

MASTER

Utilizing feedback seeking behavior to enhance innovation performance and collaboration skills

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***Utilizing feedback seeking behavior to enhance innovation
performance and collaboration skills***

Master's Thesis

*Written in partial fulfilment of the requirements for the degree of Master
of Science in Innovation Management at the Eindhoven University of
Technology*

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Abstract

This research study focusses on the additive value of feedback seeking behavior by employees, and specifically the influence on the innovative performance and collaboration skills of employees. Furthermore, it is tested whether the presence of empowering leadership can affect this feedback seeking behavior. First, a literature study was conducted for the constructs feedback seeking behavior, empowering leadership, innovation performance and a number of collaboration skills ('voice', 'information sharing', 'flexibility' and 'compromise'). Furthermore, a few moderators were added upon the various direct relationships, to find out whether a significant relationship could be strengthened (or weakened). These moderators were; the employees' motivation to improve, for its effect on the relationship between empowering leadership and feedback seeking behavior, and the type and source of feedback, for their effect on both the relationship between feedback seeking behavior and the various collaboration skills, and innovation performance.

The literature review created grounds upon which the hypotheses could be created and culminated in a theoretical model. A quantitative survey was conducted which resulted in data gathered from a convenience sample of 86, usable, participants. This resulted in an analysis that would test the described relationships. The first part of this analysis showed that empowering leadership was positively related to feedback seeking behavior of employees. However, the motivation to improve of the employee was not significantly moderating that relationship. The results did indicate a mediating relationship of the motivation to improve, instead of moderating the relationship between empowering leadership and feedback seeking behavior. However, no mediating relationship was found. The second part of this study, where feedback seeking behavior was the independent variable, found several interesting results. Feedback seeking behavior was positively related to innovation performance. Further, 'voice' and 'information sharing', were found to be positively related to feedback seeking. The interpretation of these results hinted at the possibility for feedback seeking behavior to be mediating a relationship between empowering leadership and the dependent variables. Extra regressions done to test this relationship resulted for partial mediation being found with the dependent variables of 'innovation performance' and 'voice'. However, the moderators of both type and source of feedback were not significantly influencing any of the above relationships regarding feedback seeking behavior in this part of the study. Finally, this study also offers contributions to the scientific literature on the subject, opportunities for future research and managerial implications.

Preface

Within your hands is my Master Thesis, written to meet the final requirement in order to finish my Master of Innovation Management at the Eindhoven University of Technology. On this page I would like to thank my family and friends for their support during the time in which I have written my thesis, and a special thanks to my supervisor Sonja Rispens for her guidance, support and motivation, which were all crucial for me to finalize this thesis and my Master program. I am very proud of the thesis that lies before you, and the results and insights that were put forth in this study.

Executive summary

Innovation, improving processes and collaboration are crucial for any company that wants to stay ahead of the competition. It is important for such companies to not only create new innovations but also to implement those innovations successfully. These innovations are rarely successfully created or implemented by a single person, and as such collaboration is one of the most important facets of creating and implementing valuable innovations. A company therefore needs to know how it can improve the collaboration between its employees and influence their innovation performance. In order for their employees to learn and improve, they need to know what they are doing wrong and what can be improved with regard to their collaboration skills and innovative performance. To do so, employees can use feedback to gain information about what they can learn, and should be motivated to seek this feedback themselves (i.e. 'feedback seeking behavior'). It is therefore interesting for companies to see the impact that an increase in feedback seeking behavior can have on the innovative performance and the collaboration skills of their employees, while also exploring whether a different leadership style such as empowering leadership can have an impact on said behavior. Therefore, the research question of this master's thesis is: *"What is the effect of empowering leadership on feedback seeking behavior and what is the effect of this feedback seeking behavior on collaboration skills and innovation performance?"*

Theoretical Background

Feedback seeking behavior can be defined as intentionally putting in effort and time to determine the adequacy of a person's behavior to achieve their personal goals. In this concept, people proactively seek out feedback about their work behavior and performance which they can then use to improve themselves, making themselves better equipped to attain their personal goals. In this present study, the moderating effect of the type and source of feedback was also examined. The type of feedback can be seen as varying degrees of positive or negative feedback, which according to the literature can be very important in the effect feedback can have upon a person. The source of the feedback is the person from whom the feedback is received and can vary greatly. This can be a leader, a colleague but also friends or family, and previous research has shown that the degree of variety in sources can influence feedback seeking behavior.

The concept of empowering leadership is, in short, empowering employees to the degree that they can make their own decisions and have more responsibility compared to traditional leadership styles. This results in the decision making being shifted from the leader to the employee, which results in the employees being more motivated at work. A person's motivation to improve is important for learning, and it is possible some people are more willing to learn, or improve, than others.

Innovation performance can be a difficult concept to define as it can be measured on different levels, e.g. the company or individual level, but also because there are many different ways to interpret the concept

of performance. In this study, the innovative performance of an employee is defined as idea generation, creating solutions for problems and transforming those ideas and solutions into useful applications, which is expected to be positively influenced by feedback seeking behavior.

Lastly, there is the concept of collaboration skills, which in this study consists of four different skills: 'compromise', 'flexibility', 'voice' and 'information sharing'. The skill of 'compromise' means that a person is able to find an alternative stand in the middle of two positions that are each preferred by a different person, whereas 'flexibility' means that a person is able to work and organize him- or herself in a variety of ways. 'Voice' can be seen as communicating one's ideas, concerns or opinions about issues to persons who are able to act upon that, such that something can be improved or changed. 'Information sharing' is different as it encompasses the amount people interact with one another and share relevant information with their colleagues. All of these skills are expected to be influenced by feedback seeking behavior, as skills can be improved through learning which can be achieved by feedback seeking behavior.

Method

Based upon the different concepts several hypothesis have been set up, which were tested through a quantitative survey. A cross-sectional survey was used, and therefore causal conclusions could not be drawn from this research, but correlations could be distinguished. In the survey questions regarding the different concepts and several demographics were put forth, usable data was available for 86 respondents. Through different analyses, variables were created based upon those different questions. It was also tested whether or not the different aspects of empowering leadership and the different collaboration skills could be combined, respectively, into two constructs. With regard to empowering leadership this was possible, however for collaboration skills there were several problems, and as such no construct was created. The collaboration skill of 'compromise' could not be tested and the skills of 'voice', 'information sharing' and 'flexibility' were all tested individually. Before analysis could begin, the different assumptions underlying the data had to be confirmed such that no problems with the data existed. These were tested and no issues were found.

Results and discussion

In short, the analyses done for this study resulted in confirming the direct effects of empowering leadership on feedback seeking behavior and that of feedback seeking behavior on innovation performance, while with regard to the collaboration skills it was only partially confirmed; for voice and information sharing. Furthermore, none of the moderating effects were found to be significant. A visualized overview of these results can be found in Figure 1 below.

The results indicated that empowering leadership had a significant, positive effect on feedback seeking behavior. As this was measured from an employees' perspective, this means that when employees feel more empowered by their leader and responsible for their own actions, they tend to seek feedback more

often. This relationship was expected based upon the literature. In contrast, the moderating effect of the employees' motivation to improve was expected to strengthen this relationship, but no results were found that could provide a basis to make such claims.

When the effect of feedback seeking behavior upon innovation performance was tested, similar results were found. The innovative performance of an employee was positively related to the feedback seeking behavior of that employee, and the relationship was significant, but both moderators, type and source of feedback, were not found to significantly influence that relationship.

The hypothesis of feedback seeking behavior influencing the different collaboration skills could only be partially confirmed. Three different skills were tested for their relationship with feedback seeking behavior and whether or not the type and source of feedback would moderate that relationship. With regard to the skills of 'voice' and 'information sharing' a positive, significant, relationship was found, meaning that employees that seek feedback more often tend to score higher on those collaboration skills. However, the skill of 'flexibility' was not related to feedback seeking behavior in this study, which was not expected based upon the literature study. Furthermore, the moderating relationships of type and source of feedback were also not found, for any of the collaboration skills. The results also suggested that feedback seeking behavior would be mediating a relationship of empowering leadership with the, significant, dependent variables, and extra regressions did indeed result in finding partial mediation for feedback seeking behavior on the dependent variables 'Voice' and 'Innovation Performance' through a significant Sobel Test, whereas for 'Information Sharing' the Sobel test was not significant.

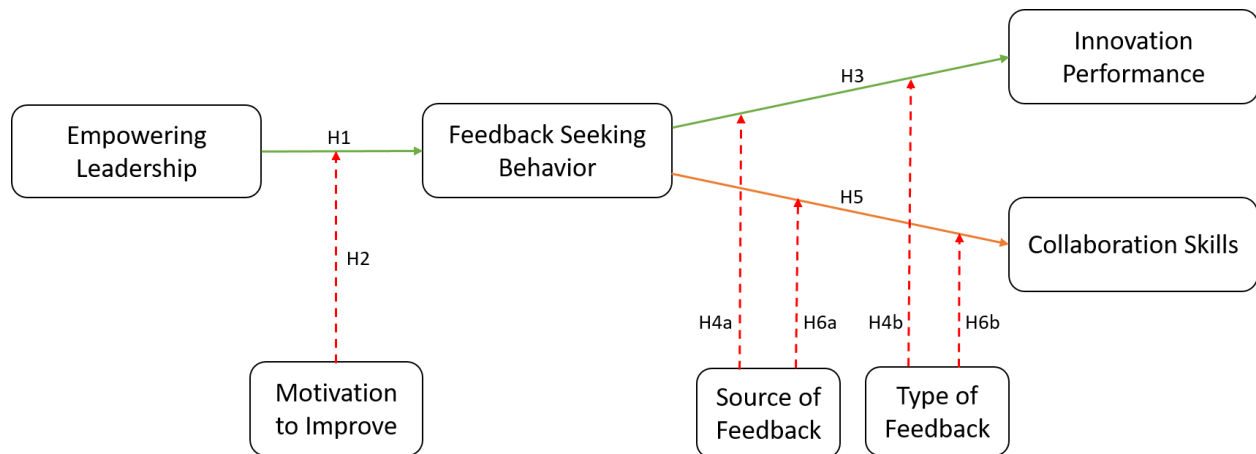


Figure 1. Model including the significant (green), partially significant (orange) or insignificant (red) results of the research.

Contributions, Implications and conclusions

The results of this study led to some new theoretical insights for feedback seeking behavior, empowering leadership, certain collaboration skills and innovation performance. First, showing that empowering leadership can positively affect the feedback seeking behavior of employees represents a new finding in research. Second, this study expands the knowledge about what effect such feedback seeking behavior can have. It shows that it can increase the innovative performance of that employee and the study reveals

that the 'voice' and 'information sharing' skills of an employee can be positively influenced by seeking out feedback. However, as not all skills tested were significant, generalizations about the relation of feedback seeking behavior with the collaboration skills cannot be made. Furthermore, as the level of collaboration skills of the participants were reported by the participants themselves, it is possible they might have overstated their level of skills.

Together, these contributions can have profound implications for managers, but also for employees themselves. Executives could implement empowering leadership by giving their employees more responsibilities and the authority to make more decisions for themselves, while also coaching them in their decision making process. Also, the employees can be motivated to seek out feedback, or coached in how to do so. When those employees start, or show increase of, looking for feedback they will probably perform and collaborate better. Whether or not an empowering leadership style is implemented, it is still valuable to encourage employees to seek out feedback in other ways, for example by training them to do so or showing them the benefits it can have. As such, this study can also be helpful for employees to see the value of increased feedback seeking behavior, when trying to improve their own skill in sharing information, their voice and their innovative performance.

In response to the main research question, this study shows that indeed the effect of empowering leadership on feedback seeking behavior is positive, and that such feedback seeking behavior is positively related to innovation performance and the collaboration skills of 'voice' and 'information sharing'.

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1. Introduction

Due to a globalizing world, the competition between companies continues to grow and hence, the need for companies to outdo others is of increasing importance. Not only can this be seen from a company survival perspective, there are also many new opportunities to take advantage of as markets continue to grow. To stay competitive, companies need to innovate or improve all aspects of their company and what they sell. Employees are crucial in seizing those new opportunities, for innovation and improvement. Not only as a single entity, but more importantly in a collaborative effort. Collaboration is very important for innovation, as it can increase the success rate and frequency of innovations, and thus increase the innovative performance of the company (Inoue & Liu, 2015). From this the question arises what can be done so that employees can collaborate better and improve their innovative performance.

Learning and improving (personal skills) is highly influenced by feedback (Hattie & Timperley, 2007; Wulf et al., 2002). Employees seeking out feedback themselves, which in the literature is called feedback seeking behavior, where somebody proactively seeks out a person that provides them with feedback regarding their own behavior (Grand & Ashford, 2008). It is then also of interest if it is possible for a company to encourage such behavior, and thus influence learning and improvement of their employees. Therefore, it was decided to include a style of leadership into the model. As proactivity is important in feedback seeking behavior, empowering leadership could be a leadership style that encourages feedback seeking behavior as it motivates the employee to take responsibility and make individual decisions, and in the leadership style of empowering leadership the leader takes on the role of a coach and motivator, possibly influencing the feedback seeking behavior of the employee (Sharma & Kirkman, 2015). Herein lies the problem in literature. Feedback seeking behavior literature that has had a focus on performance, was not focused on innovation but on their job or task performance (Anseel et al., 2009; Janssen, 2001). Whether or not feedback seeking behavior then also results in better, more frequent or more profitable innovations is mostly lacking in research. The same goes for collaboration skills. There is a lack of research where multiple collaboration skills are studied for their relation with feedback seeking behavior in a single study. Similarly, empowering leadership is one of the few leadership styles that has not been connected to feedback seeking behavior, even though such a relationship has been suggested (Sharma & Kirkman, 2015). This study will focus on closing those gaps, resulting in the following research question:

“What is the effect of empowering leadership on feedback seeking behavior and what is the effect of this feedback seeking behavior on collaboration skills and innovation performance?”

