		256	100,0

Source: Experiment data.

The age of subjects ranged from 18 to 23 years old with the majority being 19-20 years old: 40.2% of the sample participants were 19 years old, and 25.4% were 20 years old. The median was 20 years old.

In Table 6, age and gender figures are presented, where female and male subjects' distribution by age groups is visible. It shows that female subjects are more concentrated in the 19 year age group, where with male subjects, a higher concentration was observed in the 20 years and over group.

Table 6. Age – Gender sample distribution.

Age	Gender		Total
	Female	Male	
18	18	6	24
19	78	25	103
20	31	34	65
21	31	9	40
22	7	5	12
23	0	12	12
Total:	165	91	256

Source: Experiment data.

The difference between male and female performance change influenced by feedback intervention was not evaluated, as this was not part of the scope of the present research. However, the literature suggests that women more frequently ask for feedback than men do (Bear et al., 2017; Van Hell et al., 2009). This could be addressed in future investigation.

3.2. Reliability and Chronic regulatory focus results

Before proceeding further, the Cronbach's alpha was measured, as this is the most common way to measure the reliability of the scale used (Field, 2013). In the original study, Higgins (2001) received the following internal reliability for the scales used: $\alpha = 0.73$ for the promotion scale, and $\alpha = 0.80$ for the prevention scale. In the present research, the level of Cronbach's alpha fully matched those reliability levels: for the prevention scale $\alpha = 0.797$, and the promotion scale $\alpha = 0.801$ were calculated (see Table 7).

Table 7. Cronbach's alpha coefficients.

	Cronbach's Alpha	N of Items
Prevention scale	,797	4
Promotion scale	,801	4

Source: Experiment data.

Because the coefficients were above those recommended by the theory minimal limit (which is .60), it means that the scales fulfill the consistency criteria. Some scales had negative factor loading; therefore, after inversion, such a reliability level is acceptable, and factor analysis can be performed. Other significance coefficients will be presented.

Further, participants' chronic regulatory focus was examined. For this purpose, the exploratory factorial analysis method was employed using SPSS. Factorial analysis allows examination of the potential interrelationship among several variables and to evaluate the underlying reasons for these relationships (Gravetter & Wallnau, 2013; Malhotra et al., 2012).

There are two main conditions needed for the factor analysis. The first one is that there is a need to have a relationship among variables used, and second, the relationship of sample size to the number of variables (Field, 2013). In general, the larger the sample size, primarily in relation to the number of variables, the more reliable the resulting factors and diminished errors in the data (Yong & Pearce, 2013). The total sample size is less influential for factor analysis. However, factor analysis must never be used if the number of variables is greater than the number of respondents (Gravetter & Wallnau, 2013). Yong and Pearce (2013) stated that having at least a few high-factor loadings ($> .80$), the smaller sample size should be sufficient ($n > 150$).

In the present research sample, 256 subjects were used and received factor loadings much higher than minimum requirements. This means that both conditions in the present experiment were fulfilled. Therefore, the exploratory factor analysis method could be performed, and results used for further calculations.

According to the received survey factorial results, each participant was assigned to one of the groups: promotion, mixed, or prevention focus. These groups are constant and used as independent variables. Analysis of the regulatory focus moderation was performed using a between-subjects level design. The number of subjects in each chronic regulatory group is presented in Table 8.

Table 8. Chronic Regulatory Focus of participants.

Regulatory focus groups	N	%
Prevention focus group	108	42
Mixed focus group	36	14
Promotion focus group	112	44
Total:	256	100

Source: Experiment data.

The procedure for the regulatory focus identification was performed in the following way. Initially, the negative scales were inverted to allow a proper comparison of variables. By using bivariate correlation, the received results showed that questions 3 (*“How often have you accomplished things that got you “psyched” to work even harder?”*), 7 (*“Do you often do well at different things that you try?”*), and 10 (*“I feel like I have made progress toward being successful in my life”*) needed to be eliminated from further analysis, as they did not fit in to a research model.

There could be a few explanations for the incorrect correlation received. One of them is a cultural situation, or post-Soviet mentality when respondents are still afraid to report negative aspects related to their personal life. Another reason, as the outcome from the first one, was the intention to use a secure score on the scale—the middle one. This issue was highly visible when observing the means. Subjects frequently tried to mark the neutral score for the sensitive questions. This idea could explain the Cronbach's alpha level too.

Another option could be that respondents did not understand the questions fully. Therefore, their answers could be provided as “secure”—in the neutral location of the scale. Therefore, a theoretical perspective could be that the “safety first” initiative was triggered. Accordingly, participants' responsive behavioral reaction was demonstrated.

A chronic regulatory focus comparison per gender was conducted and presented in Table 9. In the present sample, results show that female individuals were more prevention-oriented (83 prevention vs. 61 promotion) and male participants more promotion-oriented (25 prevention vs. 51 promotion).

The results reflect general gender distribution, where standpoint is that females are more caution-oriented and responsible than males are. Literature discloses that females are more risk-averse than males are (Hersch, 1996).

Table 9. Gender based chronic regulatory focus.

Gender	Regulatory focus			Total
	Prevention	Mixed	Promotion	
Female	83	21	61	165
Male	25	15	51	91
Total:	108	36	112	256

Source: Experiment data.

A chronic regulatory focus per age-based distribution of the sample was calculated as well (see Table 10). The results show the frequency of the youngest group (18 years old) appears to be twice as higher on the promotion focus than prevention focus. This situation changed with age, and individuals became more prevention-oriented. This needs future investigation and analysis, as the present sample was not sufficient for generalizing outcomes of this aspect.

Table 10. Regulatory focus distribution by age.

Age	Regulatory focus			Total
	Prevention	Mixed	Promotion	
18	8	0	16	24
19	44	16	43	103
20	24	12	29	65
21	24	4	14	40
22	4	4	4	12
23	4	0	8	12
Total:	108	36	112	256

Source: Experiment data.

Following Higgins and other theoretical research approaches, individuals are promotion- or prevention-focused. However, there is a lack of information in the literature about individuals with a dual regulatory focus, when they have a joint presence of promotion and prevention focus (Brockner et al., 2004). Based on Higgins scales, scholars received results that individuals are not just promotion- or prevention-focused; they reported dual regulatory focus cases (Parker et al., 2014). In the present research, dual focus results were observed as well.

Further, the correlation matrix (see Table 11) was prepared, and the results received showed high significance. The factor loadings from factor analysis were prepared using Varimax rotation. Varimax rotation provides results where the factors are orthogonal (uncorrelated one with another). This makes results easier to interpret. If there is a need to evaluate factors (latent concepts) with some possible correlation, then, direct Oblimin rotation can be used (Gravetter & Wallnau, 2013). This method allows a natural correlation among the factors.

The correlation matrix indicates how each question is associated, or correlated, with each of the other questions.

Table 11. Means, Standard deviations, and correlations of RFQ.

		M	SD	N	Q1	Q2	Q4	Q5*	Q6	Q8	Q9	Q11
Correlation	Q1	2,52	,954	256	1,000	-,316	-,409	,619	-,327	-,446	,439	,485
	Q2	2,91	1,088	256	-,316	1,000	,505	-,365	,412	,402	-,284	-,379
	Q4	2,86	1,061	256	-,409	,505	1,000	-,331	,468	,592	-,228	-,305
	Q5*	2,70	1,058	256	,619	-,365	-,331	1,000	-,419	-,433	,501	,594
	Q6	2,66	1,292	256	-,327	,412	,468	-,419	1,000	,618	-,408	-,370
	Q8	2,86	1,118	256	-,446	,402	,592	-,433	,618	1,000	-,287	-,375
	Q9	3,08	,991	256	,439	-,284	-,228	,501	-,408	-,287	1,000	,386
	Q11	2,83	1,142	256	,485	-,379	-,305	,594	-,370	-,375	,386	1,000
Significance	Q1					,000	,000	,000	,000	,000	,000	,000
	Q2				,000		,000	,000	,000	,000	,000	,000
	Q4				,000	,000		,000	,000	,000	,000	,000
	Q5*				,000	,000	,000		,000	,000	,000	,000
	Q6				,000	,000	,000	,000		,000	,000	,000
	Q8				,000	,000	,000	,000	,000		,000	,000
	Q9				,000	,000	,000	,000	,000	,000		,000
	Q11				,000	,000	,000	,000	,000	,000	,000	

Note: Q1 - Q11 – Questions in Regulatory Focus Questionnaire;

*Q5 – inverted.

Source: Experiment data.

Initial data show that questions 1, 5, 9, and 11 formed one positive correlation group. Another group association was formed by questions 2, 4, 6, and 8. These two sets formed an inverse correlation between groups.

To test assumptions, Kaiser-Meyer-Olkin (KMO) and Barlett's tests were generated (see Table 12). The KMO measure of sampling adequacy is an index used to examine the appropriateness of factor analysis (Malhotra et al., 2012). The values between 0.5 and 1.0 indicate high index-factor analysis is appropriate. If calculated values are below 0.5, then factor analysis may not be appropriate. In received results, the KMO measure of sampling adequacy was 0.841. It is higher than 0.5 and lower than 1.0, which indicates that there are enough items for each factor.

Table 12. Factor analysis: KMO and Barlett's Test.

Kaiser – Meyer – Olkin Measure of Sampling Adequacy.		,841
Barlett's Test of Sphericity	Approx. Chi-Square	777,257
	df	28
	Sig.	,000

Source: Experiment data.

The result of Barlett's test of sphericity shows very high significance, as it was less than 0.05. This test is used to evaluate variables correlated or uncorrelated in the population. The lower the score (less than 0.05), the higher the indication that the correlation matrix is significantly different from an identity matrix, which means there are no correlations between variables.

Table 13. Factor analysis: Communalities.