Feedback has long been seen as information that has a performance enhancing effect. Such information is provided by an agent (i.e. colleague, manager, etc.), regarding the behavior, or the results of their

behavior, to another (Hattie & Timperley, 2007). In simple terms, feedback seeking behavior means seeking out such information, and as that is an active instead of a passive approach a correlation between empowering leadership and feedback seeking behavior can be expected. In literature, feedback seeking behavior means deliberately putting time and effort into determining the sufficiency of one's personal behavior to achieve personal goals (Crommelinck & Anseel, 2013). In detail, it consists of five key aspects (Ashford et al., 2003): the frequency, the method (inquiring or monitoring), the timing, the target and the topic. The paper published by Ashford and Cummings (1983) has started the research in the field of feedback seeking behavior, a paper that changed the way feedback was seen in organizations. The change that the above named research suggested was in seeing feedback not only as an organizational resource, which was the general way it was seen at the time, but primarily as a resource for the individual. In a person's pursuit of their own various goals, they can seek and find feedback that could help achieve them. Especially when persons see feedback to possibly be valuable for attaining these goals, a person will be more likely to seek it (Ashford & Cummings, 1983). In an organizational context, having employees that are motivated to seek feedback should result in increasing their personal performance regarding their work, and thus the performance of the organization. For various reasons, which include the ones above, that paper (Ashford & Cummings, 1983) spawned a lot of research. Research that connects feedback seeking behavior as an influencer to many different areas, such as its impact on skills (London et al., 1999; Wulf et al., 2002; Lu et al., 2014), personal behavior (Crommelinck & Anseel, 2013) and performance (De Stobbeleir et al., 2011) but also as an influencee by for example leadership (Anseel et al., 2015).

Over time, the growth in research in this field has resulted in identifying a clear relation between feedback seeking behavior and performance. Similarities in conclusions drawn in different studies within this field have generated a general acceptance of feedback seeking behavior improving performance. De Stobbeleir et al. (2011) wrote that seeking out feedback empowers individuals to improve their task performance, while Sijbborn et al. (2018) introduce their paper by writing that integrating different points of view gained from others with their own can increase their creative performance. This has also been acknowledged by Anseel et al. (2015) by saying that feedback seeking behavior is an effective strategy to manage improving one's performance. However, the same study concluded that there was no meaningful relationship between feedback seeking behavior and performance, even though they were expecting otherwise. It is possible that there are moderators that were not taken into account in that research that change the relationship between feedback seeking behavior and performance. These can be the type and source of feedback, two key aspects of feedback seeking behavior but less so researched in combination with performance. None of the above papers however focus on innovation performance, a measure of performance that encompasses the number, speed and novelty of innovations (Van Riel et al, 2004; Prajaho & Ahmed, 2006). The necessity for this kind of performance measurement is that the growth in competition increases the need for fast and continuous innovation that leads to a success more often (Van Riel et al., 2004). Furthermore, failure rates in innovations are high, only one in ten new

products is a commercial success (Cooper et al., 2004). For multiple reasons this study will focus on innovation performance instead of other forms of performance like mentioned above, the first one being the lack of research in this field. As it has been shown that feedback seeking behavior is connected to creative performance by for example Sijborn et al. (2018), and given that creativity has been assumed to lead to innovation, the lack of research regarding the relationship between feedback seeking behavior and innovation performance is surprising. Second, innovation is becoming increasingly important. Almost all markets are increasingly internationally oriented, thus the competition between companies keeps increasing as well. The growth in competition increases the need for fast and continuous innovation that leads to a success more often (Van Riel et al., 2004), while keeping in mind that in new product development (NPD) for example, only one in ten products is a commercial success, while in service innovation, failure rates are also high (Cooper et al., 2004).

In innovation, working in teams is very important, as it can increase the success rate and frequency of innovations, and thus increasing the innovative performance of the company (Inoue & Liu, 2015). Teamwork relies heavily on the collaboration skills of the employee, which is therefore of pivotal important for the team. However, even though a lot of studies have researched collaboration, research on the drivers of collaboration has been lacking (Luca & Atuahene-Gima, 2007). Some studies have been done on finding factors that facilitate collaboration, such as, for example, the research done by Mattessich and Monsey (1992). In their meta-analysis they identified multiple group and individual skills that facilitate collaboration. Skills that might be able to be improveable with the use of feedback. However, as there is a lack of research in the drivers of collaboration, there is a lack of research regarding the connection between feedback seeking behavior and collaboration skills. This is surprising, as not only do certain skills affect the strength to collaborate, skills can also influence innovation performance and might therefore be very interesting for any innovating company. Even more so by taking into account that these companies make a lot of use of project teams to innovate.

As said, feedback seeking behavior might be related to 'empowering' leadership, which means that leadership delegates its responsibilities to subordinates, giving them the authority to make their own decisions (Amundsen & Martinson, 2014). It can encourage employees to seek feedback and it can set up an environment around the feedback seeker, increasing the motivation of the employee to seek feedback (Sharma & Kirkman, 2015). Therefore, the leaders empower the employees they are responsible for, in for example their team or department. Research has been done on the effects of (empowering) leadership on feedback seeking behavior. However, the majority of these studies have focused on other leadership styles than empowering leadership, with Sharma and Kirkman (2015) only suggesting such a relationship, and Chen et al. (2018) specifically suggesting the need for further research on this matter. Therefore more research is required to prove, or disprove, the existence of such a relationship. As such, this style of leadership has a focus on influencing, coaching and motivating employees and managers can therefore be of great influence in the behavior of their employees.

Therefore, empowering leadership will be the focus of this study, and by adding a leadership style to the

model the results might be more tangible to executives, if a relationship is found. Moreover, combined effects with an improvement in (collaboration) skills or (innovation) performance is clearly lacking in scientific research.

As said before, learning and improving is highly influenced by feedback (Hattie & Timperley, 2007; Wulf et al., 2002). In an empowered working environment, employees that are motivated to improve may decide to seek out feedback in order to learn and improve. It is therefore not only interesting to know whether or not employees look for feedback more often when empowered by leadership, it is also just as interesting to see whether or not the employees' motivation to improve moderates this relationship. When certain employees also have a tendency to improve themselves more than others, it can be expected that they seek feedback more often when working in an empowering environment. However, this has not been established by research as of yet. The motivation to improve has been connected to performance in research. McCloy and Wise (2002) showed that in order to increase individual performance, the motivation to improve is an important variable. As such, it is possible that it might be connected with other performance increasing phenomena, such as feedback seeking behavior or empowering leadership. Feedback can be gained from a numerous amount of different sources, however most research has focused on feedback seeking behavior with the leader as the source (Ashford et al., 2016) and less so on colleagues. Even though leaders might encourage feedback seeking behavior, it is also possible that feedback from leaders might be more or less effective, or lead to better results than, the feedback of co-workers. As such, this study formulates its questions about the source of feedback in such a way that it measures the influence of seeking feedback from the leader. On the other hand, it is also possible that employees might seek feedback more often from their co-workers and as such increase their performance or collaboration skills more when seeking out feedback when compared to seeking feedback from their leader.

Furthermore, not only could the source of feedback influence the effect of feedback seeking behavior, the type of feedback given can also be of importance. Feedback can be either positive or negative, and whether one is more effective or sought after more often is important when researching for the effects of feedback seeking behavior, as it can be valuable knowledge for persons seeking feedback. Therefore, both the source and type of feedback will be taken as a moderator into this research. Together with all other variables and moderators, this leads to the following model, in Figure 2 below, that represents this research.

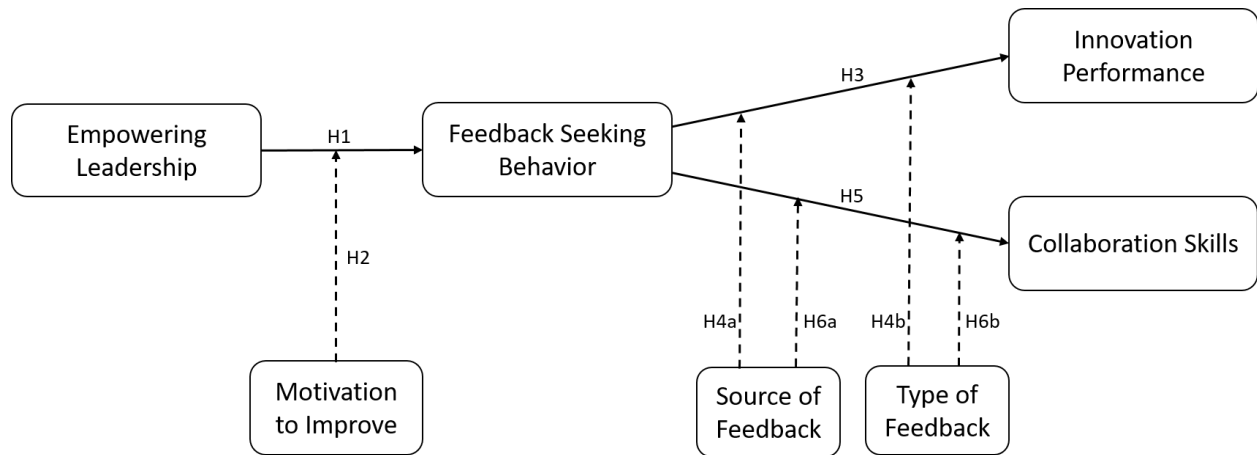


Figure 2. Model including the hypotheses for the proposed research

The results of this study can contribute to science in multiple ways. First of all, there is clear gap in current research regarding the field of empowering leadership and feedback seeking behavior, which can be derived from Chen et al. (2018), specifically suggesting the need for further research in this field. By researching the direct effect of empowering leadership and feedback seeking behavior, a start can be made to gain more knowledge. Furthermore, by taking the moderating effect of the motivation to improve of an employee into account, the implications of this study can further increase. Influences of the motivation of employees to improve have been limited to its direct impact on for example skills and performance, few on seeking feedback but none of whether or not the relation between empowering leadership and feedback seeking behavior can be strengthened by an employees' motivation to improve. Second, as said above, the research in the field of drivers of collaboration skills is limited. Whether or not there exists a connection, and what kind of connection that would be, is insufficiently researched in the field of feedback seeking behavior. Therefore this study can contribute to FSB science by studying a potential relationship between the different collaboration skills of interest in this study. Third, research has been done that connects feedback seeking behavior and different kinds of performance, yet not performance in the field of innovation. Even though feedback seeking behavior has been connected to creativity, an important aspect of innovation, there is still a clear lack of research that could find a relationship. As such, this study will broaden the knowledge regarding feedback seeking behavior and innovation performance.

2. Theoretical Background

2.1 Feedback Seeking Behavior

Prior to the research of Ashford and Cummings (1983) feedback was mostly seen as an organizational resource. Research on the value of feedback for the individual, and therefore possibly the organization itself, was very rare to non-existent and said paper started a new field in feedback research named feedback seeking behavior (FSB). This can be defined as deliberately putting time and effort into determining the sufficiency of one's personal behavior to achieve personal goals (Ashford, 1986; Crommelinck & Anseel, 2013). Even though it was already accepted that feedback had a positive effect on performance and motivation, the research in that field primarily focused on why that was the case. Furthermore, until that point feedback was only seen as an organizational resource. Ashford and Cummings (1983) argue in their paper that feedback is as much an individual resource as it is an organizational one. This resulted in their creation of a theoretical model of feedback seeking behavior, motivated by the knowledge of people that frequently seek out feedback in their organizations. The model consists of three different 'functions' that influence the way, or strategy, of seeking feedback. First, there is a motivation 'function'. Persons have particular motivations for seeking feedback, for example motivated by reducing uncertainty about appropriate behaviors or evaluations. These motivations will increase the effort a person is willing to invest in seeking feedback. Second, the organizing 'function' exists to embody the different goals a person might have that they want to achieve with the help of seeking feedback. These will also influence how a person will seek feedback. Ashford and Cummings (1983) give the example of a person that wants to be well liked by co-workers compared to a person who wants to advance their career. For these different goals, different strategies of seeking feedback exist. Third, the above functions are combined into the thinking function, where this information is processed. Through the thinking 'function' the motivations and goals lead to one of two ways of seeking feedback in the model; the monitoring strategy or the inquiry strategy. The execution of one of those strategies will both result in seeking out feedback.

FSB research was further extended upon by Ashford (1986: p. 466) with a definition of FSB; "the conscious devotion of effort toward determining the correctness and adequacy of behavior for attaining valued end states." This definition is still used by recent literature (Anseel et al., 2015; van der Rijt et al., 2013) and will as such be used in this paper. As the definition implies, by proactively seeking feedback a person can improve.

There are two different ways to seek feedback, namely inquiring and monitoring (Ashford et al., 2016). The difference herein is that one way is direct (inquiring) and the other is indirect (monitoring). With inquiring, the seeker goes to the person feedback is needed from and asks (inquires) the person for feedback on for example their behavior or innovation performance. Monitoring feedback is looked for

feedback from a distance. The individual might, for example, look for feedback given by a leader to a colleague that is in a similar situation and of a topic the individual wants feedback in. Therefore, the feedback seeker looks actively in their environment for feedback without directly asking for it. It must also be mentioned that it is possible to seek feedback by indirectly inquiring. This is done by creating a situation where a person will give feedback without directly asking for it, for example by steering a conversation to the topic where the feedback is wanted. Ashford and Cummings (1983) already stated that it can be beneficial for organizations to promote the use of an inquiry strategy over the monitoring strategy, as monitoring for feedback is more affected by subjective views regarding the feedback information gained. Anseel et al. (2015) also come to a similar conclusion and indicate that there is a current focus on inquiry strategy in organizations as well as FSB research, which they feel might be happening because the inquiry strategy has a greater relationship with job performance and might therefore be of more interest to organizations.

There are different kind of motives for seeking feedback (Ashford et al., 2016: p. 219). Not all persons seek feedback to improve themselves, which is called a 'performance-related motive'. Individuals can also seek feedback purely to impress, an 'an impression management motive'. These are mostly persons that believe their innovative performance is already good, and want to show this to the person they ask for feedback by making them notice their good innovation performance. This person tries to control the appearance of him- or herself to others. However, as Lam et al. (2007) pointed out, this can backfire when a leader might realize an attempt at impression management is being made, and might therefore get a negative impression of the individual trying to control its appearance. Another motive for seeking feedback is the cost and value of seeking feedback, particularly regarding negative feedback. According to VandeWalle and Cummings (1997) there are two kinds of costs and one kind of value that influence the motivation of persons to seek feedback. The first cost is 'ego cost', where a person might be demotivated to seek feedback due to the implications to the self when hearing negative feedback. Second is 'self-presentation cost', as a person that seeks feedback can show that it needs help and is uncertain about its abilities or performance. Persons can then refrain from seeking feedback, or are at least less likely to seek it. The value in seeking feedback lies in the 'expectancy value', meaning that the person seeking feedback has a certain expectancy about the usefulness regarding the impact on their performance or abilities. Together, the costs and benefits form the cost/benefit framework built by VandeWalle and Cummings (1997).

2.2 Type of Feedback

Most empirical research in the field of feedback seeking behavior has focused on the frequency of feedback seeking behavior (VandeWalle, 2003; Crommelinck & Anseel, 2013). However, there are other factors that can influence feedback seeking and its outcomes, such as for example the type of feedback (VandeWalle, 2003). An example of recent research is Anseel et al. (2015) with their meta-analytic review

of feedback seeking behavior. In here, they support the original cost/benefit framework that underlines feedback seeking behavior. However, they also find that the underlying assumption of feedback seeking behavior, that persons do not wait for feedback to be given but will seek it out themselves (Anseel et al., 2015), made in the paper of Ashford and Cummings (1983), is not supported by their analyses. This is due to the amount of negative feedback being a strong predictor of feedback seeking behavior in their analyses. Based on this they suggest that it seems that the type of feedback people receive as a results of their feedback seeking behavior can have an effect on whether or not persons seek feedback in the future. This directly contradicts the original assumption from Ashford and Cummings (1983), as it means that people might be less (or more) inclined to seek feedback based on the type of feedback received. The importance of the type of feedback is also agreed upon by Gong et al. (2017), who expand upon positive and negative feedback seeking behavior by identifying four types of feedback: other-positive, self-positive, other-negative and self-negative. In this context, the feedback one seeks is thus about themselves or about others. Self-positive feedback seeking is explained as seeking feedback about the individuals own performance in an area the individual believes to already perform sufficiently, while self-negative feedback seeking regards seeking feedback in an area the individual believes to perform insufficiently. Other-positive and other-negative differ from the forenamed types of feedback seeking behavior, respectively, in seeking feedback not about the individuals own performance, but about the performance of another individual. Although this study does not distinct between 'self' and 'other', it is important to note that the research of Gong et al. (2017) had some important findings. For example, they also find that self-negative feedback seeking can increase job performance, as "employees recognize areas in need of improvement and deficiencies in competences, and obtain diagnostic information for improvement" (Gong et al., 2017: p. 1248). However, negative feedback can also have an adverse effect, as it is possible that the person is seen as less competent by their colleagues (VandeWalle, 2003). In contrast to self-negative feedback, self-positive feedback seeking does not increase job performance, it can even hurt it as people no longer feel the need to improve upon their effort in their job. Notice that the cost/benefit framework comes again comes into play here, as the feedback seeker must make a judgement on whether or not it is worth it to for example lose the appearance of being competent against the possibility to improve and become more competent. Such judgement calls appear all the time in feedback seeking behavior.

All these papers above, and other studies with them, have studied the type of feedback as a direct influencer. However, it is also possible that the type of feedback influences the effects feedback seeking behavior might have on other variables. Anseel et al. (2015) found the type of feedback to be a strong predictor of feedback seeking behavior, but it is also possible that the type of feedback also enhances or deteriorates the connection feedback seeking behavior might have with collaboration (skills) or (innovation) performance. In this area, there is a clear lack of research and thus the exploration of the type of feedback as a moderating variable can be additive to feedback seeking behavior literature.

2.3 Source of Feedback

In feedback seeking research, the use for that particular research is coupled mostly to the organization and the leader, beside of course the personal implications. Also, not a lot of times a distinction is made in research about where feedback is coming from, e.g. the source. Most research has focused on feedback seeking behavior with the leader as the source (Ashford et al., 2016). However, there does exist a difference in the source of feedback. The leader can of course be a source of feedback, but the co-worker, or peer, is another possible source of feedback (Sijbom et al., 2018). It is also possible to seek feedback from persons outside the work environment of the individual, for example from family or friends, but this is beyond the scope of this research. Nevertheless, seeking out feedback from a wide variety of sources, not only inside but also outside the organization, is beneficial for performance. De Stobbeleir et al. (2011) suggested that there is value in seeking out feedback beyond the leader alone and to consider their peers and for example employees from other organizations as possible sources for feedback, which in their research they positively connected to creativity and (creative) performance. These studies show that a greater, and wider, variety of sources might increase performance. However, it is much less researched whether or not a different choice of feedback source, in this study the leader or peer, changes the relationship between feedback seeking behavior and collaboration or performance. Furthermore, the source of feedback has mostly been connected to performance and much less so on collaboration. These questions remain unanswered, of which this study tries to explore such a relationship.

2.4 Empowering Leadership

In traditional organizations and leadership, there is centralized and top-down decision making (Manz et al., 1987). In this style of leadership the employee follows decisions or assignments which they have to execute, and the leader is responsible for making these decisions and creating these assignments. However, there are different views and theories on leadership, such as, for example, leader-member exchange, transformational leadership and empowering leadership. This paper will focus on empowering leadership, which is distinctive from traditional leadership as the leader empowers its employees to make their own decisions. Fong and Snape defined empowering leadership (2015: p.164) "... as leader behaviors that involve sharing power with subordinates, raising their level of intrinsic motivation, and creating a supportive environment for team members to leverage the power afforded them." According to Amundsen and Martinson (2014) empowering leadership consists of motivating the individual by giving them responsibility and authority to a level in the organization where the best decision can be made. From these definitions it can thus be said that empowering leadership results in decision making shifting to the employees themselves, which makes them more motivated. The leader is in control of employees that make decisions themselves and execute their own assignments. This changes the role of the leader, and Arnold et al. (2000: p. 254) identify five dimensions of this new role. These are 'leading by example', 'participative decision making', 'showing concern', 'coaching' and 'informing', which will be explained below. 'Leading by example' can be seen as, for example, using your own behavior to set high standards

for performance. 'Participative decision making' is where a leader incorporates the information provided by its team members and uses this as input for their decision making. 'Showing concern' can be interpreted as the leader not only showing interest in the well-being of its team members, but also for example treating the team with respect. 'Coaching' means teaching team members different behaviors while helping them to become independent (Arnold et al., 2000). 'Informing' means that the team members are provided all information about the company, such as the goals of or philosophy of the company, or any other information deemed important.

Empowerment was also a key factor described by Mattessich and Monsey (1992) for collaboration, as the feeling of ownership of a project, of the workings and the results that eventually come from that project, entices collaboration. As an example, taking on the role of a coach by a leader can help employees to communicate better and to collaborate better. Therefore, the presence of an empowering leader can motivate, or make it easier, for employees to seek feedback. Lastly, empowering leadership can have a positive impact on the performance of teams (Lorinkova et al., 2013), especially on the long term. By feeling empowered, the employees were able to improve their performance over time as their learning capabilities increased (Lorinkova et al., 2013).

Although there is a lot of research present in the field of different leadership styles and feedback seeking behavior, there is a clear lack of academic knowledge regarding the connection of feedback seeking behavior with empowering leadership. For example, a transformational leadership style has been shown to positively influence feedback seeking behavior (Anseel et al., 2015), because the restraints that employees have in regards to seeking feedback are decreased, increasing the likelihood of feedback seeking behavior. Similar research in the field of empowering leadership has not been found that shows, just as transformational leadership, a relationship where empowering leadership has a positive or negative influence on feedback seeking behavior.

Nevertheless, the need for future research and expectations for a relationship between empowering leadership and feedback seeking behavior has been suggested. Sharma and Kirkman (2015: p. 211) suggest such a relationship in their review of empowering leadership literature. They expected empowering leadership to be positively associated with proactivity, which "refers to anticipatory actions taken by employees" and "such actions include speaking up, using influence tactics, seeking feedback, taking charge, and personal initiative-taking". Recently, in a field study, the relationship with proactivity was indeed found by Chen et al. (2018), meaning that employee empowerment does induce proactivity which can manifest in seeking feedback. The fact that proactive behavior leads to feedback seeking behavior has been established already before the study of Chen et al. (2018), in a meta-analysis done by Grant and Ashford (2008). Not only is it shown that proactive behavior leads to feedback seeking behavior, it can also lead to improvements on the performance of employees as they actively try to change and improve their work.

However, the literature on whether or not the anticipatory actions taken that are positively associated with empowering leadership include or exclude seeking feedback is lacking. Hence, this study can add to the

existing literature by researching the expected connection between empowering leadership and feedback seeking behavior.

Based upon what is found in the literature in this section the following hypothesis can be set up:

H1: The amount of empowering leadership, consisting of the aspects 'participative decision making', 'coaching', 'informing' and 'showing concern', will be positively related to the feedback seeking behavior of employees.

2.5 Motivation to improve

The dimension of learning has been very prominent in feedback seeking behavior and to some degree in in empowering leadership. Being proactive in for example seeking feedback might need a person to be willing to learn by themselves. As such, it can be reasoned that a higher motivation to learn might increase its feedback seeking behavior. The concept of motivation to learn was combined with the motivation to transfer (knowledge) into the construct of motivation to improve work through learning by Naquin and Holton (2002). The construct was created because for organizations it is not only important to learn, but also to transfer these learnings into better work outcomes. Therefore, these different motivations were combined into one construct where a person would improve their work by learning and then applying this new found knowledge. However, not all employees are more likely to be motivated to improve than others. McCloy and Wise (2002) found that persons that had certain personality traits, such as 'conscientious', 'agreeable', 'extroverted', and inclined toward 'positive affectivity', were more likely to feel motivated to improve. The motivation to improve is thus highly build upon the motivation to learn. Therefore it could be assumed that have a learning orientation could be connected with motivation to improve. Feedback seeking behavior and empowering leadership both have a connection with a learning orientation. People that have a higher motivation to improve might be more inclined to seek out feedback. This is also suggested by Hirst et al. (2009), who say that having a learning orientation can make employees more willing to seek out feedback, with the intent of improving their skills or performance. Furthermore, when empowering leadership creates an environments where it is easier to seek out feedback, this can bring certain people that were motivated to improve, but not yet willing to seek out feedback, over a threshold, resulting in seeking out feedback. Based upon this theory, combining it with the previous section and that regarding feedback seeking behavior, the following hypothesis can be created:

H2: The motivation to improve of an employee will moderate the relationship between empowering leadership and feedback seeking behavior such that it is stronger when the motivation to improve is high and weaker when it is low.

2.6 Innovation Performance

Feedback and performance have been intertwined in many papers regarding feedback seeking behavior. This seems logical, as feedback seeking behavior can be of interest to organizations when it can increase the performance of their employees. However, this also means that performance in general is a too wide concept to measure when being connected to feedback. Many different, more specific, sorts of performance have been used in feedback seeking literature, such as job performance (Gong et al., 2017; Crommelinck & Anseel, 2013), task performance (Anseel et al., 2009) or creative performance (De Stobbeleir et al., 2011; Sijbom et al., 2018). Despite research focusing on performance, few studies have actually focused on innovation performance and how it can be influenced by feedback seeking behavior. Even though creative performance might seem similar to innovation, creativity alone does not result in innovation. The fact that De Stobbeleir et al. (2011) en Sijbom et al. (2018) scarcely mention innovation might represent this. Kline and Rosenberg (2010: p. 275) further elaborate this as they define innovation as using different ideas to create something new and marketing this, meaning that innovation needs more resources than creativity alone. Furthermore, De Jong et al. (2007) say that when and how creative ideas are implemented is another crucial part of the innovation process. Creating and developing new innovations is thus a process full of uncertainties, in for example technical performance and market acceptance (Kline & Rosenberg, 2010). Differences in what constitutes innovation performance exist, mainly because what constitutes a successful innovation can vary greatly. An innovation can for example be deemed successful by a company when it results in profit for the company, but also if it improves desired processes or customer satisfaction. An individual can find an innovation, or the project, successful when it is fully implemented or when he or she feels to have significantly contributed to the project. Therefore, there are different criteria that make up a successful innovation, and thus there are different criteria making up innovation performance. These criteria can be distinguished by the scope of innovation performance. It can be measured on a company level, but also on a department, team or individual level. The latter will be the focus of this study, a level where innovative performance is mostly referred to as innovative (work) behavior. This kind of innovative behavior can be seen as “a process in which new ideas are generated, created, developed, applied, promoted, realized, and modified by employees in order to benefit role performance” (Thurlings et al., 2015: p. 430). Besides innovative behavior, a lot of studies only focus on idea generation and creativity when researching innovation performance (De Jong et al., 2007). However, in order to innovative, such an innovation needs to be implemented. As such, the term innovative behavior encompasses both. Janssen wrote multiple papers (2000; 2001) on this subject, with a specific focus on innovation in the workplace, named innovative work behavior. In this research, innovation that would for example benefit the functioning of the organization were studied, and the term for such innovative behavior was ‘innovative work behavior’.

However, not a lot of research has been done on how or when feedback can increase or improve innovative performance. Studies have been done on feedback and innovative performance, for example it was found that when feedback is organized to be given, from a variety of sources, this could be beneficial

to their innovation (De Jong et al., 2007: p. 54), as “concepts for new services or processes would be improved by making sure that those who are developing and implementing it receive feedback on an initial version.” In this form of organized feedback, feedback is given whether the receiver wants it or not. Based upon the literature of innovation performance, three different hypotheses can be put forth, of which two hypothesize a moderating relationship:

H3: The extent of an employees' feedback seeking behavior will be positively relation to the innovative performance of that employee.

H4a: The source of feedback will moderate the relationship between feedback seeking behavior and innovation performance, such that it is stronger when the source of feedback tends to the leader.

H4b: The type of feedback will moderate the relationship between feedback seeking behavior and innovation performance, such that it is stronger when negative feedback is sought more frequently.

2.7 Collaboration Skills

Multiple researchers have investigated and shown a connection between feedback seeking behavior and developing existing or acquiring new skills. For example, London et al. (1999) show that feedback seeking can be helpful in acquiring, developing or learning skills. Furthermore, feedback seeking behavior and developing skills in general are connected, as VandeWalle (2003: p. 593) shows: “feedback seeking behavior is used by the seeker for developing skills and improving performance.”

Fundamentally, innovation can occur by a single person. However, collaboration is very important for innovation, as it can increase the success and frequency of innovations (Inoue & Liu, 2015). Different persons working together can share their ideas resulting in new or improved ideas, which can then result in innovation. Therefore, as Luca and Atuahene-Gima (2007) also pointed out, collaboration is a crucial instigator of frequent and successful innovation.