	Initial	Extraction
Q1	1,000	,623
Q2	1,000	,506
Q4	1,000	,718
Q5 inverted	1,000	,750
Q6	1,000	,598
Q8	1,000	,699
Q9	1,000	,553
Q11	1,000	,597

Note: Extraction method: Principal Component Analysis.

Source: Experiment data.

The commonality is the amount of variance a variable shares with all the other variables being considered (Malhotra et al., 2012). If many, or most, communalities are low (< 0.30); this means that sample size is small and more likely to distort results.

Calculated communalities (see Table 13) show the initial extraction values before rotation. The received results are good, as the extraction of all communalities is much higher than theoretically required 0.30 and reaching higher than 0.5.

Table 14 represents a total data variance of explained statistics. The table shows how the variance is divided among the possible factors. Eigenvalue represents the total variance explained by each factor (Malhotra et al., 2012). Only the factors with eigenvalues higher than 1.0 are useful for the factor analysis and explanation of the results.

Table 14. Factor analysis: Total variance explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,941	49,265	49,265	3,941	49,265	49,265	2,530	31,627	31,627
2	1,102	13,775	63,040	1,102	13,775	63,040	2,513	31,413	63,040
3	,703	8,786	71,826						
4	,655	8,189	80,015						
5	,566	7,073	87,088						
6	,394	4,925	92,013						
7	,327	4,089	96,103						
8	,312	3,897	100,000						

Note: Extraction method: Principal Component Analysis.

Source: Experiment data.

Received results clearly indicated two factors with higher eigenvalues than 1.0. Therefore, they were retained. In the present research, this was a good situation, because it fully matched the initial estimation of promotion and prevention regulatory focus factors. Together, these factors explain 63% of covariations among items accounted for each factor.

When the eigenvalue is lower than 1.0, the factor can explain less information than a single item would have explained, as due to standardization, each variable has a variance of 1.0. Therefore, these factors were not considered for further analysis.

Principal components analysis with Varimax rotation was conducted to assess how variables are clustered. The goal of rotation is to get a simple optimal structure, which allows having each variable load on fewer factors as possible, at the same time maximizing the number of high loadings on each variable (Yong & Pearce, 2013). The SPSS program evaluated two factors with high eigenvalues (over 1) and, with a preset Varimax rotation function, had orthogonally rotated both factors for the best possible solution. It helped to align the final factors at right angles with each other. Varimax rotation minimizes the number of variables that have high loadings on each factor and making small loadings even smaller (Yong & Pearce, 2013).

Table 15 displays the questions and component loadings for the rotated components. The rotated component matrix was calculated by using the “suppress small coefficients” option and setting the “absolute value below” 0.3, as is recommended to eliminate small values and to improve the clarity of the results. This shows the assumption that the information explained by one factor is independent of the information in the other factors.

Table 15. Factor analysis: Rotated Component Matrix^a.

	Component	
	1	2
Q1	,733	
Q2		,669
Q4		,837
Q5 inverted	,826	
Q6	-,310	,708
Q8		,792
Q9	,730	
Q11	,730	

Note: Extraction method: Principal Component Analysis;
 Rotation method: Varimax with Kaiser Normalization;
 a. Rotation converged in 3 iterations.

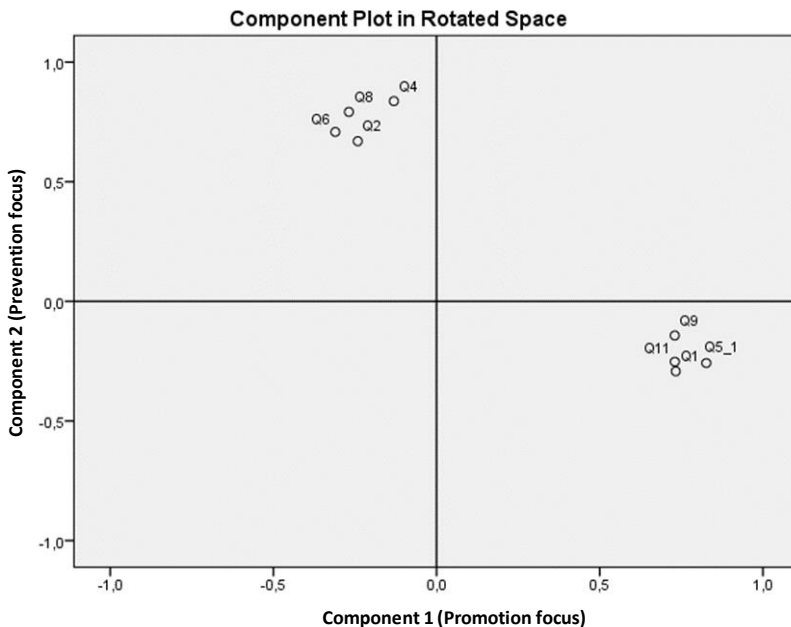
Source: Experiment data.

Factors are rotated to aid in a more straightforward interpretation. After rotation, the first component accounted for 31.6% of the variance, and the second component accounted for 31.4% of the variance (Table 14). Rotation helps as much as possible to determine if different items are explained or predicted by different underlying factors.

A simple structure in this situation was generated. However, despite that rotation simplifies the solution, sometimes, each factor explains more than one item. This is possible to see with question 6, where there is an influential presence in both factors (components). In such cases, the analysis must use higher value factor loadings. The present situation is entirely acceptable, as there are opposite factor loadings: negative $-.310$ loading on factor 1, and positive, $.708$ loading on factor 2.

A rotated component matrix is critical for understanding the results of the analysis. It is evident that received empirical results exactly matched the RFQ questions used from the theoretical framework. Some value differences exist, as the data were gathered in a country with a different culture than the one in which the RFQ was developed. The theory highlights cultural differences among the United States, Western Europe, and post-Soviet countries. Questions 1, 5i, 9, and 11 represented participants' promotion focus, and questions 2, 4, 6, and 8 represented participants' prevention focus. These results allowed for evaluation of the chronic regulatory focus of experiment participants and to use these data for the further analysis of feedback intervention influence on individual performance.

Figure 4. Factor analysis: Component Plot in Rotated Space.



Source: Experiment data; SPSS output.

The component plot in rotated space (see Figure 4) provides a visual representation of the loadings plotted in a two-dimensional space. The graph shows how items are located close to each other and in relation to both factors (components). The received results form two distant groups or clusters. Questions two, four, six, and eight loadings show a highly positive correlation with prevention focus (component two) and negative correlation with a promotion focus (component one). Questions 1, 5i, 9, and 11 loadings show a high positive correlation with a promotion focus (component one) and a negative correlation with a prevention focus (component two). This shows that grouping was performed correctly.

The anti-image matrices of covariances and correlations are presented in Appendix 6. These matrices contain measures of sampling adequacy for each variable along the diagonal. According to Field (2013), the diagonal elements must be higher than 0.5 at a minimum if the sample is adequate for a given pair of variables. The received results demonstrate higher values than 0.8. This means that statistic anti-image values are valid and usable.

3.3. Pre-feedback performance results

To measure the subjects' pre-feedback performance during task 1, the following procedure was used. Firstly, the means and standard deviations for each "task type" independent variable were calculated (Table 16). This allows one to measure and observe what kind of results participants of an experiment achieved at the initial stage. The results show that for the prevention task $M = 7.62$ and $\sigma = 1,669$ were achieved, and for the promotion task $M = 6.58$ and $\sigma = 1,607$.

Table 16. Pre-feedback performance means and standard deviations per task type.

Task type	M	N	Std. Deviation
Prevention	7,62	136	1,669
Promotion	6,58	120	1,607
Total	7,13	256	1,718

Source: Experiment data.

Secondly, the means and standard deviations for each participant's chronic regulatory focus independent variable were calculated (see Table 17). The results demonstrate that 108 prevention-focused individuals reached pre-feedback performance with $M = 6.84$ and $\sigma = 1,499$, 36 mixed group individuals $M = 6.94$ and $\sigma = 1,672$, and promotion-focused individuals $M = 7.46$ and $\sigma = 1,879$. Promotion-focused individuals demonstrated the highest level of performance. However, their standard deviation was highest as well.

The performance change after the feedback intervention delivery was evaluated only for the promotion and prevention of chronic regulatory groups, as only these two groups were involved in hypotheses development. Mixed group individuals' results were presented for general statistical purposes, and to demonstrate that this group behavior was different compared to the other two.

Table 17. Pre-feedback performance means and standard deviations per regulatory focus.

Total Regulatory Focus	M	N	Std. Deviation
Prevention focus group	6,84	108	1,499
Mixed focus group	6,94	36	1,672
Promotion focus group	7,46	112	1,879
Total	7,13	256	1,718

Source: Experiment data.

The results of Levene's test of equality of variances show that there was a difference between the variances in the population (see Table 18). Moreover, this was correct because there were two different samples at the beginning of an experiment. Later, by higher precise comparison of the data, three different groups were selected: prevention, promotion, and mixed. In practice, Levene's test is used to evaluate the equality of variances for a variable calculated for more than one group. This test assesses the assumption that variances of the populations are equal. If the resulting p-value of Levene's test has a higher significance than 0.05, this means that the differences in the sample variances most likely appeared at random sampling from a population (Gravetter & Wallnau, 2013). Levene's test could be an alternative to the Bartlett test, which is more sensitive to departures from normality.

Table 18. Pre-feedback Levene's test of equality of error Variances.

	F	df1	df2	Sig.
Task I	2.700	5	250	.021

*Note: Design: Intercept + Task_type + RF_3_Groups + Task_type * RF_3_Groups*
Source: Experiment data.

The next step is to examine the difference between received means by using the ANOVA procedure. Two-factor ANOVA was used to evaluate the differences in the means of the dependent variable associated with the effect of the controlled independent variables, or basically, to test means for two or more populations (Malhotra et al., 2012). ANOVA allowed estimating two measures of variation: between groups and within groups (see Table 19). The received value of $F(5,250) = 8.85$, $p < .001$, $R^2 = .150$. This means that the significance is higher than 0.05. Therefore, the null hypothesis of equal population means must be rejected.