With this information in mind it is important to know what collaboration is, which can be hard to define. Simply put, collaboration occurs when two or more people are interacting or working together, working towards a common goal or on a common task. However, confusion regarding this definition does exist. Mainly this is due to the fact that the terms ‘collaboration’ and ‘cooperation’ are in some papers used interchangeably (Baggio, 2011) while in others they are defined separate. Nissen et al. (2014: p. 473) clearly separate both terms as “collaboration refers to strong linkages and high level of trust and knowledge sharing between team members, cooperation refers to transferring of knowledge among team members.” Basically, cooperation is an action where a person pays a cost that will benefit another (Bear & Rand, 2016), while multiple persons pay the costs and get the benefit in collaboration. Luca and Atuahene-Gima (2007: p. 95) see cooperation to be part of collaboration; “Cross-functional collaboration refers to the degree of cooperation and the extent of representation by marketing, research and development (R&D), and other functional units in the product innovation process.” Similarly, Nissen et al. (2014) show that collaboration is needed for knowledge sharing, and that cooperation is needed for the

innovation process to progress. Furthermore, collaboration, and cooperation, can lead to opportunities to learn from one another, improving not only collaboration but also innovation skills, which results in an improvement of the firms' innovation performance (Van Beers & Zand, 2014). This paper will focus on collaboration as "researchers in innovation have been particularly concerned with collaborative learning, since it explains how interacting with others in groups makes the individual master new approaches" (Nissel et al., 2014: p. 474), which connects better with feedback seeking behavior due to learning than cooperation. Resulting from the above is the question what it is that makes collaboration successful and how it influences the difference between success and failure. Mattessich and Monsey (1992) identified 19 different keys to success for collaboration, classified in different categories (environment, membership, process/structure, communication, purpose and resources). A lot of these success factors are centered around the group, such as how the group is seen in their environment by others or that the group is representative of the community (Mattessich & Monsey, 1992). There are some factors that are centered around the individual, for example being flexibly, communicating frequently and openly, be able to compromise and being able to speak up. The ones named prior will be used in this paper, and described below. The individual factor of adaptability described in the paper of Mattessich and Monsey (1992) will not be taken into account as it is too similar to flexibility and difficult to measure. These individual factors of successful collaboration are in this paper named as collaboration skills, as these make it possible for a person to influence collaboration, and cooperation. What was also taken into account in the decision making process, for which skills to incorporate into this research, was the finding that, in research, these skills were already shown to have connections with innovation performance, which might be also connected to feedback seeking behavior. Therefore, 'compromise', 'flexibility', 'information sharing' and 'voice' will be taken into account. These individual skills will be listed and explained below.

Compromise

Compromise is a collaboration skill that is very important in teams, as it helps to interact with others in groups in a decent manner, according to O'Leary et al. (2012). The skill is defined by Pruitt and Kim (2004) as an alternative that is in between different positions of the ones having a dispute. In the paper of Mattessich and Monsey (1992: p. 15) it is explained as "collaborating partners are able to compromise, since the many decisions within a collaborative effort cannot possibly fit the preferences of every member perfectly." Not only is compromise important for interaction, it can also be very helpful in conflict management, which is a form of management that tries to solve conflicts in a variety of ways, instead of reducing or eliminating conflicts (Spaho, 2013). This makes compromise an important collaboration skill within a team as it can end an existing conflict, which always tend to happen in a collaborative group effort. Herein lies its importance, as the ability to solve conflicts is crucial to maintain good performance and effective team decision making (Chang & Lee, 2013). Decisions necessary for progression can be made and the innovation process continues, instead of the process standing still. Chang and Lee (2013) showed that having clear and realistic goals for the group is important to make compromises. However, in

collaboration there is always a threat that personal goals might conflict with the goals of the group. Mitigating this threat is very important for cohesive collaboration (Zhang & Chiu, 2012), which is also incorporated in conflict management. Therefore, being able to align personal and group goals is an important part of collaboration to take into account, and this needs compromise to achieve, making compromise an important collaboration skill. Being able to negotiate and accept compromise in favor of personal preference is a collaboration skill that can be learned. This can be noticed as children have very little ability to compromise. As such, it is possible that feedback seeking behavior can help to improve an employees' ability to make compromises, as from such behavior a person can learn to make compromises.

Information sharing

Information sharing is a collaboration skill that has multiple different effects on the rest of the team. It is explained by Mattessich and Monsey (1992: p. 16) as "collaborative group members interact often, update one another, discuss issues openly, convey all necessary information to one another and to people outside the group.", information sharing is a key factor that is relevant in multiple ways. First of all, it is important for the team members to have all information regarding their environment, the project, the company and so on. With that information, they can all communicate and collaborate on a similar level, and know exactly under which circumstances they have to create and finish their project. Even though the term 'information sharing' is preferred often by researchers, 'knowledge sharing' is a term that in general is used more often which can be used interchangeably and is therefore seen in the literature as well. Second, "knowledge sharing refers to the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas or implement policies or procedures" (Wang & Noe, 2010: p. 117). As such, all persons of the group have more information to work with when they are, for example, innovating. Third, the importance for information, and information sharing, for innovation is widely accepted in the literature. In order to innovate, knowledge from team members need to be combined to form something new (Ritala et al., 2015). Furthermore, information sharing is not only important for making innovation happen. According to research, knowledge sharing can positively influence the firms' innovation but also the performance of the team and firm, and decrease the time for innovative projects to finish (Wang & Noe, 2010). In addition, research done by Xue et al. (2011: p. 299) "suggests that cohesive, innovative teams with members trusting one another and led by empowering leaders will have a higher level of knowledge sharing", emphasizing that personal connections and trust are just as important for collaboration as they are for knowledge sharing. Trust is also mentioned by Mattessich and Monsey (1992) to be an important factor for collaboration, as it can result in strong relationships over time. It is therefore crucial for an employee to share their information with the rest of the team. Not only to increase its innovation performance, but also to instigate others to share their information, which can result in increased innovation performance of the sharing employee and the team. A relationship between feedback seeking behavior and information sharing is hardly researched. Wang

and Noe (2010) recommend future research in this area, as gaining feedback about information a person has shared might increase further information sharing by that same person, as they might feel more confident and competent to share information (Wang & Noe, 2010). In that way, feedback seeking behavior might have a positive impact on information sharing.

Flexibility

Mattessich and Monsey (1992: p. 16) explain flexibility as “the collaborative group remains open to varied ways of organizing itself and accomplishing its work.” Even though this factor might look as more of a group skill, it is important to note that it is also individually relevant, as each person needs to be able to apply these different ways of working. Employees need to be flexible, and therefore need to be able to change the way they work if the situation requires it. For example if the rest of the team works in a certain way they would need an employee to work in a similar fashion. Or where a person that has does not use presentations to pitch ideas, while the rest of the team does. A flexible person will start to use presentations to pitch ideas, while an inflexible person will be incapable to do so. By Bhattacharya et al. (2005: p. 625) this is referred to as ‘employee behavior flexibility’, and show that the capacity to change, for example the way they work, differs per employee. The ability to do this is important as it helps the team work, while also being inflexible can hold the employee and the rest of the team back in their work and therefore their innovative performance. According to Beltrán- Martín and Roca- Puig (2013), behavioral flexibility represents a number of adaptable behaviors, where they can adapt their behavior or way of work to the necessities of a certain situation. Beltrán-Martín and Roca-Puig (2013) further argue that feedback can have a positive influence on an employees’ flexibility, as it can be very useful in the learning processes of the employee and thus improving flexibility. Flexibility can also be good for performance. Camps et al. (2016) show that flexibility of the employee can increase job performance and their potential in different situations. Furthermore, employees that are flexible and adaptable can “lead employees to improvise and think of new ideas” (Camps et al., 2016: p. 370). Flexibility has therefore the possibility to improve collaboration, enhance the performance of the employee while also being related to feedback.

Voice

Open and frequent communication is of crucial importance for successful collaboration. In order to do so, employees must speak with each other, instead of remaining silent. In the literature, this is known as ‘voice’. According to Morrison (2014: p. 174) employee voice can be defined “as informal and discretionary communication by an employee of ideas, suggestions, concerns, information about problems, or opinions about work-related issues to persons who might be able to take appropriate action, with the intent to bring about improvement or change.” This definition shows connections with other collaboration skills such as information sharing. Two different kinds of employee voice are described in the literature as there is a difference made between employee voice as a behavior and employee voice

as an organizational process (Van Dyne et al., 2003). The first distinction, employee voice as a behavior, is a personal skill. This can be interpreted when for example an employee suggests different approaches to a certain problem by proactively speaking up. The second distinction can be made by interpreting voice as an organizational process that facilitate employees being part of the decision making process of the organization (Van Dyne et al., 2003). As the second distinction is not a personal skill whereas the first is, the distinction of employee voice as a behavior will be used in this study.

Not only is voice important for open and frequent communication, the absence of voice, in research called 'employee silence', can also be influential, however in a different way. Voice can affect collaboration in both ways as being silent can also have significant negative effects (Morrison, 2014). First of all, employee silence can lead to a group having not all perspectives to make good quality decisions, harming the collaborative effort of a group (Morrison & Milliken, 2000). Second, speaking up might lead to negative feedback being received, which gives opportunities for employees to improve upon previous errors that they might have made. In contrary, when remaining silent, these errors can linger or even become stronger, making the lack of voice more harmful to the employee and group. Third, leaders responsible for their teams can interpret the absence of voice as a signal that nothing is wrong and might refrain from changing certain aspects of their team effort (Morrison & Milliken, 2000). By speaking up, these negative effects might not only be removed, but also be replaced with positive effects, as for example the implications of receiving feedback have multiple desired effects, of which the most important for this research is making improvements (Zhou & George, 2001), possibly of personal collaboration skills. Furthermore, employee voice also has further importance for innovation itself, as it has strong connections with creativity (Zhou & George, 2001), which can be seen as the starting point of innovation. Employees might make suggestions for chances in the innovations, and feel that speaking up can be effective and appreciated. In this manner, they might also be more inclined to sound their voice in the future, resulting in more creativity in general.

The theory that forms a basis for collaboration skills in this study can be combined with the theory of feedback seeking behavior, type of feedback and source of feedback to create three different hypothesis, of which two are regarded as moderating hypothesis:

H5: The extent of the feedback seeking behavior of an employee is positively related to the collaborative skills of that employee.

H6a: The source of feedback will moderate the relationship between feedback seeking behavior and collaboration skills, such that it is stronger when the source of feedback tends to the leader.

H6b: The type of feedback will moderate the relationship between feedback seeking behavior and collaboration skills, such that it is stronger when negative feedback is sought more frequently.

3. Method

This section will describe in what way the research problem set out in this study will be addressed, in three different parts. As such, this section includes a detailed description of the procedure and participants, the measures and the strategy of analyses. The procedure and participants subsection will explain the general methodology, with a focus on the way the data was collected and why it was done in such a manner. Second, the measures subsection will describe the different constructs used in this study, on what items they are based and how they are used. The last subsection, strategy of analyses, will show whether or not the gathered data is fit for use in tackling the research problem.

3.1 Procedure and participants

Participants for this study were gathered through an online questionnaire study. Participants were approached through the personal network of the writer, who were also asked to contact their own personal network to take part in this survey. They were asked to fill in 57 questions, divided into several topics to measure the different aspects of this study, beginning with the employees' collaboration skills, followed by the presence of empowering leadership, the employees' feedback seeking behavior, the type and source of feedback, the innovation performance of the individual and ending with their motivation to improve. The questionnaire ended with 8 general questions. The entire questionnaire can be found in Appendix A. The survey was distributed in English and Dutch, such that the motivation for Dutch persons to fill in the survey increased and making it more likely to fill in the entire survey. Together with several general questions and the questions to measure the several aspects of this study, an introduction to the questionnaire was given to guarantee participants that their information provided questionnaire would be confidential. When the survey was closed for participation, the number of participants was 97. Of these participants, 11 did not fill in the questionnaire in a sufficient manner, resulting in having too much missing data to incorporate them in the dataset. They were therefore deleted from the final dataset used. Of these final 86 participants that were used for analyses, 41 were female and 45 were male. On average, their age was 47 years ($SD = 13.8$) and worked 35 hours per week ($SD = 6.5$). Only 2 of these participants were not part of any team in their current job, and 87.7% had 5 or more years of working experience. Other demographics can be found in Figure 3 and 4 below.

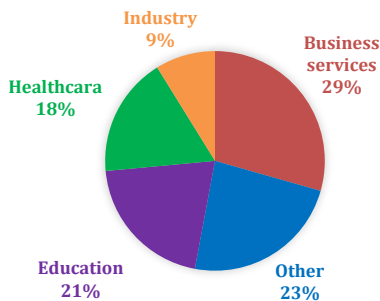


Figure 3. Participants' education dispersion.

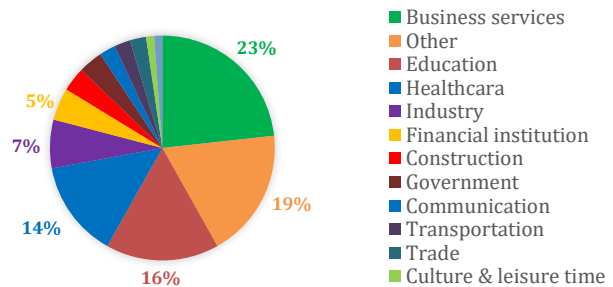


Figure 4. Participants' work sector dispersion.

3.2 Measures

Feedback seeking behavior

The construct of feedback seeking behavior was measured by six items. These items were based upon questions used by Ashford (1986: p.487) to measure the frequency of feedback seeking. In the resulting scale, six different questions were asked regarding feedback seeking in different aspects of the job, namely 'overall work performance', 'skills in collaboration' and 'social behavior'. These three aspects were asked for co-workers and the supervisor, resulting in six questions. For co-workers, these questions were: "how frequently do you seek feedback from your colleagues regarding overall work performance", "how frequently do you seek feedback from your colleagues regarding your skills in collaborating" and "how frequently do you seek feedback from your colleagues regarding our social behavior". The same questions were asked regarding their supervisor and could all be answered on a Likert scale ranging from 1 ("never") to 5 ("almost always"). Together, these six questions were able to be combined into one construct (Cronbach's $\alpha = .90$).

Empowering leadership

In order to measure the construct empowering leadership, multiple aspects were measured by three or four items each. These aspects, and their items, were based upon the literature study done by Xue et al. (2011: p. 311), who operationalized empowering leadership into five different aspects and these together form the construct. Four of these aspects were used to measure empowering leadership, which are called 'participative decision making', 'coaching', 'informing' and 'showing concern'. 'Participative decision making' was measured using 3 different items: "my team leader encourages me to express and share ideas/suggestions", "my team leader listens to my ideas and suggestions" and "my team leader gives me the chance to voice my opinion" (Cronbach's $\alpha = .82$). 'Coaching' was also measured using 3 different items: "my team leader suggests ways to improve my performance", "my team leader encourages me to solve problems together with the rest of my team" and "my team leader encourages me to exchange information with other team members" (Cronbach's $\alpha = .88$). 'Informing' was measured with the following 4 items: "my team leader explains decisions/comments to me taken outside the team", "my team leader explains all information to me regarding work that the team needs to do", "my team leader explains rules and expectations to me" and "my team leader explains his/her decisions and actions to me" (Cronbach's $\alpha = .89$). 'Showing concern' was also measured with 4 different items: "my team leader cares about my problems", "my team leader shows concern for my well-being", "my team leader treats me as an equal" and "my team leader takes the time to discuss my concerns patiently" (Cronbach's $\alpha = .89$). All items were measured with a Likert scale ranging from 1 ("never") to 5 ("almost always"). To find out whether these four aspects, based upon their individual items, could be combined into one construct, an exploratory factor analysis was conducted on these uncentered aspects, of which more results can be found in Appendix B. This analysis identified one single underlying component (named Empowering Leadership) to which all these aspects fitted (Cronbach's $\alpha = .90$).

Collaboration Skills

Similarly to Empowering Leadership, the construct of Collaboration Skills was measured based upon 4 different aspects, namely 'compromise', 'flexibility', 'voice' and 'information sharing'. The aspect 'compromise' was measured with the following 4 items: "I try to find a middle course to resolve an impasse", "I keep on looking for a solution until I find one that both satisfy me and the other", "I evaluate the ideas from both sides until a solution is found that satisfied both sides" and "I work out a solution that satisfies the interest of me and the other as much as possible" (Cronbach's $\alpha = .66$). The Cronbach's alpha was very low, and therefore it was tested to see whether it would increase when one of the 4 items was deleted, however this decreased the alpha for every combination (Item 1: $\alpha = .64$, Item 2: $\alpha = .53$, Item 3: $\alpha = .56$, Item 4: $\alpha = .63$). The second aspect, 'flexibility', was based upon items from the study on 'flexibility' done by Bhattacharya et al. (2005). Those items were slightly adapted to be suitable for this study. This resulted in 3 items, namely: "I can change my work habits as demanded by changes in the work environment", "I am flexible enough to adjust to dynamic work requirements" and "I can adjust to changing work requirements within a short period" (Cronbach's $\alpha = .73$). To measure the aspect 'information sharing', the items from Bunderson and Sutcliffe (2002) were adapted to fit the purposes of this study, resulting in the following 3 items: "I freely shared information used to make key decisions among the members of the team", "I work hard to keep team members up to date on their activities" and "I kept team members up to date about key issues regarding the work the team is doing" (Cronbach's $\alpha = .72$). The above three aspects were all measured on a Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The final item, 'voice', was measured with 3 items, based upon Van Dyne et al. (2003) and adapted to fit this study. These items were: "I express solutions to problems that have to do with work related issues", "I develop and make recommendations concerning issues that affect the work the team is doing" and "I communicate my opinions about work issues even if others disagree" (Cronbach's $\alpha = .79$). This last aspect was measured on a Likert scale ranging from 1 ("never") to 5 ("almost always").

The Cronbach's alpha of the aspect 'compromise' is lower than 0.7 (Cronbach's $\alpha = .66$) and was therefore not used in any further analyses. The remaining 3 aspects had sufficient alpha's and therefore regressions were done on the three different independent variables 'flexibility', 'voice' and 'information sharing'.

Innovation Performance

As innovation performance was measured on the individual level a construct had to be used that is based upon items regarding the individual. These items were taken from the study done by Janssen (2005) and adapted to fit this study. In that study nine items were used to measure innovative performance. However as some of these questions referred to getting support or approval for new innovations some were omitted. This left four items that were used in this study, namely: "to which degree do you transform new

ideas into useful application”, “to which degree do you generate original solutions to problems”, “do you create new ideas for improvements” and “do you look for new working methods, techniques or instruments” (Cronbach’s $\alpha = .86$). These items were all measured using a Likert scale ranging from 1 (“never”) to 5 (“almost always”).

Motivation to improve

Another construct that was measured is in what degree a person is motivated to improve. In order to do so, four items used by Breines and Chen (2012: p. 1139), that measures the motivation to improve the weaknesses of a person, were adapted to fit this study. The 4 items were: “I want to learn and improve myself”, “I want to find opportunities that challenge me and help me grow as a person”, “I feel capable of making positive changes” and “I feel confident that I can make positive changes” (Cronbach’s $\alpha = .85$). All respondents answered on a Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

Source of Feedback

The source of feedback is another construct that was measured, used to see whether or not the relationship between feedback seeking behavior and collaboration skills or innovation performance strengthens by it. To do so, three different items were used: “when looking for feedback, who would you rather approach”, “when looking for positive feedback, who would you rather approach” and “when looking for negative feedback, who would you rather approach” (Cronbach’s $\alpha = .84$). All items were measured on a Likert scale with a range of 1 (“always to a colleague”) and 5 (“always to my leader”).

Type of Feedback

The last construct measured was the effect of feedback type on the relationship of feedback seeking behavior with collaboration skills and innovation performance, whether or not the feedback sought was positive or negative. In order to measure the feedback type, items were measured regarding whether or not the feedback sought is positive or negative, when going to your colleague or leader. This resulted in the following two items: “when seeking feedback from your co-workers, is this negative or positive” and “when seeking feedback from your supervisor (manager, leader etc.), is this negative or positive” (Cronbach’s $\alpha = .88$). Both of these items were measured on a Likert scale ranging from 1 (“very negative”) to 5 (“very positive”).

3.3 Strategy of Analyses

Regression analyses were done to test the different relationships between the variables, as it is a good method to estimate relationships among different variables and can be implemented on smaller datasets. Before regression models could be used to test hypotheses, first multiple assumption tests had to be done to make sure the data was fit for analyses. To do so, first the data was tested for normality, by checking the P-P plots of all different linear regressions that would be done. No signs of non-normalities

were found in these plots, so it could be assumed the errors of the data followed a normal distribution. Second, the data was tested for heteroscedasticity by creating a scatterplot with the residuals and the predicted values for each model that would be tested in the regressions. In all scatterplots, no signs of heteroscedasticity was found and therefore it was assumed that the errors have a constant and equal variance. The third assumption that was tested was that of linearity, however as all of the tested models were homoscedastic and normally distributed, it was assumed that the predictor variables had a linear relationship with the outcome variable. Lastly, the dataset was tested for multicollinearity. This was done by testing the variance inflation factor (VIF) values for all variables in the models. All VIF values for all variables in all different regression models were just above 1, which is good as the values should be above 1 and below 10. Furthermore, in the correlation matrix in Appendix C can be seen that no coefficients are above 0.8 or higher, which would be an indicator of multicollinearity. As all assumption tests were completed and none were violated, the data can be used for regression analyses.

4. Results

This part will display and describe the outcomes of the regressions done for all the individual hypotheses outlined in the theoretical background. By doing so, the relationships between the different constructs will be better understood and can be seen whether or not this is agreement with the expected relationships that were put forth before. To achieve this, first an insight will be gained into the data by describing the general descriptive statistics, the mean and standard deviation, of each construct and their underlying correlations. Following this, the results of the regressions done to test each hypothesis will be outlined, where the moderators are described after their respective relationships are explained. Lastly, some additional analyses done to test mediating relationships will be described.

4.1 Descriptive Statistics

In Appendix C, Table 5, an overview is given of the descriptive statistics; the mean and standard deviation of all individual uncentered constructs and their correlations. Furthermore, the demographic variable 'age' is also added in Table 5 as it was measured as a scale variable and thus has a natural mean. Also, the variable is of specific importance as it is one of the variables, together with 'gender', being controlled for in all regressions. The correlation table gives specific insight in the direct relationships between the variables of interest in this study, showing that the bivariate correlation scores match the expected relationships for each non-moderative hypotheses. As can be seen, 'Empowering Leadership' significantly correlates with 'Feedback Seeking Behavior', at the .01 significance level. It also shows that 'Feedback Seeking Behavior' significantly correlates with 'Voice', 'Information Sharing' and 'Innovation Performance', also both at the .01 significance level.

4.2 Test of Hypotheses

This section will describe the results of each regression done to test each individual hypotheses. The order of this section will be of describing a direct relationship followed by the hypothesized moderator that would influence that direct relationship. In contrast to the descriptive statistics that were presented in the previous section, all regressions done to test the hypothesis were based upon mean centered constructs to improve interpretation. The results will be addressed here, and all the corresponding tables can also be found in Appendix D.

In Hypothesis 1 it was expected that 'Empowering Leadership' would have a positive relationship with 'Feedback Seeking Behavior'. In the regression done for Hypothesis 1 this relationship was confirmed as 'Empowering Leadership' was positively related to 'Feedback Seeking Behavior' ($\beta = .257, p < .05$), the results of which can be found in Table 6 (Model 2) below. The analysis therefore confirms Hypothesis 1: an increase in empowering leadership does indeed significantly increase the frequency of an employees'

feedback seeking behavior. However, the same cannot be said about Hypothesis 2, where it was expected that 'Motivation to Improve' would positively moderate the relationship between 'Empowering leadership' and 'Feedback Seeking Behavior'. The interacting effect was not significant in the regression done ($\beta = .319, p > .05$), the results of which can also be found in Table 6 (Model 3), which was unexpected.

Table 6. Regression results on Feedback Seeking Behavior.

Model		R^2	ΔR^2	β	t	Sig.
1				.055	.184	.854
	Age			.000	-.044	.965
	Gender			-.081	-.509	.612
		.003				
2				.038	.131	.896
	Age			.000	.037	.971
	Gender			-.091	-.587	.559
	Empowering Leadership			.257	2.307	.024*
		.064	.061			
3				-.285	-.978	.331
	Age			.006	1.102	.274
	Gender			-.026	-.177	.860
	Empowering Leadership			.176	1.628	.107
	Motivation to Improve			.479	3.260	.002**
		.172	.109			
4				-.337	-1.157	.251
	Age			.007	1.181	.241
	Gender			-.015	-.103	.918
	Empowering Leadership			.145	1.326	.189
	Motivation to Improve			.530	3.535	.001**
	EL x MTI			.319	1.477	.144
		.194	.022			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Following the previous analysis, the relationship between 'Feedback Seeking Behavior' and 'Innovation Performance' was tested in order to confirm Hypothesis 3, where it was expected this relationship to be positive. A significant relationship was indeed found ($\beta = .378, p < .01$), more results of the regression can be found in Table 7 (Model 2) below, while also showing that the relationship was as expected, as it was

positive. In Hypothesis 4a and 4b it was expected that the moderators 'Source of Feedback' and 'Type of Feedback', respectively, would positively influence that significant relationship. Regarding 'Source of Feedback', the interacting effect with Hypothesis 3 was not significant ($\beta = .06, p > .05$), further results can be found in Table 7 (Model 4). Therefore, no meaningful evidence was found that would confirm Hypothesis 4a.

Table 7. Regression results on Innovation Performance, with moderator Source of Feedback

Model		R^2	ΔR^2	β	t	Sig.
1				.064	.262	.794
	Age			-.001	-.164	.871
	Gender			-.051	-.388	.699
		.002				
2				.043	.199	.843
	Age			-.001	-.160	.873
	Gender			-.020	-.173	.863
	Feedback Seeking Behavior			.378	4.673	.000**
		.212	.210*			
3				.058	.261	.794
	Age			-.001	-.235	.815
	Gender			-.017	-.146	.884
	Feedback Seeking Behavior			.374	4.590	.000**
	Source of Feedback			.036	.548	.585
		.215	.003			
4				.068	.308	.759
	Age			-.001	-.323	.748
	Gender			-.015	-.126	.900
	Feedback Seeking Behavior			.368	4.515	.000**
	Source of Feedback			.060	.883	.380
	FSB x SoF			.117	1.178	.242
		.228	.013			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

In a similar fashion 'Type of Feedback' was tested, but that did not result in a significant interaction effect being found ($\beta = -.284, p > .05$), of which more comprehensive results can be found in Table 8 (Model 4) below. As such, Hypothesis 4b cannot be confirmed.

Table 8. Regression results on Innovation Performance, with moderator Type of Feedback

Model	R^2	ΔR^2	β	t	Sig.
1			.064	.262	.794
Age			-.001	-.164	.871
Gender			-.051	-.388	.699
	.002				
2			.043	.199	.843
Age			-.001	-.160	.873
Gender			-.020	-.173	.863
Feedback Seeking Behavior			.378	4.673	.000**
	.212	.210*			
3			.042	.192	.849
Age			-.001	-.160	.873
Gender			-.018	-.149	.882
Feedback Seeking Behavior			.371	4.503	.000**
Type of Feedback			.061	.486	.628
	.214	.002			
4			.097	.443	.659
Age			-.001	-.332	.741
Gender			-.024	-.205	.838
Feedback Seeking Behavior			.409	4.877	.000**
Type of Feedback			.057	.459	.648
FSB x ToF			-.284	-1.822	.072
	.246	.031			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Lastly, the relationships between 'Feedback Seeking Behavior' and the different collaboration skills 'Flexibility', 'Voice' and 'Information Sharing' were tested. It must be noted that, as said in the Method section, the collaboration skill 'Compromise' was not tested as the Cronbach's alpha was insufficient. However, the other skills were still expected to be positively influenced by 'Feedback Seeking Behavior', as said in Hypothesis 5. The moderating variables of 'Source of Feedback' and 'Type of Feedback' were also tested, which in Hypothesis 6a and 6b, respectively, were expected to positively moderate the relationship of 'Feedback Seeking Behavior' and the different collaboration skills. The regressions done on these variables resulted in mixed results.