Another way to interpret the received result is to look at the critical value of F . In case of 5 and 250 df , the critical F value is 2.2141 for the .05 level of significance, and 3.017 for the .01 level of significance (from the F distribution statistical table). Because the actual calculated value of $F(8.85)$ was larger than the critical theoretical value, the null hypothesis must be rejected. Therefore, two-factor ANOVA results allow concluding that there is a difference in the population means.

Table 19. Pre-feedback task 2-factor ANOVA.

	df	F	Sig.
Between-subjects	5	8.852	.000
Error	250		
Corrected Total	255		

Source: Experiment data.

3.4. Post-feedback performance results

To measure the subjects' post-feedback performance results during task two, a procedure similar to the pre-feedback evaluation was followed. Initially, the means and standard deviations for task two were calculated (see Table 20). The results indicate that for the prevention task $M = 7.60$ and $\sigma = 1,447$ were received, and for the

promotion task $M = 6.24$ and $\sigma = 1,787$. An overview of the means shows that the prevention task had a higher mean than the promotion task and lower standard deviation.

Table 20. Post-feedback performance means and standard deviations per task type.

Task type	M	N	Std. Deviation
Prevention	7,60	136	1,447
Promotion	6,24	120	1,787
Total	6,96	256	1,750

Source: Experiment data.

Further, the means and standard deviations for each participant's "chronic regulatory focus" independent variable were calculated (see Table 21). The results showed that 108 prevention-focused individuals reached post-feedback performance with the $M = 6.83$ and $\sigma = 1,877$, 36 mixed group individuals $M = 6.50$ and $\sigma = 1,276$, and promotion-focused individuals $M = 7.24$ and $\sigma = 1,720$. The promotion-focused individuals demonstrated a higher level of performance. The highest standard deviation was among prevention-focused individuals.

Table 21. Post-feedback performance means and standard deviations per regulatory focus.

Total Regulatory Focus	M	N	Std. Deviation
Prevention focus group	6,83	108	1,877
Mixed focus group	6,50	36	1,276
Promotion focus group	7,24	112	1,720
Total	6,96	256	1,750

Source: Experiment data.

The results for post-feedback task two of Levene's equality of variances test are presented in Table 22. The overall level of observed significance is low; therefore, more detailed task-specific analyses were performed.

Table 22. Post-feedback Levene's test of equality of error Variances.

	F	df1	df2	Sig.
Task II	1.581	5	250	.166

Note: Design: Intercept + Task_type + RF_3_Groups + Task_type * RF_3_Groups
Source: Experiment data.

For the second task, two-factor ANOVA estimation for the two measures of variation was calculated again. The results are presented in Table 23. The received value of $F(5,250) = 12.906$, $p < .001$, $R^2 = .205$. Therefore, the null hypothesis of equal population means must be rejected too. The evaluation of the critical value of $F(12.906)$ shows that it is larger than the critical theoretical value (2.2141 for the .05 level of significance and 3.017 for the .01 level of significance). Therefore, the null hypothesis must be rejected. For the second task, the generated ANOVA results allow one to conclude that there is a difference in the population means.

Table 23. Post-feedback task 2-factor ANOVA

	df	F	Sig.
Between-subjects	5	12.906	.000
Error	250		
Corrected Total	255		

Source: Experiment data.

3.5. Congruence effect

In the present research, the author evaluated the effects of three different factors simultaneously. Therefore, the congruence effect of task type, chronic regulatory focus, and feedback sign must be measured by applying the MANOVA method. According to Malhotra et al. (2012), a significant advantage of the MANOVA is that one can examine interactions among factors that occur when the effects of one factor of the dependent variable depend on the level of other evaluated factors.

The data show that the overall effect was significant (see Table 24). Therefore, further examination of the significance of the interaction effect must be performed. There was a statistically significant three-way interaction among task type, feedback sign, and regulatory focus, $F(15,240) = 20.842$, $p < 0.001$, $R^2 = .566$.

Table 24. Test of Between-Subjects Effects.

Source	df	F	Sig.
Corrected model	15	20.842	,000
Task type (TT)	1	55.217	,000
Feedback sign (FS)	2	20.761	,000
Regulatory focus (RF)	2	.508	,602
TT x FS	2	9.126	,000
TT x RF	2	7.934	,000
FS x RF	3	41.227	,000
TT x FS x RF	3	7.998	,000
Error	240		

Note: Dependent variable Task II.

Source: Experiment data.

Levene's equality of variances test shows that the congruence interaction effect of the three variables used was highly significant (see Table 25). The received analyses of the pre-feedback performance, post-feedback performance, and congruence effect are fully aligned and show high significance; therefore, further evaluation of performance change was made.

Table 25. Congruence Levene's test of equality of error Variances.

	F	df1	df2	Sig.
Congruence effect	5.276	15	240	.000

Note: Design: Intercept + Task_type + RF_3_Groups + Feedback_sign + Task_type * RF_3_Groups + Task_type * Feedback_sign + RF_3_Groups * Feedback_sign + Task_type * RF_3_Groups * Feedback_sign.

Source: Experiment data.

3.5.1. Feedback sign and task type congruence effect.

The literature review suggests that usually feedback sign and task congruence lead to an individual performance increase.

In the present research, results show that the prevention task and negative feedback on the total level had a slight performance decrease (see Table 26). The mean after the feedback intervention changed from 8.67, $\sigma = 1.712$ to 8.52, $\sigma = 1.213$.

The positive effect, in this case, is more related to the closer distribution of scores than the performance increase.

In the case of the promotion task and positive feedback congruence, the overall performance has decreased as well and distribution of scores increased (M from 6.90, $\sigma = .982$ to $M = 6.48$, $\sigma = 2.309$).

In the case of incongruence between task type and feedback sign, the situation is ambiguous as well. The positive feedback during the prevention task had influenced individuals positively on individual performance ($M = 6.98$, $\sigma = 1.165$ to $M = 7.27$, $\sigma = 1.198$). However, the negative feedback during the promotion task demonstrated demotivation on individuals and performance decreased, as it is described in the theory ($M = 6.95$, $\sigma = 2.171$ to $M = 6.38$, $\sigma = 1.628$).

Table 26. Feedback sign & Task type congruence effect.

	N	Pre-feedback performance		Post-feedback performance	
		M	SD	M	SD
<i>Prevention task</i>	136				
Negative feedback	52	8.67	1.712	8.52	1.213
Neutral feedback	44	6.95	1.363	6.82	1.334
Positive feedback	40	6.98	1.165	7.27	1.198
<i>Promotion task</i>	120				
Negative feedback	40	6.95	2.171	6.38	1.628
Neutral feedback	40	5.88	1.202	5.88	1.244
Positive feedback	40	6.90	.982	6.48	2.309

Source: Experiment data.

Neutral feedback in the present experiment raised some questions. Results show (see Table 26) that neutral feedback in combination with prevention task decreased performance and, in combination with the promotion task, was able to maintain the same individual performance level. This moment requires additional empirical examination and theoretical support.

By summarizing the experimental results, it is possible to conclude that congruence between feedback intervention sign and task type is not able to increase individual performance. The explanation, in this case, could be that every individual

has his or her own personality type and motivational preferences; therefore, just task and feedback congruence is not powerful enough to support performance increase.

3.5.2. Feedback sign and chronic regulatory focus congruence effect.

The theory reviewed suggests that congruence between individual chronic regulatory focus and feedback sign is very important, as this is the most efficient and effective way to increase employee performance. The results of the present research fully reflect these theoretical insights.

In Table 27 are presented means and standard deviations showing that negative feedback intervention positively affects prevention-focused individuals and their performance increase a great deal ($M = 6.97, \sigma = 1.909$ to $M = 8.38, \sigma = 1.561$). Closer distribution of results demonstrated positive influence too. Lack of congruency, in this case, shows a performance decrease: both promotion-focused and mixed group participants had demonstrated lower performance on the second task.

Table 27. Feedback sign and Regulatory focus congruence effect.

	N	Pre-feedback performance		Post-feedback performance	
		M	SD	M	SD
<i>Negative feedback</i>	92				
Prevention focus	32	6.97	1.909	8.38	1.561
Mixed focus	16	7.88	1.500	6.87	1.500
Promotion focus	44	8.64	2.168	7.27	1.809
<i>Neutral feedback</i>	84				
Prevention focus	36	6.72	1.632	6.89	1.600
Mixed focus	20	6.20	1.436	6.20	1.005
Promotion focus	28	6.25	.928	5.82	1.020
<i>Positive feedback</i>	80				
Prevention focus	40	6.85	.921	5.55	1.339
Promotion focus	40	7.03	1.209	8.20	1.305

Source: Experiment data.

Positive feedback intervention affirmatively affects promotion-focused individuals. This congruence combination led to a performance increase of the mean from 7.03 to 8.20. However, prevention-focused participants decreased their performance after the

positive feedback M from 6.85 to 5.55. Distribution of scores was higher as well (from .921 to 1.339).

In combination with a chronic regulatory focus, neutral feedback provides specific results that need further investigation. The results show that neutral feedback positively influencing prevention focus individuals ($M = 6.72$, $\sigma = 1.632$ to $M = 6.89$, $\sigma = 1.600$) and has negative effect on promotion-focused ($M = 6.25$, $\sigma = .928$ to $M = 5.28$, $\sigma = 1.020$) and a higher score distribution as well. One of the reasons could be that promotion-focused individuals require more attention and support in their activities.

in the case of negative feedback intervention, mixed group participants decreased their performance $M = 7.88$, $\sigma = 1.500$ to $M = 6.87$, $\sigma = 1.500$. Neutral feedback for the mixed group of individuals was not affected. Unfortunately, due to the small sample, positive feedback for the mixed group was not delivered.