Regarding the variable of 'Flexibility', the results below (Table 9, Model 2) show that there was no reason to believe a significant relationship between 'Feedback Seeking Behavior' and 'Flexibility' exists ($\beta = .029$, $p > .05$).

Table 9. Regression results on Flexibility, with moderator Source of Feedback

Model	<i>R</i> ²	ΔR^2	β	<i>t</i>	Sig.
1			.320	1.541	.127
Age			-.006	-1.540	.127
Gender			-.040	-.360	.719
	.030				
2			.319	1.525	.131
Age			-.006	-1.530	.130
Gender			-.038	-.337	.737
Feedback Seeking Behavior			.029	.379	.706
	.032	.002			
3			.276	1.327	.188
Age			-.005	-1.290	.201
Gender			-.047	-.422	.674
Feedback Seeking Behavior			.041	.529	.598
Source of Feedback			-.106	-1.734	.087
	.066	.034			
4			.280	1.337	.185
Age			-.005	-1.313	.193
Gender			-.046	-.412	.681
Feedback Seeking Behavior			.038	.496	.621
Source of Feedback			-.098	-1.506	.136
FSB x SoF			.042	.448	.655
	.069	.003			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

For the variable of 'Flexibility', the interacting effect was not found to be significant for both 'Source of Feedback' ($\beta = .042, p > .05$), Table 9 (Model 4) above, and 'Type of Feedback' ($\beta = -.106, p > .05$), the results of which can be found in Table 10 (Model 4) below.

Table 10. Regression results on Flexibility, with moderator Type of Feedback

<i>Model</i>	<i>R²</i>	<i>ΔR²</i>	<i>β</i>	<i>t</i>	<i>Sig.</i>
1			.320	1.541	.127
<i>Age</i>			-.006	-1.540	.127
<i>Gender</i>			-.040	-.360	.719
	.030				
2			.319	1.525	.131
<i>Age</i>			-.006	-1.530	.130
<i>Gender</i>			-.038	-.337	.737
<i>Feedback Seeking Behavior</i>			.029	.379	.706
	.032	.002			
3			.319	1.515	.134
<i>Age</i>			-.006	-1.521	.132
<i>Gender</i>			-.038	-.332	.741
<i>Feedback Seeking Behavior</i>			.029	.363	.718
<i>Type of Feedback</i>			.006	.052	.959
	.032	.000			
4			.339	1.592	.115
<i>Age</i>			-.007	-1.575	.119
<i>Gender</i>			-.040	-.352	.726
<i>Feedback Seeking Behavior</i>			.043	.525	.601
<i>Type of Feedback</i>			.005	.038	.969
<i>FSB x ToF</i>			-.106	-.700	.486
	.038	.006			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

In contrast to 'Flexibility', in Table 11 (Model 2) below it can be seen that 'Feedback Seeking Behavior' does significantly relate to 'Voice' ($\beta = .331, p < .01$), with a strong positive effect. This partly confirms Hypothesis 5 for the collaboration skill 'Voice'.

Table 11. Regression results on Voice, with moderator Source of Feedback

Model		R ²	ΔR ²	β	t	Sig.
1				-.409	-1.578	.118
	Age			.006	1.273	.206
	Gender			.192	1.379	.172
		.043				
2				-.427	-1.770	.080
	Age			.007	1.386	.169
	Gender			.219	1.686	.096
	Feedback Seeking Behavior			.331	3.716	.000**
		.181	.138*			
3				-.411	-1.688	.095
	Age			.006	1.292	.200
	Gender			.222	1.702	.093
	Feedback Seeking Behavior			.327	3.642	.000**
	Source of Feedback			.038	.525	.601
		.183	.002			
4				-.397	-1.640	.105
	Age			.006	1.187	.239
	Gender			.225	1.741	.085
	Feedback Seeking Behavior			.319	3.566	.001**
	Source of Feedback			.072	.961	.339
	FSB x SoF			.163	1.494	.139
		.206	.023			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

For the variable 'Voice' the moderating effects is also not significant. The interacting effect of 'Source of Feedback' was insignificant ($\beta = .163, p > .05$), for which the results can be seen in Table 11 (model 4) above, and the interacting effect of 'Type of Feedback' was also insignificant ($\beta = -.322, p > .05$), where the results can be found in Table 12 (model 4) below.

Table 12. Regression results on Voice, with moderator Type of Feedback

Model	R^2	ΔR^2	β	t	Sig.
1					
Age			-.409	-1.578	.118
Gender			.006	1.273	.206
			.192	1.379	.172
	.043				
2					
Age			-.427	-1.770	.080
Gender			.007	1.386	.169
Feedback Seeking Behavior			.219	1.686	.096
			.331	3.716	.000**
	.181	.138*			
3					
Age			-.422	-1.764	.081
Gender			.007	1.397	.166
Feedback Seeking Behavior			.210	1.626	.108
Type of Feedback			.353	3.939	.000**
			-.202	-1.481	.143
	.202	.021			
4					
Age			-.360	-1.514	.134
Gender			.006	1.236	.220
Feedback Seeking Behavior			.202	1.595	.115
Type of Feedback			.397	4.348	.000**
Type of Feedback			-.206	-1.540	.127
FSB x ToF			-.322	-1.898	.061
	.237	.035			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Finally, in Table 13 (Model 2) the results show that 'Feedback Seeking Behavior' has a significant, positive, relationship with 'Information Sharing' ($\beta = .189, p < .01$). Based on these results, Hypothesis 5 was partially confirmed: an increase in an employees' 'Feedback Seeking Behavior' will positively influence the collaboration skills of 'Voice' and 'Information Sharing', but not 'Flexibility'.

Table 13. Regression results on Information Sharing, with moderator Source of Feedback

Model	R^2	ΔR^2	β	t	Sig.
1					
Age			-.185	-.940	.350
Gender			.003	.878	.383
			.045	.423	.673
	.012				
2					
Age			-.195	-1.029	.307
Gender			.003	.923	.359
Feedback Seeking Behavior			.060	.588	.558
			.189	2.695	.009**
	.092	.080*			
3					
Age			-.203	-1.058	.293
Gender			.004	.960	.340
Feedback Seeking Behavior			.058	.568	.572
Source of Feedback			.191	2.702	.008**
			-.020	-.357	.722
	.094	.002			
4					
Age			-.209	-1.083	.282
Gender			.004	1.008	.317
Feedback Seeking Behavior			.057	.553	.582
Source of Feedback			.195	2.735	.008**
FSB x SoF			-.033	-.560	.577
			-.063	-.723	.472
	.099	.006			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

The results regarding the variable 'Information Sharing' and the moderating effects were of a similar nature as for the other collaboration skills. These show that the moderating effect of 'Source of Feedback' is not significant ($\beta = -.063, p > .05$), the results can be found in Table 13 (Model 4) above, and that 'Type of Feedback' is also not significant ($\beta = .031, p > .05$), of which the results can be found in Table 14 (Model 4) below. These results show, combined with the results of the other collaboration skills, that there is no basis to confirm Hypothesis 6a and 6b in this research.

Table 14. Regression results on Information Sharing, with moderator Type of Feedback

Model	R^2	ΔR^2	β	t	Sig.
1					
Age			-.185	-.940	.350
Gender			.003	.878	.383
			.045	.423	.673
	.012				
2					
Age			-.195	-1.029	.307
Gender			.003	.923	.359
Feedback Seeking Behavior			.060	.588	.558
			.189	2.695	.009**
	.092	.080*			
3					
Age			-.194	-1.018	.312
Gender			.003	.919	.361
Feedback Seeking Behavior			.058	.562	.576
Type of Feedback			.195	2.726	.008**
			-.052	-.482	.631
	.095	.003			
4					
Age			-.200	-1.033	.305
Gender			.004	.931	.354
Feedback Seeking Behavior			.058	.565	.573
Type of Feedback			.191	2.567	.012**
FSB x ToF			-.052	-.475	.636
			.031	.227	.821
	.095	.000			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

4.3 Additional Analyses

Based on the results after testing the hypotheses, the presumption of mediation with regard for 'Feedback Seeking Behavior' arose, between 'Empowering Leadership' and the different collaboration skills, and 'Innovation Performance', of which a visualization can be found in Figure 5 below. It was decided to run an extra regression to test this presumption, the results of which can be found in Appendix D, Table 15. In order to test for mediation, four steps were followed for these regressions (Baron & Kenny, 1986). For the first step, the effect of 'Empowering Leadership' had to be tested on the different dependent variables, Table 15 (Model 1), which resulted in 'Empowering Leadership' to have a significant effect upon the dependent variables 'Innovation Performance' ($\beta = .259, p < .01$), 'Voice' ($\beta = .341, p < .01$) and 'Information Sharing' ($\beta = .199, p < .01$), therefore validating the first step. In the second step it had to be

shown that there exists a direct effect of 'Empowering Leadership' on the mediator 'Feedback Seeking Behavior', which, as was already shown above, is the case (Table 6, Model 2). The third step consists of testing for a significant effect of the mediating variable 'Feedback Seeking Behavior' on the dependent variables, while controlling for 'Empowering Leadership'. As can be seen in Table 15, Model 2, this is the case for the three dependent variables that made it through step 1 (IP: $\beta = .337, p < .01$; V: $\beta = .266, p < .01$; IS: $\beta = .151, p < .05$). In the last step, the effect of 'Empowering Leadership' on the dependent variables must no longer be significant in the regression run in the previous step, showing that the mediator 'Feedback Seeking Behavior' takes over the direct effect of 'Empowering Leadership'. However, the results show, in Table 15 (model 2), that this was not case as 'Empowering Leadership' remained significant for the three dependent variables (IP: $\beta = .173, p < .05$; V: $\beta = .272, p < .01$; IS: $\beta = .160, p < .05$). But, as the significance of 'Empowering Leadership' did decrease for all three remaining dependent variables when including 'Feedback Seeking Behavior' in the model it is possible that partial mediation could be established. Therefore, the Sobel test was done as an extra test for mediation and to establish the significance of the mediation. The test showed that the mediation for 'Innovation Performance' and 'Voice' was significant, while it was insignificant for 'Information Sharing' (IP: $t = 2.074, p < .05$; V: $t = 1.966, p < .05$; IS: $t = 1.838, p > .05$). These results show that there is significant partial mediation of 'Feedback Seeking Behavior' on the dependent variables 'Innovation Performance' and 'Voice'.

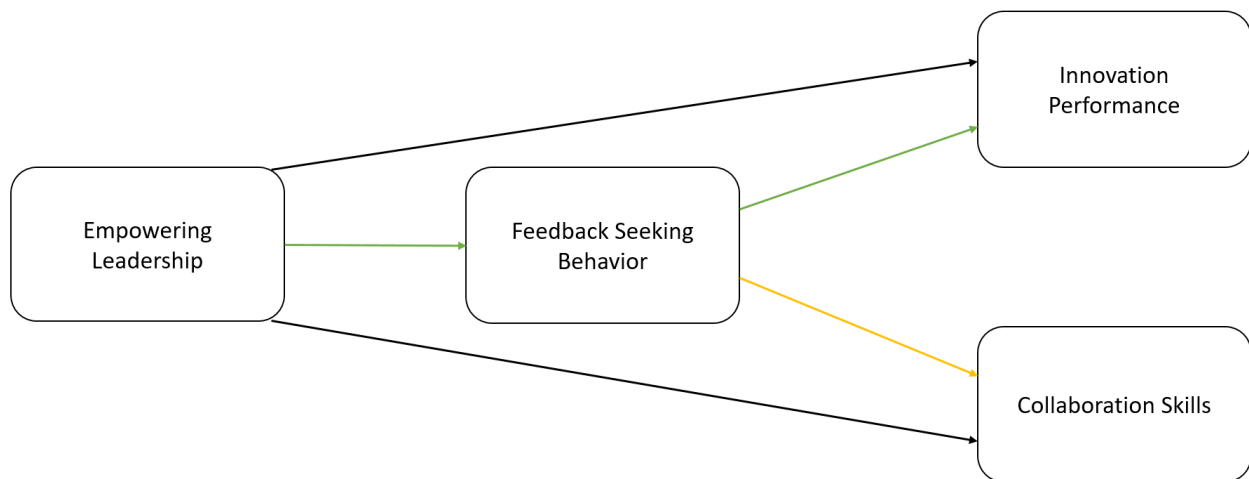


Figure 5. Visualization with Feedback Seeking Behavior as a mediator.

The results of the previous section for testing the hypothesis with regard for 'Empowering Leadership' and 'Feedback Seeking Behavior' also showed the possibility for 'Motivation to Improve' not being a moderator, but a mediator, of which a visualization can be found in Figure 6 below. This was therefore also tested using the steps of Baron and Kenny (1986) and the Sobel test. In Table 6 (Model 2) it can be seen that step 1 is satisfied as the effect of 'Empowering Leadership' on 'Feedback Seeking Behavior' is significant ($\beta = .257, p < .05$). An extra regression done for 'Empowering Leadership on 'Motivation to

Improve' satisfied step 2 ($\beta = .168, p < .05$), the results of which can be found in Appendix D, Table 16, Model 2. Step 3 was also satisfied, as Table 6 (Model 3) also shows that the 'Motivation to Improve' is significant upon 'Feedback Seeking Behavior' ($\beta = .479, p < .01$). Finally, 'Empowering Leadership' was also no longer significant ($\beta = .176, p > .05$), satisfying step 4. Surprisingly, the result of the Sobel test was not significant ($FSB: t = 1.781, p > .05$) and as such a mediating effect for 'Motivation to Improve' could not be established.

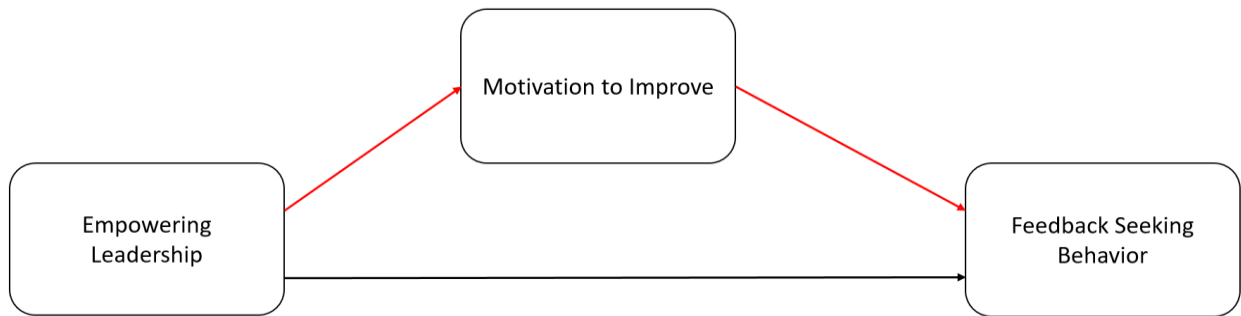


Figure 6. Visualization with Motivation to Improve as a mediator.