By summarizing the feedback intervention sign and the chronic regulatory focus congruence effect, it is possible to state that this relation is essential for the future improved performance of individuals. Promotion-oriented individuals must receive positive feedback because negative and neutral feedback for their performance had negative effects. Mixed group individuals act in a specific way. Negative feedback intervention had a negative effect on performance, and neutral feedback had no effect.

The results show that congruence between feedback sign and individual regulatory focus is more important than congruence between feedback sign and task type.

3.5.3. Feedback sign, task type, and regulatory focus congruence effect.

The congruence effect among feedback intervention sign, task type, and individual chronic regulatory focus was the most important in the present research, as the idea of such multidimensional analysis was not tested empirically yet.

The received results of means and standard deviations (see Table 28) indicate that if signs of all three variables match each other, the performance increase is apparent. As was stated in hypotheses 1a and 1b, the highest increase in performance was observed when the task was prevention, chronic regulatory focus, prevention-oriented, and feedback was negative ($M = 7.35$, $\sigma = 2.007$ to $M = 8.95$, $\sigma = 1.191$), or task is promotion, chronic regulatory focus, promotion-oriented, and feedback is positive ($M = 6.80$, $\sigma = 1.240$ to $M = 8.35$, $\sigma = 1.694$).

The high level of significance ($p < .001$) of these relationships was confirmed and described as higher where repeated ANOVA results were presented.

Table 28. Feedback sign, Task type, and Regulatory focus congruence effect.

	N	Pre-feedback performance		Post-feedback performance	
		M	SD	M	SD
Negative feedback + Prevention task + Prevention focus	20	7.35	2.007	8.95	1.191
Positive feedback + Promotion task + Promotion focus	20	6.80	1.240	8.35	1.694

Note: Probability significant $p < .001$.

Source: Experiment data.

Other combinations of variables led to a lower performance increase or, in some cases, even a decrease. Therefore, the feedback intervention sign at least, and firstly, must follow the personality type (chronic regulatory focus). For the best motivational support full congruence of feedback sign, task type, and regulatory focus are needed.

3.6. Performance change

The performance change after the feedback intervention measurement was the most crucial aspect of this research. Authors raised hypotheses based on the congruence effect among performed task type, individual chronic regulatory focus, and delivered feedback intervention sign.

Therefore, to test the change between the pre-feedback and post-feedback results, the repeated measures ANOVA method was used. This method allows for evaluating each experiment participant individually using a within-subjects design in different periods (Malhotra et al., 2012), as individual differences are automatically eliminated from the repeated measure F ratio (Gravetter & Wallnau, 2013).

The null hypothesis in the repeated measures ANOVA case states that for the general population there are no mean differences among the feedback intervention conditions being compared, or all of the feedback interventions have the same effect (Gravetter & Wallnau, 2013). Based on that, any differences that could exist among the sample means are not caused by feedback intervention effects, but rather are the

result of random and unsystematic factors (Gravetter & Wallnau, 2013). The alternative hypothesis states that there are mean differences among feedback interventions.

To evaluate the results, the F value was calculated. An overall result of repeated measures ANOVA indicated significant mean differences in the within-subjects' effects of participants' performance change after the feedback intervention was made $F(3,240) = 7.853, p < .001$.

The higher value for the F ratio shows that the differences among feedback interventions were higher than could be expected without a feedback intervention effect. The received F value ($F = 7.853$) was larger than the critical theoretical value (2.6049 for the .05 level of significance and 3.782 for the .01 level of significance); therefore, it was concluded that the differences among feedback interventions were significantly larger than could be caused by chance. This means that delivered feedback-influenced experiment participants' performance change.

As received results by omnibus tests support raised congruence hypotheses, further analyses focusing on between-subjects and within-subjects' factors were conducted. Both effects on the performance showed high significance.

Table 29. Descriptive statistics and correlations of variables.

Variable	N	M	SD	1	2	3	4	5	6
1. Task type	256	.47	.500	-					
2. Feedback sign	256	.95	.820	.054	-				
3. Regulatory focus	256	1.02	.929	-.017	-.061	-			
4. Performance 1 Prevention	136	7.62	1.669	a	-.491**	.194*	-		
5. Performance 1 Promotion	120	6.58	1.607	a	.013	.123	a	-	
6. Performance 2 Prevention	136	7.60	1.447	a	-.393**	-.068	.6042**	a	-
7. Performance 2 Promotion	120	6.24	1.787	a	-.061	.324**	a	.394**	a

Note: * $p < 0,05$; ** $p < 0,01$. a – cannot be computed, at least one of the variables is constant.

To have a full picture of the data, descriptive statistics and correlations of the variables used in the performance change evaluation were calculated. In Table 29, performance measures are unstandardized and show actual performance levels.

To evaluate the feedback intervention moderation effect on performance outcome more thoroughly, a repeated measure ANOVA with the effects of regulatory focus and feedback sign was calculated separately for both task types (see Table 30). This

method allows evaluating each experiment participant individually using a within-subjects design in different periods (Malhotra et al., 2012), as individual differences are automatically eliminated from the repeated measure F ratio (Gravetter & Wallnau, 2013). Additional information regarding the repeated measure of within-subjects are presented in Appendix 7.

Table 30 presents comparison data for two research models. One option is reflecting the original version of Higgins model, where there are only two regulatory focus groups (prevention and promotion) used.

Another option is representing the novelty of the present research and reflecting the three groups of chronic regulatory focus discovered—promotion, prevention, and mixed. Both models show a high significance level. However, the three regulatory groups split to provide more robust results. It shows that a higher level of personal chronic regulatory focus group purification is needed. The data support and complement factor analysis results that individuals are not just merely promotion- or prevention-focused, but they could have dual focus as well.

The provided statistic results of means show how individual variables were affected and changed during the pre-feedback and post-feedback time points and possible influence of congruence effects.

For a better understanding of the performance change situation, the full-scale comparison of means changes are presented in Appendix 8. The hypotheses-related mean changes are presented in Table 31. The information provided helps to see and to compare all possible combinations of variable effects used on performance change. “Prevention task” x “prevention focus” x “neutral feedback” shows a performance change of the mean from 8.00 to 7.90, which actually means a decrease in performance. In the case of “prevention task” x “promotion focus” x “positive feedback” the mean changed from 7.25 to 8.05, which shows a positive effect on, and increase in, performance.

To evaluate a departure from sphericity a Greenhouse-Geisser estimation was assessed (Field, 2013). A repeated measure ANOVA with a Greenhouse-Geisser correction determined that the mean for performance change in combination with feedback sign, task type, and chronic regulatory focus differed statistically significantly between pre-feedback and post-feedback time points ($F(3, 240) = 7.918, p < 0.001$ (see Appendix 9).

Table 30. Repeated measure ANOVA.

Source	Performance change					
	Three Regulatory focus groups model			Two Regulatory focus groups model (Higgins)		
	df	F	Sig.	df	F	Sig.
Promotion task						
<u>Between subjects</u>						
Feedback sign (FS)	2	5.464	.005	2	3.319	.040
Regulatory focus (RF)	2	3.953	.022	1	7.035	.009
FS x RF	3	4.704	.004	2	6.534	.002
Error	112			114		
<u>Within subjects</u>						
Performance	1	11.923	.001	1	2.889	.092
Performance x FS	2	3.241	.043	2	.591	.556
Performance x RF	2	7.079	.001	1	2.701	.103
Performance x FS x RF	3	39.029	.000	2	46.081	.000
Error (Performance)	112			114		
Prevention task						
<u>Between subjects</u>						
Feedback sign (FS)	2	35.022	.000	2	37.902	.000
Regulatory focus (RF)	2	.972	.381	1	.156	.693
FS x RF	3	19.537	.000	2	20.552	.000
Error	128			130		
<u>Within subjects</u>						
Performance	1	5.798	.017	1	1.949	.165
Performance x FS	2	3.961	.021	2	7.939	.001
Performance x RF	2	16.433	.000	1	19.528	.000
Performance x FS x RF	3	36.264	.000	2	57.207	.000
Error (Performance)	128			130		

Notes: Estimations are based on unstandardized scores. Measure: Performance change in prevention and promotion tasks. Repeated measure ANOVA for the effects of time (before vs. after feedback), regulatory focus and feedback sign on actual performance.

Source: Experiment data.

Table 31. Performance change at pre-feedback and post-feedback time points.

Task Type	Regulatory focus	Feedback sign		Pre-feedback performance	Post-feedback performance
Prevention	Prevention	Negative	Mean	7.35	8.95
			N	20	20
			Std. Deviation	2.007	1.191
	Neutral	Mean	8.00	7.90	
		N	20	20	
		Std. Deviation	.795	.718	
	Positive	Mean	6.70	6.50	
		N	20	20	
		Std. Deviation	1.129	1.051	
Promotion	Negative	Mean	9.71	8.14	
		N	28	28	
		Std. Deviation	.460	1.208	
	Neutral	Mean	6.19	5.69	
		N	16	16	
		Std. Deviation	1.167	1.138	
Positive	Mean	7.25	8.05		
	N	20	20		
	Std. Deviation	1.164	.759		
Promotion	Prevention	Negative	Mean	6.33	7.42
			N	12	12
			Std. Deviation	1.614	1.676
	Neutral	Mean	5.13	5.63	
		N	16	16	
		Std. Deviation	.719	1.500	
	Positive	Mean	7.00	4.60	
		N	20	20	
		Std. Deviation	.649	.821	
Promotion	Negative	Mean	6.75	5.75	
		N	16	16	
		Std. Deviation	2.671	1.693	
	Neutral	Mean	6.33	6.00	
		N	12	12	
		Std. Deviation	.492	.853	
Positive	Mean	6.80	8.35		
	N	20	20		
	Std. Deviation	1.240	1.694		

Note: Unstandardized scores.

Source: Experiment data.