After doing the analysis on all regressions that were done in this study, it can be concluded that only the direct relationships hypothesized were significant, except regarding collaboration skills. This direct relationship could only partially be confirmed, as 'Voice' and 'Information sharing' was significant, were 'Flexibility' was not. None of the moderating effects theorized were found to be significant, even though 'Type of Feedback' did come close in effecting the relationship between 'Feedback Seeking Behavior' and 'Innovation Performance' significantly. Lastly, partial mediation of 'Feedback Seeking Behavior' was found after doing an extra analysis, on the dependent variables 'Innovation Performance' and 'Voice'. A discussion about why these results came forth will follow in the next section.

5. Discussion

The importance of collaboration and innovation for an organization is being increasingly recognized, resulting in organizations looking for ways to improve upon their innovation performance and the collaboration skills of their employees. Most studies focused on the effects of feedback seeking behavior on job or creative performance (Gong et al., 2017; De Stobbeleir et al., 2011). This study expands upon the research by researching a different kind performance (innovative) and specific collaboration skills, while trying to study them being effected by feedback seeking behavior. The purpose herein was to explore the relationships feedback seeking behavior might have with innovation performance and collaboration skills, with a moderating role for the type and the source of the feedback sought.

The leader can be influential in the improvement of employees. Therefore, the study also aimed to gain more insight into the potential influence of empowering leadership on feedback seeking behavior, where a moderating role for the motivation of an employee to improve was also investigated.

The results showed that empowering leadership is likely to increase an employees' feedback seeking behavior, and feedback seeking behavior is in turn positively related to innovation performance, voice, and information sharing, while a direct effect on innovation performance and voice is also being partially mediated by feedback seeking behavior. In particular, it demonstrates that employees who perceive their leader to be empowering, seek feedback more proactively, but also have higher innovative performance and collaboration skills. And those who seek more feedback are probably better collaborators and innovative performers. It shows that an employee that is empowered by their leadership to make their own decisions and take responsibility for their own actions will more frequently engage in feedback seeking behavior. This finding can be supported by the reasoning that empowered individuals are more proactive, which is a necessity for feedback seeking behavior, a relationship suggested by Sharma and Kirkman (2015) and found by Chen et al. (2018).

No support could be found for stating that the employees' motivation to improve would change the relationship between empowering leadership and feedback seeking behavior. This was unexpected, as it was theorized that people with a higher motivation to improve would seek out feedback more frequently when empowered by their leader. Possibly this is the case because people that are motivated to improve already seek out feedback more often, and that this is independent from the fact that they are under empowering leadership or not. Or when an employee feels more empowered, they might be more motivated to improve as they are now more responsible for their performance, results and decisions. Hints for this reasoning can be found in the results, as it shows indications of motivation to improve being a mediator. These were however nullified due to the Sobel test for a mediating effect of the motivation to improve being insignificant. More research would be needed on this topic to try and reach a definitive conclusion.

It was also found that feedback seeking behavior positively contributes to innovation performance. This finding is in line with other studies, who found that feedback seeking is important for creative and

innovative performance (De Jong et al., 2007; De Stobbeleir et al., 2011). It is possible that people that seek out feedback might do so regarding their ideas or implementations thereof, or that people that seek out feedback do so regarding that performance, and thus learning about the state of that performance. Then, employees would learn more and possibly faster, increasing their performance. Even though studies have shown that the type of feedback or source of feedback have varying effects on the result of feedback, this study could not find any meaningful impact of the type or source of feedback. In other words, whether or not the feedback sought was more often of a negative or a positive nature and whether or not the source of the feedback was more frequently sought from a colleague or an employee, this did not have an effect on the relationship between feedback seeking behavior and innovation performance. An explanation for this unexpected result of both moderating variables could lie in the fact that they both influence the results of feedback itself, but not the seeking behavior of it. However, more research would be needed in this field to reach a final conclusion with regard to those relationships.

Lastly, the results also revealed that feedback seeking behavior had a positive effect on the employee voice and their information sharing, but no support could be found that feedback seeking behavior had an impact on the flexibility of that employee. For all three collaboration skills it was expected that feedback seeking behavior would have a positive effect on those variables, and therefore it is unexpected that this was not the case for flexibility, and thus contradicting the findings of Beltrán-Martín and Roca-Puig (2013). The unexpected finding for flexibility could be explained by the possibility that it is harder for a person to learn to be more flexible in their work, on how to organize themselves and to accomplish his or her work in a certain way. As such, it would be harder to convert feedback into meaningful learning that would improve flexibility.

Also, the moderating influence of the type or source of feedback on any of the collaboration skills could not be supported by the results. Again, regarding the type of feedback, this is surprising as this was expected as research showed that different types of feedback had different results in their fields of research (Gong et al., 2017; VandeWalle, 2003). De Stobbeleir et al. (2011) suggested something similar regarding the source of feedback, where in that study it was suggested that seeking out feedback beyond the leader alone positively affected for example (creative) performance.

5.1 Theoretical contributions

Some of the existing research in the field of feedback has had a focus on the different consequences feedback would have, on for example innovation, collaboration or learning. However, feedback can not only be passively received, it can also be actively sought, and therefore this study took the different approach in researching feedback seeking behavior instead. As such, this study expands upon the literature by connecting feedback seeking behavior to specific collaboration skills. VandeWalle (2003) showed that feedback seeking behavior was connected to learning new skills, or improving existing ones, in general. However, the results of this study showed that this is not necessarily always the case, as 'flexibility' is not significant while 'voice' and 'information sharing' are, and such a generalization cannot

always be made. The result showed that employees can improve skills such as 'information sharing' and 'voice', but that the skill of 'flexibility' was not linked to a change in feedback seeking behavior. Regarding performance and feedback seeking behavior, the existing literature focused on job performance (Gong et al., 2017; Crommelinck & Anseel, 2013), task performance (Anseel et al., 2009) or creative performance (De Stobbeleir et al., 2011; Sijbom et al., 2018). The clear gap in the literature with the absence of innovation performance in this field of research has been narrowed by this research, and as such expands on said literature, by finding that feedback seeking behavior also increases, quite strongly, the innovate performance of the individual.

The study also expands on the literature by deepening the relationship between feedback seeking behavior and collaboration skills or innovation performance by including two moderators, the type and source of feedback. Even though the findings did not show any meaningful moderating effects of the type and source of feedback, this in itself is a contribution as research in this field is very limited. Existing research on the type of feedback had a focus on feedback seeking behavior itself or as a direct effect (Anseel et al., 2015). This research expands on the literature as it studies the type of feedback as a moderator. Even though it was expected that it would indeed influence the impact of feedback seeking behavior, as it was reasoned that some type feedback that was sought could be more effective than others, this was not one of the results in this study. However, this in itself is already a contribution to the literature.

Regarding leadership, most research has had a different focus than empowering leadership in trying to connect it with feedback seeking behavior, for example traditional leadership or a transformational leadership style (Anseel et al., 2015). The gap in the research for the leadership style of empowering leadership has now been narrowed by this study, showing that higher empowerment of employees does indeed increase their feedback seeking behavior, as expected. It also showed that feedback seeking can partially explain the positive relationship empowering leadership has with innovative performance and voice. In contrary, it was not expected that the motivation to improve of such employees would not strengthen that relationship, as this study found no results that would indicate such a moderating relationship.

To summarize, these finds expand upon research on feedback seeking behavior, certain collaboration skills, which are not necessarily all related to feedback seeking behavior, and innovation performance, which is a different part of performance. Furthermore, the field of empowering leadership and feedback seeking behavior has been broadened, as it shows that empowering leadership can also be of great importance for feedback seeking behavior.

5.2 Limitations

As with any study, this one has some limitations. The goal was to find insights into collaboration skills through four different skills, however only half of them were significant in the end, as the measure of 'compromise' lacked reliability and 'flexibility' had no significant relationship with feedback seeking

behavior. This makes it difficult to generalize beyond the significant skills of 'information sharing' and 'voice', it can for example not be said that collaboration in general is positively related to feedback seeking behavior (or not). It can also not be derived from this study that skills that are important for collaboration are influenced by feedback seeking behavior. More skills should be tested to see whether collaboration skills in general tend to improve through feedback seeking behavior.

Another limitation that is present in this study is dependent on the way the survey was set up. All data were self-reported, and therefore innovative performance, the level of their skills and feedback seeking behavior (and the other variables) were all rated by the participants themselves. This induces a bias in this study as participants might have overstated their own performance or level of skill (Podsakoff, 2003), which decreases the external validity of this research. This can be solved by measuring innovative performance on hard criteria and for example doing a longitudinal study.

However, a cross-sectional survey was used in this study as it is a good way to research relationships when the participants do not know which relationships are being researched, which is a great advantage (Mann, 2003). Furthermore, it is possible for participants to emphasize more on improvement or seeking out feedback when knowing that could bias the results when doing a longitudinal study, which was thus prevented in this study. Even though causal conclusions cannot be drawn for a cross-sectional survey, it does provide grounds for future research in the field of feedback seeking behavior and collaboration skills based upon a longitudinal study.

Also, empowering leadership was measured from the perspective of the employee, not the leader. Not only can self-report bias come into play here as participants might feel they have more power to make decisions than they might actually have, it is also possible they feel empowered where they actually aren't by their leader or take control anyway in the absence of a leader. This is possible as no specific group of people, for example where empowering leadership was implemented, was approached for this research.

5.3 Future research

This study leaves open opportunities for further research that might be interesting and beneficial, which will be discussed in this section. An important area in this regard is the limitation put forth in the previous section, regarding innovative performance. It might be interesting to see whether the relationship with feedback seeking behavior still holds strong for companies that measure innovative performance based upon the frequency of implementing innovations. This could lead to results that might be more grounded within innovative companies, departments or teams. It would be at the very least interesting to see whether people that work in a team that is responsible for NPD have similar results. Also, it would be interesting to see whether higher feedback seeking behavior would indeed also lead to more finalized, implemented innovation, in contrast to this study which had a focus on the idea generation and creative part of innovative performance.

Future research on collaboration skills in the field of feedback seeking behavior could try to incorporate a different approach in their research method. Seeking feedback does not immediately lead to better skills.

It takes time to learn and improve a skill. In order to find out whether or not feedback is actually used to improve a skill, such as information sharing, a longitudinal study would be needed, which is not done in this study. Even though this research shows, for example, that people that seek feedback more often score higher in their 'information sharing', whether or not this is due to them actually implementing their feedback and converting this into actually improving upon their collaboration skills should be researched. Lastly, there are opportunities for testing the type and source of feedback. These have been tested from the basis of intent, meaning, for example, 'what kind of feedback do you seek' and 'to who do you go for feedback'. These moderators were not significant in this study, however it is possible to, especially for the type of feedback, research that from the results of feedback seeking, for example what type of feedback the employee receive when looking for it. It is possible phrasing the questions regarding the moderators differently would yield different results.

5.4 Managerial implications

The results of this study put forth different important concepts that can be important for managers and employees, especially those working in teams. First of all, this study shows managers that it is important for their employees to seek out feedback. It strengthens their collaborative efforts and improves their innovative performance. Second, leaders should give their employees more responsibilities, ones that the leader would normally have, and give them the power to make important decisions that the leader would normally make. In other words, empower them. The results show that, when they feel empowered, employees seek out feedback more often, as the benefits of feedback seeking behavior are also established in this study it immediately shows the importance of empowering employees. Furthermore, it also shows that empowering leadership is still of importance if there is already a lot of feedback seeking behavior present, as it can also influence the innovative performance and collaborative skill of an employee. Empowering leaders can be implemented by giving employees more responsibilities and letting employees make decisions that would normally be made by the leader. Furthermore, the leader can take on a role as a coach and motivator in helping employees seek feedback.

In addition, employees can use the results of this research to see that seeking out feedback can have important benefits for their work. It shows that it is important to seek out feedback in the first place, and less so if it is positive or negative or from who that feedback is coming from. It can therefore spur employees to start, or emphasize on, looking for feedback to improve themselves. The value for such employee's only increases as the study shows that there are different facets of work (e.g. performance and collaboration skills) that can be influenced by seeking out feedback. Possibly there are other facets not researched in this study for which the benefits of feedback seeking behavior also apply, making it exceedingly useful to motivate employees in seeking out feedback.

Together, this study shows the importance of empowering leadership for seeking out feedback, but it also shows the results feedback seeking behavior can have upon those employees seeking it, with regards to innovation performance and (some) collaboration skills.

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Appendix A: Questionnaire

You are about to take part in a research regarding how people experience certain aspects of their work, such as for example collaboration. This research is conducted in order to make the next step in finishing my thesis and with that complete my Master Innovation Management at the Technical University of Eindhoven. As such, I have great interest in your work experiences.

Before starting to fill in this questionnaire I would like to address something of importance: First of all, filling in the questionnaire will take around 15 minutes of your time. And second, all information will be treated **confidentially** and will only be shared with other researchers from the Technical University of Eindhoven.

The questionnaire will start on the next page. Here, you will be shown multiple statements regarding your work and yourself. All statements have multiple possible answers, and I request that you make sure you only fill in one. The questionnaire ends with a couple of questions regarding your background information. In order to make a success out of this research and make this a useful questionnaire it is important to answer all questions. When in doubt of an answer, I would like to ask you to fill in the answer which you think is most appropriate. Keep in mind that there are no wrong answers, and try to fill in the answers that best suit your opinion. Thank you for your cooperation!

Lastly, I would like to say that it can be hard to get enough respondents for such a research. Hence, it would be extremely helpful for me and this research if you could ask some of your co-workers to also fill in this questionnaire. Again I would like to thank you for your cooperation.

If you have any more questions or need any information regarding this research or its results you can contact me by e-mail (t.schoondermark@student.tue.nl).

Thank you very much for your cooperation to this research.

Tom Schoondermark

Part 1: Collaboration

These first questions are about you and how you experience your job.