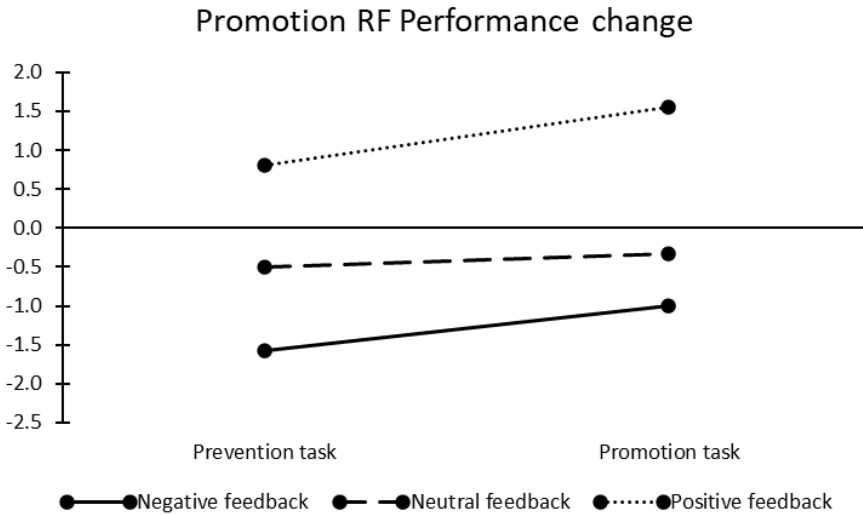
After performed analyses, the received results can be summarized. Individual performance was analyzed using the within-subjects design and showed that feedback

intervention had a significant influence on individual performance change. Repeated measure ANOVA was used to evaluate the same subjects' achieved task performance in both stages of an experiment—pre-feedback and post-feedback time points.

After the number of detailed analyses and calculations, graphical illustrations with slopes of three possible feedback interventions' influence on individual performance was prepared. Hypotheses and the congruence effect of all three variables (i.e., task type, chronic regulatory focus, and feedback sign) were reflected as well.

As it was predicted, positive feedback intervention had a positive influence on promotion-focused individuals while performing both types of tasks—prevention and promotion (see Figure 5). This is visible by analyzing the slopes of the graph. The individual performance increase was higher when the congruence effect among all three variables was present.

Figure 5. Performance change of Promotion regulatory focus group.



Note: Probability significant $p < .001$.

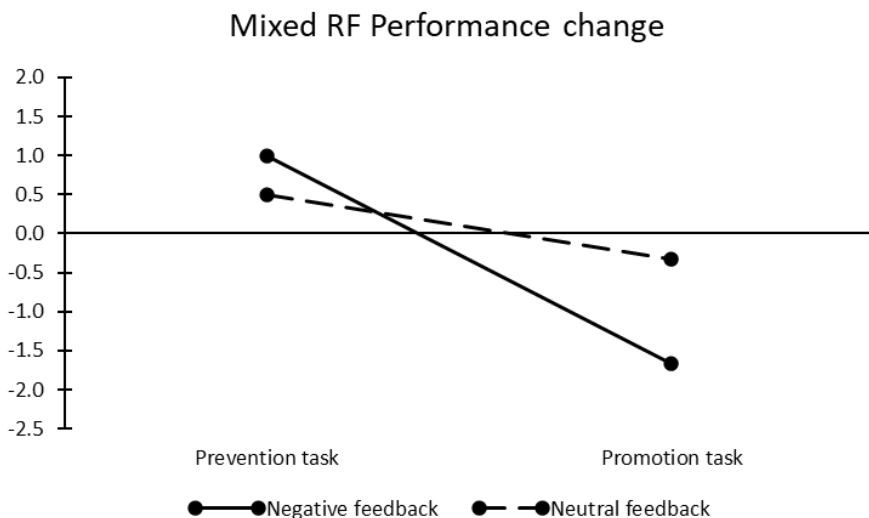
Source: Experiment data.

Negative feedback for the promotion-focused individuals had a negative effect. However, the congruent task type had a positive moderation on the final result, and during the promotion, task performance was a bit higher compared to the prevention task. Neutral feedback intervention had a negative influence on the promotion focus

group by performing both types of tasks. This situation contradicts raised hypotheses, where no performance change was expected.

Individuals of the mixed regulatory focus group showed specific results (see Figure 6). Both negative and neutral feedback had a positive moderation effect on performance change during the prevention task and negative influence during the promotion task. Negative feedback intervention had a stronger effect than neutral. In performing both types of tasks, performance changes were influenced more by using negative feedback. In this case, congruence between task type and feedback, the sign is essential. Results show that mixed group individuals can be induced by task type a great deal. Therefore, the feedback sign must correspond to the task type sign: in the case of working on the prevention task, the feedback must be negative, and in the case of working on the promotion task, the feedback sign must be positive.

Figure 6. Performance change of Mixed regulatory focus group.



Note: Probability significant $p < .001$; Mixed regulatory focus group had no positive feedback treatment.

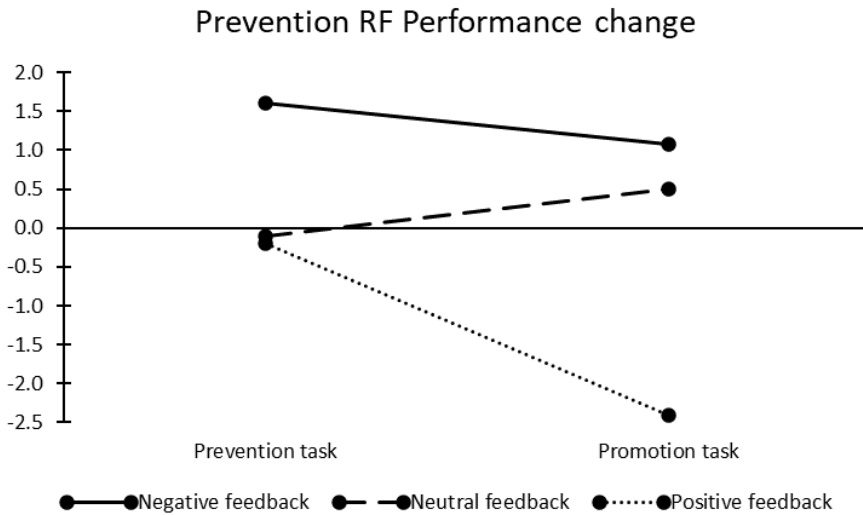
Source: Experiment data.

Unfortunately, due to the small mixed group size, positive feedback was not delivered. This issue must be solved in future research. The behavior of mixed group

individuals must be investigated further using a larger sample, as the dual regulatory focus must be identified, and individuals grouped accordingly.

For the prevention-focused individuals, positive feedback intervention had a negative influence on their performance, especially when the chronic regulatory focus was opposite to both task type and feedback sign (see Figure 7).

Figure 7. Performance change of Prevention regulatory focus group.



Note: Probability significant $p < .001$.
Source: Experiment data.

The negative influence of positive feedback on prevention-focused individuals was partially compensated by prevention type task, as this combination had a higher priority to subjects' own intrinsic interests. Neutral feedback had almost no effect during the prevention task and limited positive effect during the promotion task.

The best option for prevention-focused individuals was negative feedback intervention. As the data show, it moderated positively during both types of tasks where performance increased. The congruence effect of task type, regulatory focus, and feedback sign had a stronger effect. Performance, in this case, increased the most compared to other combinations of variables.

By summarizing received results, it can be stated that the congruence effect had a significant influence on an individual performance increase. Incongruence led to a

lower performance increase and even a decrease. Such results supported the primary idea of the present research.

In the case of neutral feedback intervention, none of the hypotheses were supported. Data show that neutral feedback was important as well, as it had an influence on recipients' future behavior. This situation partially contradicted existing theory and required future research attention.

After the detailed received results, analyses summary of hypotheses testing is presented (see Table 32). Only the hypotheses-related neutral feedback was rejected.

Table 32. Results of hypotheses testing.

Hypotheses	Results of hypotheses testing
H1 Individual performance will increase most when: a) task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is positive; b) task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is negative.	Supported
H2 Individual performance will increase when: a) task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is positive; b) task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is negative.	Supported
H3 Individual performance will decrease when: a) task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is negative; b) task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is positive.	Supported
H4 Individual performance will decrease most when: a) task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is positive; b) task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is negative.	Supported
H5 Individual performance will remain unchanged when: a) task is promotion type, an individual's regulatory focus is promotion oriented, and feedback is neutral; b) task is prevention type, an individual's regulatory focus is prevention oriented, and feedback is neutral; c) task is promotion type, an individual's regulatory focus is prevention oriented, and feedback is neutral; d) task is prevention type, an individual's regulatory focus is promotion oriented, and feedback is neutral.	Rejected

DISCUSSION

In the present research, the delivered feedback for the experiment participants was positive, negative, or neutral. With the combination of task type and chronic regulatory focus, it helped to disclose a moderating effect on performance change.

Feedback intervention research morphed from a simple goal—achievement-oriented practice—to a more multidimensional approach (Baker, Perreault, Reid, & Blanchard, 2013). The present study helped to evaluate how the congruence of the individual's regulatory focus, task nature, and feedback sign affects the individual's performance; as well as what the effect of neutral feedback was on individual performance change.

In the present dissertation, a multidimensional theoretical framework was developed to enhance existing knowledge about feedback intervention effects on individual performance. The author grounded theoretically and tested empirically possible combinations of task types, personal regulatory foci, and feedback signs. The findings confirmed a congruence effect of the feedback sign, individual regulatory focus, and task type on performance and showcased the importance of a multidimensional approach to feedback intervention (Baker et al., 2013). Congruence effect among researched variables has a significant influence on individual performance; therefore, it must be discussed individually.

The findings of the present experimental study make several contributions to the research of feedback intervention and regulatory focus.

First, when scholars primarily used positive and negative feedback in their studies (Bianco et al., 2003; Brockner et al., 2004; Crowe & Higgins, 1997; Higgins, 1997, 2005; Kluger & Van-Dijk, 2005; Van-Dijk & Kluger, 2011), the author found that neutral feedback in some cases (promotion regulatory focus individuals performing a prevention type task and prevention regulatory focus individuals performing prevention and promotion type tasks) was more potent than positive or negative feedback. It could stimulate individuals to change their performance more noticeably. Neutral feedback does not contradict, or interfere, with the recipient's regulatory focus or momentary emotional situation, but signals the monitoring of his or her performance and gently reminds the subject to pay attention to the delivered results.

A small increase in performance can be related to the Hawthorne effect, i.e., might be explained by individuals' reacting to being observed (Levitt & List, 2011). Therefore,

neutral feedback could be evaluated as a control variable, or a measure, related to the Hawthorne effect. The research methodology is partly responsible for that. However, this view was not considered in the present experiment because the Hawthorne effect lacks unequivocal support in the scientific community, and the theory has no explicit confirmation of the Hawthorne effect influencing performance change, especially with human participants in the research (Chiesa & Hobbs, 2008). Therefore, the Hawthorne effect cannot be used as an argument for challenging the results (Chiesa & Hobbs, 2008).

Second, the results of both experiments support a positive correlation of the feedback sign, task type, and regulatory focus congruence on individual performance increase. This can explain why in some cases positive feedback for the promotion-focused individuals or negative feedback for the prevention-focused individuals has a negative effect on performance change.

Third, feedback researchers predominantly divide individuals into two regulatory focus groups: prevention- and promotion-focused (Brockner & Higgins, 2001; Cropanzano et al., 2008; Higgins, 1997; Park et al., 2017). Present factor analysis revealed that there are more groups of individuals' regulatory focus: 1) prevention-focused, 2) mixed, and 3) promotion-focused. The study shows that an individual regulatory focus is more complex and adds to the findings of Brockner et al. (2004) and Brenninkmeijer et al. (2010) that individuals may have the joint presence of promotion and prevention foci and such a dual focus should be considered. With this factor in mind, people's reactions to feedback and tasks require further scholars' attention and research.

Fourth, the findings on construct congruence help to understand and partially explain Kluger and DeNisi's (1996) meta-analytical findings that in one-third of the cases feedback intervention had a negative influence on recipients' performance. It supports the idea of feedback intervention multidimensional congruency.

CONCLUSIONS

The dissertation disclosed feedback intervention influenced individual performance change by focusing on congruence effect of task type, individuals' chronic regulatory focus, and feedback sign. To achieve that, the underlying theories were

analyzed, adequate multidimensional research model developed, and an experimental study performed.

The conducted research supports the scientific feedback discussion and provides valuable insights regarding the feedback delivery mechanism; and the influence of positive, neutral, and negative feedback on individual actual performance change. Received results show that individuals' reactions to feedback delivery could vary and the same feedback could increase or decrease individual performance.

In this section of the dissertation, the final summarizing conclusions are presented. By following the research question raised and objectives of the dissertation, the six objectives were developed. By reviewing them, it is possible to conclude the following:

1. The congruence of feedback intervention has a significant effect on individual performance change—the higher the congruence level among feedback sign, task type, and individual chronic regulatory focus, the higher the performance increase observed. Alternatively, the lack of congruence could lead to a performance decrease. The empirical results support, supplement, and combine existed scientific knowledge of congruence effect of individual chronic regulatory focus with feedback (Idson & Higgins, 2000), and feedback with task nature (Van-Dijk & Kluger, 2011). The multidimensional view helps to understand better feedback mechanisms and provide an idea of why about one-third of the feedback cases had a negative effect on individual performance change (Kluger & DeNisi, 1996).
2. Theoretical analysis of feedback intervention discloses the multidimensionality of the feedback factor. Historical review shows how during the years the conceptualization of feedback had morphed from a simple, single-factor analysis to more complicated and interconnected concepts. Present feedback research should be related to the organizational behavior, sociology, psychology, and even physiology fields of science. The reflection of such factors' combination is the hybrid feedback intervention theory, developed by scholars Kluger and DeNisi (1996). The FIT clearly states one extra moment, that the feedback intervention effect is more powerful when feedback is oriented towards task performance and away from individual personality.

3. The direct relation of feedback to individual behavior and performance is not fully explainable (Balcazar et al., 1985; Campbell et al., 1990; Lempert & Tricoli, 2015), reliably measurable, and needs new techniques (Campbell et al., 1990; Sommer & Kulkarni, 2012). Therefore, by summarizing the literature review in the feedback area, the three-dimensional theoretical framework of feedback intervention influence on individual performance was developed. The primary moderation power in the present research was dedicated to the feedback intervention sign, which, in combination with individual chronic regulatory focus and task type, had an influence on individual performance change. The conceptual framework idea was based on interrelation and congruence of mentioned factors. However, the influence of neutral feedback is new and not easily explainable by existing theory. The neutral feedback phenomena need further investigation.
4. Feedback delivery should be timely, constructive, accurate, and frequent (Kuvaas et al., 2016; Lam et al., 2011; Markose, 2011). Moreover, the acceptance of feedback information is related to the reliability of the feedback source (Steelman & Rutkowski, 2004). In such a case, individuals are more willing to accept it and improve their task performance. The individuals' reactions to feedback are strongly related to their chronic regulatory foci. The existing research focused on different levels of analysis using only two groups of regulatory focus—prevention and promotion. However, the present study discloses that individuals are not just prevention- or promotion-focused, but they could have the presence of a dual focus as well. In the present research, such individuals were assigned to the mixed group. The members of this group demonstrated different behavior and reaction to the feedback. This moment requires further attention by scholars.
5. To measure the change of the individual performance, the laboratory experiment using a sample of 256 students was conducted in the computer classroom. An experimental study was chosen because it allowed a precise manipulation of variables. Empirical evaluation of the demonstrated task performance disclosed valuable data on how feedback could influence individuals to change their behavior and motivation for better results. The received data confirmed the importance for a higher level of congruency among feedback sign, task type, and individual chronic regulatory focus.

6. One of the most critical conclusions and managerial implications could be that feedback intervention must positively correlate to the recipients' chronic regulatory focus first, and for the most robust effect—positively correlate to task nature as well. The use of neutral feedback should be investigated further, as the present study shows that it has an effect on performance change.

MANAGERIAL IMPLICATIONS

The literature review shows that feedback is still under-evaluated and is frequently treated as an unnecessary and complicated process. Despite scholars' efforts to provide scientifically-proven data about feedback importance, many companies are still not implementing a feedback-friendly culture in their daily environment and are not using an economically-friendly tool to increase their employees' performance. However, there are a number of companies, especially global leaders such as Adobe, Deloitte, General Electric, and Microsoft that skipped their annual reviews of staff performance and focused on immediate constructive feedback (Dahling et al., 2017; Kuvaas et al., 2016). The primary reason for such a change is that frequent and constructive feedback provided in time supports better learning processes for individuals (Sutton, 2014).

Effectiveness of feedback intervention was directly related to the willingness and competencies of the managers. As long as managers maintain that feedback is costly, time-consuming, and one more ineffective daily responsibility, it will be difficult to show and see the real value of the feedback. Therefore, the most important managerial implication of this research is to provide knowledge for the managers about how feedback must be performed and what influence it has on individual performance. Managers need a clear understanding of how positive, neutral, and negative feedback intervention must be used to increase employee performance.

The successful motivation of individuals provides a competitive advantage for the companies. Managers should be able to provide constructive feedback in such a way that employees increase their performance (Moss & Sanchez, 2004). The results of the present study provide necessary information about which way to choose if managers are willing to increase the performance of their subordinates. Many things

related to feedback delivery were already known, (e.g., constructiveness, frequency, reliability of feedback source, time). This research added one vital aspect of congruence. To increase recipients' performance, the feedback sign must firstly correspond to the individual chronic regulatory focus, and secondly, match the task type. Then, the effect will be the highest. Therefore, supervisors need to reflect this importance in their performance management processes.

Individuals always try to be on the safe side. Therefore, they unconsciously follow the "safety first" principle (Freitas et al., 2002). This leads to understanding why a prevention effect is obtained even if only one of the three variables is prevention-focused. A prevention focus fosters a sense of urgency and a preference to initiate action earlier than a promotion focus. Therefore, it is essential to see the whole situation and to start feedback with no criticism, trying not to trigger recipients' prevention reactions.

Now it is clear that feedback intervention must maintain congruence among all three evaluated factors—task type, feedback sign, and regulatory focus. Only then will the highest positive effect on performance change be observed. Incongruent combinations will lead to a lower performance increase, or more dangerously—a performance decrease.

The present findings have important managerial implications showing that supervisors should know their subordinates in order to assign tasks that fit their personality and provide efficient feedback that motivates subordinates to improve their performance (Moss & Sanchez, 2004).

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Appendix 2.

Translated version of Regulatory Focus Questionnaire.

Klausimo Nr.	Lithuanian version
1	Jūsų lytis: Moteris Vyras
2	Jūsų amžius: Metais nuo 17 iki 30 ir 30+ (pasirenkama iš sąrašo)
Pastaba:	<i>Šiuose klausimuose Jūsų teirujamasi apie įvairius nutikimus Jūsų gyvenime. Prašome atsakykite į kiekvieną iš jų, pasirinkdami jums tinkamiausią skaičių pateiktoje skalėje.</i>
3	Lyginant su dauguma žmonių, ar Jums paprastai nepavyksta gauti iš gyvenimo to, ko norėtumėte? 1 2 3 4 5 Niekada/Retai Kartais Labai dažnai
4	Ar augdamas kada nors „peržengdavote ribą“, tai yra ar darydavote dalykus, kurių Jūsų tėvai netoleravo? 1 2 3 4 5 Niekada/Retai Kartais Labai dažnai
5	Kaip dažnai Jums pavykdavo nuveikti darbus, kurie "užveda" Jus darbuotis dar atkakliau? 1 2 3 4 5 Niekada/Retai Keletą kartų Daug kartų
6	Ar augdami dažnai gadindavote tėvams nervus? 1 2 3 4 5 Niekada/Retai Kartais Labai dažnai
7	Kaip dažnai pakludavote tėvų nustatytoms taisyklėms ir tvarkai? 1 2 3 4 5 Niekada/Retai Kartais Visada
8	Ar Jums augant teko pasielgti taip, ką Jūsų tėvai laikė smerktinu? 1 2 3 4 5 Niekada/Retai Kartais Labai dažnai
9	Ar Jums dažnai pavyksta gerai padaryti įvairius dalykus, kuriuos pamėginate? 1 2 3 4 5 Niekada/Retai Kartais Labai dažnai
10	Dėl nepakankamo mano atsargumo kartais patekdavau į bėdą. 1 2 3 4 5 Niekada/Retai Kartais Labai dažnai
11	Kai mėginu pasiekti man svarbius tikslus, matau, kad man nesiseka jų siekti taip gerai, kaip to idealiausiu atveju norėčiau. 1 2 3 4 5 Taip nebūna Kartais būna Labai dažnai būna
12	Manau, kad man pavyko padaryti pažangą siekiant sėkmės savo gyvenime. 1 2 3 4 5 Visiškai nesutinku Visiškai sutinku
13	Gyvenime radau labai nedaug pomėgių ar užsiėmimų, kurie būtų man įdomūs arba motyvuotų mane dėti pastangas tose srityse. 1 2 3 4 5 Visiškai nesutinku Visiškai sutinku

Appendix 3.

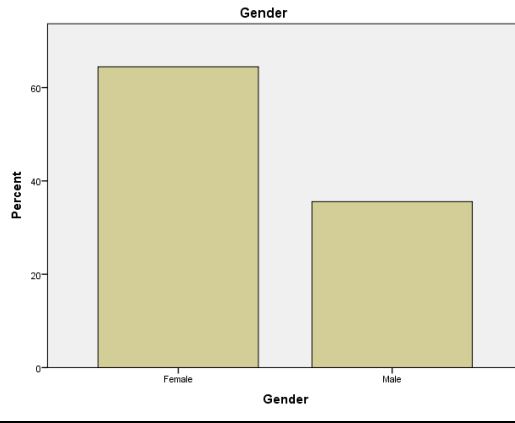
List of promotion and prevention type tasks.

Designed and tested by Van Dijk & Kluger (2011).

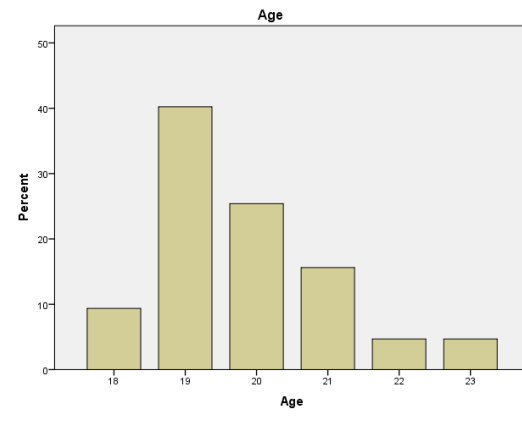
Promotion tasks	Prevention tasks
Exerting creative thought	Bookkeeping
Generating ideas	Detecting errors
Challenging decision making	Budget planning
Creative problem solving	Maintaining safety
Presenting various alternatives	Work scheduling
Developing workers' career	Handling customer complaints
Assimilating new technology	Cleaning
Doing research & development	Following schedules
Initiating changes	Supervising
Planning a task	Quality control
Setting goals	

Appendix 4.

Demographic characteristics of participants (SPSS output):



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	165	64,5	64,5	64,5
	Male	91	35,5	35,5	100,0
Total		256	100,0	100,0	



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	24	9,4	9,4	9,4
	19	103	40,2	40,2	49,6
	20	65	25,4	25,4	75,0
	21	40	15,6	15,6	90,6
	22	12	4,7	4,7	95,3
	23	12	4,7	4,7	100,0
Total		256	100,0	100,0	

Appendix 5.

Means, Standard deviations, and correlations of raw data (SPSS output).

Correlations													
	Mean	Std. Deviation		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Q1	2,52	,954											
Q2	2,91	1,088	Pearson Correlation Sig. (2-tailed) N	-,316** ,000 256									
Q3	3,47	,953	Pearson Correlation Sig. (2-tailed) N	,371** ,000 256	-,230** ,000 256								
Q4	2,86	1,061	Pearson Correlation Sig. (2-tailed) N	-,409** ,000 256	,505** ,000 256	-,369** ,000 256							
Q5	3,30	1,058	Pearson Correlation Sig. (2-tailed) N	-,619** ,000 256	,365** ,000 256	-,418** ,000 256	,331** ,000 256						
Q6	2,66	1,292	Pearson Correlation Sig. (2-tailed) N	-,327** ,000 256	,412** ,000 256	-,582** ,000 256	,468** ,000 256	,419** ,000 256					
Q7	3,47	,953	Pearson Correlation Sig. (2-tailed) N	,371** ,000 256	-,426** ,000 256	,465** ,000 256	-,462** ,000 256	-,465** ,000 256	-,531** ,000 256				
Q8	2,86	1,118	Pearson Correlation Sig. (2-tailed) N	-,446** ,000 256	,402** ,000 256	-,379** ,000 256	,592** ,000 256	,433** ,000 256	,618** ,000 256	-,556** ,000 256			
Q9	3,08	,991	Pearson Correlation Sig. (2-tailed) N	,439** ,000 256	-,284** ,000 256	,326** ,000 256	-,228** ,000 256	-,501** ,000 256	-,408** ,000 256	,343** ,000 256	-,287** ,000 256		
Q10	3,31	1,132	Pearson Correlation Sig. (2-tailed) N	,199** ,001 256	-,358** ,000 256	,590** ,000 256	-,368** ,000 256	-,484** ,000 256	-,441** ,000 256	,445** ,000 256	-,399** ,000 256	,342** ,000 256	
Q11	2,83	1,142	Pearson Correlation Sig. (2-tailed) N	,485** ,000 256	-,379** ,000 256	,319** ,000 256	-,305** ,000 256	-,594** ,000 256	-,370** ,000 256	,463** ,000 256	-,375** ,000 256	,386** ,000 256	,260** ,000 256

** . Correlation is significant at the 0.01 level (2-tailed).

Note: Q1 - Q11 – Questions in Regulatory Focus Questionnaire.

Appendix 6.

Anti-image Matrices (SPSS output).

Factor analysis results using Varimax rotation and inverted scales.

		Anti-image Matrices							
		Q1	Q2	Q4	Q5 inverted	Q6	Q8	Q9	Q11
Anti-image Covariance	Q1	,526	-,017	,096	-,178	-,066	,077	-,109	-,077
	Q2	-,017	,662	-,197	,037	-,069	-,004	,038	,096
	Q4	,096	-,197	,542	-,027	-,058	-,174	-,033	-,013
	Q5 inverted	-,178	,037	-,027	,454	,041	,037	-,120	-,175
	Q6	-,066	-,069	-,058	,041	,526	-,210	,143	,032
	Q8	,077	-,004	-,174	,037	-,210	,468	-,046	,021
	Q9	-,109	,038	-,033	-,120	,143	-,046	,668	-,037
	Q11	-,077	,096	-,013	-,175	,032	,021	-,037	,591
Anti-image Correlation	Q1	,842 ^a	-,029	,180	-,365	-,126	,155	-,184	-,138
	Q2	-,029	,872 ^a	-,328	,068	-,116	-,007	,056	,154
	Q4	,180	-,328	,818 ^a	-,055	-,109	-,345	-,055	-,022
	Q5 inverted	-,365	,068	-,055	,835 ^a	,084	,079	-,217	-,338
	Q6	-,126	-,116	-,109	,084	,825 ^a	-,423	,241	,058
	Q8	,155	-,007	-,345	,079	-,423	,817 ^a	-,082	,040
	Q9	-,184	,056	-,055	-,217	,241	-,082	,862 ^a	-,059
	Q11	-,138	,154	-,022	-,338	,058	,040	-,059	,883 ^a

a. Measures of Sampling Adequacy(MSA)

Appendix 7.

Within-Subjects effects in repeated measure ANOVA (SPSS output).

Tests of Within-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Performance	Sphericity Assumed	.485	1	.485	.812	.368
	Greenhouse-Geisser	.485	1.000	.485	.812	.368
	Huynh-Feldt	.485	1.000	.485	.812	.368
	Lower-bound	.485	1.000	.485	.812	.368
Performance * RF_3_Groups	Sphericity Assumed	1.800	2	.900	1.508	.223
	Greenhouse-Geisser	1.800	2.000	.900	1.508	.223
	Huynh-Feldt	1.800	2.000	.900	1.508	.223
	Lower-bound	1.800	2.000	.900	1.508	.223
Performance * Feedback_signs	Sphericity Assumed	.052	2	.026	.043	.958
	Greenhouse-Geisser	.052	2.000	.026	.043	.958
	Huynh-Feldt	.052	2.000	.026	.043	.958
	Lower-bound	.052	2.000	.026	.043	.958
Performance * Task_types	Sphericity Assumed	10.101	1	10.101	16.921	.000
	Greenhouse-Geisser	10.101	1.000	10.101	16.921	.000
	Huynh-Feldt	10.101	1.000	10.101	16.921	.000
	Lower-bound	10.101	1.000	10.101	16.921	.000
Performance * RF_3_Groups * Feedback_signs	Sphericity Assumed	123.871	3	41.290	69.172	.000
	Greenhouse-Geisser	123.871	3.000	41.290	69.172	.000
	Huynh-Feldt	123.871	3.000	41.290	69.172	.000
	Lower-bound	123.871	3.000	41.290	69.172	.000
Performance * RF_3_Groups * Task_types	Sphericity Assumed	20.959	2	10.480	17.556	.000
	Greenhouse-Geisser	20.959	2.000	10.480	17.556	.000
	Huynh-Feldt	20.959	2.000	10.480	17.556	.000
	Lower-bound	20.959	2.000	10.480	17.556	.000
Performance * Feedback_signs * Task_types	Sphericity Assumed	8.322	2	4.161	6.971	.001
	Greenhouse-Geisser	8.322	2.000	4.161	6.971	.001
	Huynh-Feldt	8.322	2.000	4.161	6.971	.001
	Lower-bound	8.322	2.000	4.161	6.971	.001
Performance * RF_3_Groups * Feedback_signs * Task_types	Sphericity Assumed	14.063	3	4.688	7.853	.000
	Greenhouse-Geisser	14.063	3.000	4.688	7.853	.000
	Huynh-Feldt	14.063	3.000	4.688	7.853	.000
	Lower-bound	14.063	3.000	4.688	7.853	.000
Error(Performance)	Sphericity Assumed	143.262	240	.597		
	Greenhouse-Geisser	143.262	240.000	.597		
	Huynh-Feldt	143.262	240.000	.597		
	Lower-bound	143.262	240.000	.597		

Appendix 8.

Means scores of Individual performance change.

				Report		
Task type	Regulatory focus 3 groups	Feedback sign		Pre-feedback performance	Post-feedback performance	
Prevention task	Prevention focus	Negative	Mean	7.35	8.95	
			N	20	20	
			Std. Deviation	2.007	1.191	
		Neutral	Mean	8.00	7.90	
	N		20	20		
	Std. Deviation		.795	.718		
	Positive	Mean	6.70	6.50		
		N	20	20		
		Std. Deviation	1.129	1.051		
	Total	Mean	7.35	7.78		
		N	60	60		
		Std. Deviation	1.482	1.415		
Mixed focus	Negative	Negative	Mean	8.00	9.00	
			N	4	4	
			Std. Deviation	.000	.000	
		Neutral	Mean	5.88	6.38	
	N		8	8		
	Std. Deviation		.991	.518		
	Total	Mean	6.58	7.25		
		N	12	12		
		Std. Deviation	1.311	1.357		
	Promotion focus	Negative	Negative	Mean	9.71	8.14
				N	28	28
				Std. Deviation	.460	1.208
Neutral			Mean	6.19	5.69	
		N	16	16		
		Std. Deviation	1.167	1.138		
Positive		Mean	7.25	8.05		
		N	20	20		
		Std. Deviation	1.164	.759		
Total		Mean	8.06	7.50		
		N	64	64		
		Std. Deviation	1.772	1.491		

Total		Negative	Mean	8.67	8.52
			N	52	52
		Std. Deviation	1.712	1.213	
Neutral	Mean	6.95	6.82		
	N	44	44		
	Std. Deviation	1.363	1.334		
Positive	Mean	6.98	7.27		
	N	40	40		
	Std. Deviation	1.165	1.198		
Total	Mean	7.62	7.60		
	N	136	136		
	Std. Deviation	1.669	1.447		
Promotion task Prevention focus		Negative	Mean	6.33	7.42
			N	12	12
		Std. Deviation	1.614	1.676	
Neutral	Mean	5.13	5.63		
	N	16	16		
	Std. Deviation	.719	1.500		
Positive	Mean	7.00	4.60		
	N	20	20		
	Std. Deviation	.649	.821		
Total	Mean	6.21	5.65		
	N	48	48		
	Std. Deviation	1.271	1.707		
Mixed focus		Negative	Mean	7.83	6.17
			N	12	12
		Std. Deviation	1.749	.937	
Neutral	Mean	6.42	6.08		
	N	12	12		
	Std. Deviation	1.676	1.240		
Total	Mean	7.13	6.13		
	N	24	24		
	Std. Deviation	1.825	1.076		
Promotion focus		Negative	Mean	6.75	5.75
			N	16	16
		Std. Deviation	2.671	1.693	
Neutral	Mean	6.33	6.00		
	N	12	12		
	Std. Deviation	.492	.853		
Positive	Mean	6.80	8.35		
	N	20	20		
	Std. Deviation	1.240	1.694		
Total	Mean	6.67	6.90		

			N	48	48
			Std. Deviation	1.730	1.949
Total		Negative	Mean	6.95	6.38
			N	40	40
			Std. Deviation	2.171	1.628
		Neutral	Mean	5.88	5.88
			N	40	40
			Std. Deviation	1.202	1.244
		Positive	Mean	6.90	6.48
			N	40	40
			Std. Deviation	.982	2.309
		Total	Mean	6.58	6.24
			N	120	120
			Std. Deviation	1.607	1.787
Total	Prevention focus	Negative	Mean	6.97	8.38
			N	32	32
			Std. Deviation	1.909	1.561
		Neutral	Mean	6.72	6.89
			N	36	36
			Std. Deviation	1.632	1.600
		Positive	Mean	6.85	5.55
			N	40	40
			Std. Deviation	.921	1.339
		Total	Mean	6.84	6.83
			N	108	108
			Std. Deviation	1.499	1.877
	Mixed focus	Negative	Mean	7.88	6.87
			N	16	16
			Std. Deviation	1.500	1.500
		Neutral	Mean	6.20	6.20
			N	20	20
			Std. Deviation	1.436	1.005
		Total	Mean	6.94	6.50
			N	36	36
			Std. Deviation	1.672	1.276
	Promotion focus	Negative	Mean	8.64	7.27
			N	44	44
			Std. Deviation	2.168	1.809
		Neutral	Mean	6.25	5.82
			N	28	28
			Std. Deviation	.928	1.020
		Positive	Mean	7.03	8.20

		N	40	40
		Std. Deviation	1.209	1.305
	Total	Mean	7.46	7.24
		N	112	112
		Std. Deviation	1.879	1.720
Total	Negative	Mean	7.92	7.59
		N	92	92
		Std. Deviation	2.098	1.761
	Neutral	Mean	6.44	6.37
		N	84	84
		Std. Deviation	1.391	1.369
	Positive	Mean	6.94	6.87
		N	80	80
		Std. Deviation	1.071	1.872
	Total	Mean	7.13	6.96
		N	256	256
		Std. Deviation	1.718	1.750

Appendix 9.

Repeated measure ANOVA.

Tests of Within-Subjects Contrasts

Measure: Performance_change

Source	Performance	Type III Sum of Squares	df	Mean Square	F	Sig.
Performance	Linear	,270	1	,270	1,353	,246
Performance *	Linear	3,183	1	3,183	15,943	,000
Tasktype						
Performance * Feedbacksign	Linear	,033	2	,017	,084	,920
Performance * Total_RF	Linear	,623	2	,312	1,560	,212
Performance * Tasktype * Feedbacksign	Linear	2,801	2	1,401	7,015	,001
Performance * Tasktype * Total_RF	Linear	6,969	2	3,485	17,452	,000
Performance * Feedbacksign * Total_RF	Linear	40,765	3	13,588	68,057	,000
Performance * Tasktype * Feedbacksign * Total_RF	Linear	4,743	3	1,581	7,918	,000
Error(Performance)	Linear	47,920	240	,200		

Tests of Between-Subjects Effects

Measure: Performance_change

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	1,312	1	1,312	1,537	,216
Tasktype	28,669	1	28,669	33,580	,000
Feedbacksign	40,439	2	20,220	23,684	,000
Total_RF	3,007	2	1,503	1,761	,174
Tasktype * Feedbacksign	17,852	2	8,926	10,455	,000
Tasktype * Total_RF	7,500	2	3,750	4,392	,013
Feedbacksign * Total_RF	25,741	3	8,580	10,050	,000
Tasktype * Feedbacksign * Total_RF	24,801	3	8,267	9,683	,000
Error	204,897	240	,854		

Appendix 10.

Two-way ANOVA.

Tests of Between-Subjects Effects

Dependent Variable: Zscore: Task I

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	112,926 ^a	15	7,528	12,718	,000
Intercept	1,386	1	1,386	2,342	,127
Tasktype	6,373	1	6,373	10,766	,001
Feedbacksign	21,313	2	10,656	18,001	,000
Total_RF	3,161	2	1,580	2,670	,071
Tasktype *					
Feedbacksign	12,231	2	6,116	10,331	,000
Tasktype * Total_RF	7,147	2	3,573	6,036	,003
Feedbacksign *					
Total_RF	9,436	3	3,145	5,313	,001
Tasktype *					
Feedbacksign *	18,472	3	6,157	10,402	,000
Total_RF					
Error	142,074	240	,592		
Total	255,000	256			
Corrected Total	255,000	255			

a. R Squared = ,443 (Adjusted R Squared = ,408)

Appendix 11.

Three-way ANOVA.

Tests of Between-Subjects Effects

Dependent Variable: Zscore: Task II

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	144,257 ^a	15	9,617	20,842	,000
Intercept	,196	1	,196	,424	,515
Tasktype	25,479	1	25,479	55,217	,000
Feedbacksign	19,160	2	9,580	20,761	,000
Total_RF	,469	2	,235	,508	,602
Tasktype *	8,422	2	4,211	9,126	,000
Feedbacksign *	7,322	2	3,661	7,934	,000
Tasktype * Total_RF	57,070	3	19,023	41,227	,000
Feedbacksign *	11,072	3	3,691	7,998	,000
Total_RF					
Error	110,743	240	,461		
Total	255,000	256			
Corrected Total	255,000	255			

a. R Squared = ,566 (Adjusted R Squared = ,539)

Saulius Olencevičius

Feedback Intervention Influence on Individual performance

Daktaro disertacija

Išleido ISM Vadybos ir ekonomikos universitetas, Aušros Vartų g. 7A, LT-01304, Vilnius
Spausdino leidyklos „Technologija“ spaustuvė, Studentų g. 54, LT-51424 Kaunas
20 leidyb. aps. Tiražas 16 egz. Užsakymas 141