Code		Item					
			Strongly disagree	Disagree	Undecided	Agree	Strongly agree
MTI01	1.	I want to learn and improve myself.	1	2	3	4	5
MTI02	2.	I want to find opportunities that challenge me and help me grow as a person.	1	2	3	4	5
MTI03	3.	I feel capable of making positive changes.	1	2	3	4	5
MTI04	4.	I feel confident that I can make positive changes.	1	2	3	4	5

Code		Item					
			Strongly disagree	Disagree	Undecided	Agree	Strongly agree
F01	5.	I can change my work habits as demanded by changes in the working environment.	1	2	3	4	5
F02	6.	I am flexible enough to adjust to dynamic work requirements.	1	2	3	4	5
F03	7.	I can adjust to changing work requirements within a short period.	1	2	3	4	5

The following statements are about collaboration (with colleagues; in your (project) teams). To what extent do the following statements describe your experiences?

Code		Item					
			Strongly disagree	Disagree	Undecided	Agree	Strongly agree
PC01	8.	On a regular basis I have disagreements about delegating affairs.	1	2	3	4	5
PC02	9.	On a regular basis I have disagreements about the way work needs to be done.	1	2	3	4	5
PC03	10.	On a regular basis I disagree about how things need to be done.	1	2	3	4	5

Sometimes it can happen that there might be a difference in opinion between you and one or multiple colleagues. When this happens, to what extent do you behave similarly to the following statements?

Code		Item					
			Strongly disagree	Disagree	Undecided	Agree	Strongly agree
C01	11.	I try to find a middle course to resolve an impasse.	1	2	3	4	5
C02	12.	I keep on looking for a solution until I find one that both satisfy me and the other.	1	2	3	4	5
C03	13.	I evaluate the ideas from both sides until a solution is found that satisfies both sides.	1	2	3	4	5
C04	14.	I work out a solution that satisfies the interest and the other as much as possible.	1	2	3	4	5

Can you please indicate how frequent you express yourself in certain situations that are stated below?

Code		Item					
			Never	Rarely	Sometimes	Often	Almost always
V01	15.	I express solutions to problems that have to do with work related issues.	1	2	3	4	5
V02	16.	I develop and make recommendations concerning issues that affect the work the team is doing.	1	2	3	4	5
V03	17.	I communicate my opinions about work issues even if others disagree.	1	2	3	4	5

Can you please indicate to what extent you agree with the following statements? These statements are about information, relevant for individuals within the team, that you share with team members.

Code		Item					
			Strongly disagree	Disagree	Undecided	Agree	Strongly agree
IS01	18.	I freely shared information used to make key decisions among the members of the team.	1	2	3	4	5
IS02	19.	I work hard to keep team members up to date on their activities.	1	2	3	4	5
IS03	20.	I kept team members up to date about key issues regarding the work the team is doing.	1	2	3	4	5

Part 2: Your team leader

Can you please indicate to what degree your team leader shows the following behaviors?

Code		Item					
			Never	Rarely	Sometimes	Often	Almost always
PDM01	21.	My team leader encourages me to express and share ideas/suggestions.	1	2	3	4	5
PDM02	22.	My team leader listens to my ideas and suggestions.	1	2	3	4	5
PDM03	23.	My team leader gives me the chance to voice my opinion.	1	2	3	4	5

Code		Item					
			Never	Rarely	Sometimes	Often	Almost always
C01	24.	My team leader suggests ways to improve my performance.	1	2	3	4	5
C02	25.	My team leader encourages me to solve problems together with the rest of my team.	1	2	3	4	5
C03	26.	My team leader encourages me to exchange information with other team members.	1	2	3	4	5

Code		Item					
			Never	Rarely	Sometimes	Often	Almost always
I01	27.	My team leader explains decisions/comments to me taken outside the team.	1	2	3	4	5
I02	28.	My team leader explains all information to me regarding work that the team needs to do.	1	2	3	4	5
I03	29.	My team leader explains rules and expectations to me.	1	2	3	4	5
I04	30.	My team leader explains his/her decisions and actions to me.	1	2	3	4	5

Code		Item					
			Never	Rarely	Sometimes	Often	Almost always
SC01	31.	My team leader cares about my personal problems.	1	2	3	4	5
SC02	32.	My team leader shows concern for my well being.	1	2	3	4	5
SC03	33.	My team leader treats me as an equal.	1	2	3	4	5
SC04	34.	My team leader takes the time to discuss my concerns patiently.	1	2	3	4	5

Part 3: Feedback

Can you please indicate how frequent you seek out feedback regarding yourself? Feedback can be any information you can use to help you improve yourself.

Code		Item					
		How frequently do you:	Never	Rarely	Sometimes	Often	Almost always
FSB01	35.	Seek feedback from your colleagues regarding overall work performance?	1	2	3	4	5
FSB02	36.	Seek feedback from your supervisor (manager, leader etc.) regarding overall work performance?	1	2	3	4	5
FSB03	37.	Seek feedback from your colleagues regarding your skills in collaborating?	1	2	3	4	5
FSB04	38.	Seek feedback from your supervisor (manager, leader etc.) regarding your skills in collaborating?	1	2	3	4	5
FSB05	39.	Seek feedback from your colleagues regarding your social behavior?	1	2	3	4	5
FSB06	40.	Seek feedback from your supervisor (manager, leader etc.) regarding your social behavior?	1	2	3	4	5

Can you please indicate to what degree you seek out negative or positive feedback? Negative feedback has to do with bad behavior and the learning of your mistakes, while positive feedback has to do with good behavior and the confirmation of having done something well.

Code		Item					
			Very negative	Negative	Neutral	Positive	Very positive
TOF01	41.	When seeking feedback from your colleagues, is this negative or positive feedback?	1	2	3	4	5
TOF02	42.	When seeking feedback from your supervisor (manager, leader etc.), is this negative or positive feedback?	1	2	3	4	5

Can you please indicate to who you go more frequently when seeking out feedback? The choice is whether or not you go more to your colleagues or your team leader, with 1 meaning you always go to your **colleagues** and 5 meaning you always go to your **team leader**.

Code		Item							
SOF01	43.	When looking for feedback, who would you rather approach?	<i>Colleagues</i>	1	2	3	4	5	<i>Team leader</i>
SOF02	44.	When looking for positive feedback, who would you rather approach?	<i>Colleagues</i>	1	2	3	4	5	<i>Team leader</i>
SOF03	45.	When looking for negative feedback, who would you rather approach?	<i>Colleagues</i>	1	2	3	4	5	<i>Team leader</i>

Part 4: Performance

Below follows a list of different behaviors person can show during work. To what degree do you show these behaviors?

Code		Item					
		To which degree:	Never	Rarely	Sometimes	Often	Almost always
IP01	46.	Do you transform new ideas into useful applications?	1	2	3	4	5
IP02	47.	Do you generate original solutions to problems?	1	2	3	4	5
IP03	48.	Do you create new ideas for improvements?	1	2	3	4	5
IP04	49.	Do you look for new working methods, techniques or instruments?	1	2	3	4	5

Part 6: To conclude

To conclude here are some questions regarding your background. These are needed for the statistical analyses of all data.

Code		Item		
G01	50.	What is your gender?		Man
				Woman
G02	51.	What is your age?		Years
G03	52.	How many years of work experience do you have?	Less than 5	5 to 10
			11 to 20	More than 20
G04	53.	How many hours do you work per week, according to your contract?		Hours

G05	54.	Do you have a leading function?		Yes
				No
G06	55.	In how many teams do you currently work?	0	1
			2	3
			4	5 or more

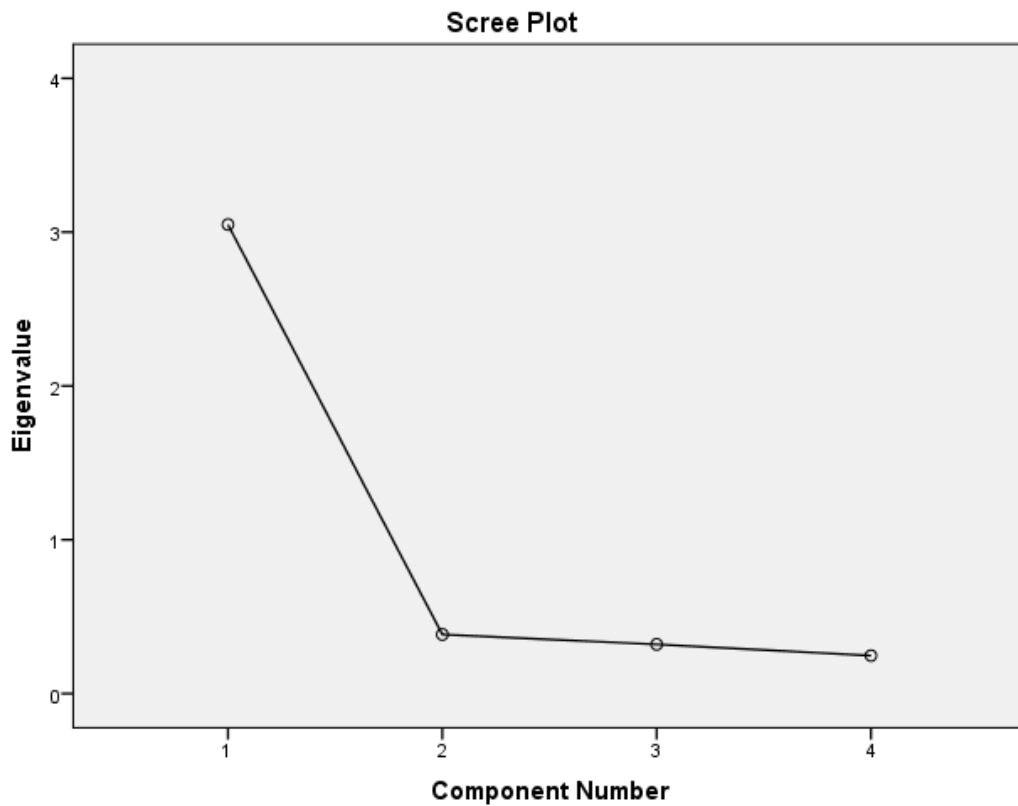
Code			
G07	56.		
In what sector are you currently employed? (please select one box)			
industry	<input type="checkbox"/>	communication	<input type="checkbox"/>
construction	<input type="checkbox"/>	government	<input type="checkbox"/>
trade	<input type="checkbox"/>	education	<input type="checkbox"/>
catering industry	<input type="checkbox"/>	healthcare	<input type="checkbox"/>
transportation	<input type="checkbox"/>	culture & leisure time	<input type="checkbox"/>
financial institution	<input type="checkbox"/>	agriculture	<input type="checkbox"/>
business services	<input type="checkbox"/>	other	<input type="checkbox"/>

Code			
G08	57.		
What is your highest education finished with a degree? (if your education is not part of the options, please select the one that is most similar)	<input type="checkbox"/>	Lower school	
	<input type="checkbox"/>	High school	
	<input type="checkbox"/>	College degree	
	<input type="checkbox"/>	Bachelor/master degree	

Appendix B: Exploratory Factor Analysis Empowering Leadership

Table 3. Eigenvalues EFA Empowering Leadership

Component	Eigenvalues		
	Total	% of Variance	Cumulative %
1	3.049	76.22	76.22
2	.384	9.61	85.83
3	.32	7.99	93.82
4	.247	6.18	100.00



Appendix C: Correlation Table

Table 5. Descriptives and Correlations

<u>Variables</u>	<u>Mean</u>	<u>Std.</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
1. Flexibility	3.93	.52									
2. Voice	3.85	.65	.09								
3. Information Sharing	4.14	.49	.06	.49**							
4. Feedback Seeking Behavior	2.86	.73	.05	.36**	.28**						
5. Type of Feedback	3.20	.48	.02	-.09	-.01	.17					
6. Source of Feedback	2.79	.92	-.20	.09	.00	.08	-.05				
7. Innovation Performance	3.56	.60	.18	.50**	.37**	.46**	.13	.09			
8. Empowering Leadership	3.52	.70	.09	.37**	.29**	.24*	.15	.34**	.30*		
9. Motivation to Improve	4.19	.55	.40**	.40**	.31**	.36**	-.01	.02	.56**	.22*	
10. Age	47.60	13.75	-.17	.14	.10	-.01	.00	.14	-.02	-.03	-.33**

*. Correlation is significant at the 0.05 level. **. Correlation is significant at the 0.01 level.

Type of Feedback scale: from 1 = 'Very negative' to 5 = 'Very positive'.

Source of Feedback scale: from 1 = 'Always to a colleague' to 5 = 'Always to my leader'.

Appendix D: Regression Analyses

Table 6. Regression results on Feedback Seeking Behavior, with moderator Motivation to Improve

Model	R^2	ΔR^2	β	t	Sig.
1			.055	.184	.854
Age			.000	-.044	.965
Gender			-.081	-.509	.612
	.003				
2			.038	.131	.896
Age			.000	.037	.971
Gender			-.091	-.587	.559
Empowering Leadership			.257	2.307	.024*
	.064	.061			
3			-.285	-.978	.331
Age			.006	1.102	.274
Gender			-.026	-.177	.860
Empowering Leadership			.176	1.628	.107
Motivation to Improve			.479	3.260	.002**
	.172	.109*			
4			-.337	-1.157	.251
Age			.007	1.181	.241
Gender			-.015	-.103	.918
Empowering Leadership			.145	1.326	.189
Motivation to Improve			.530	3.535	.001**
EL x MTI			.319	1.477	.144
	.194	.022			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 7. Regression results on Innovation Performance, with moderator Source of Feedback

Model	R^2	ΔR^2	β	t	Sig.
1			.064	.262	.794
Age			-.001	-.164	.871
Gender			-.051	-.388	.699
	.002				
2			.043	.199	.843
Age			-.001	-.160	.873
Gender			-.020	-.173	.863
Feedback Seeking Behavior			.378	4.673	.000**
	.212	.210*			
3			.058	.261	.794
Age			-.001	-.235	.815
Gender			-.017	-.146	.884
Feedback Seeking Behavior			.374	4.590	.000**
Source of Feedback			.036	.548	.585
	.215	.003			
4			.068	.308	.759
Age			-.001	-.323	.748
Gender			-.015	-.126	.900
Feedback Seeking Behavior			.368	4.515	.000**
Source of Feedback			.060	.883	.380
FSB x SoF			.117	1.178	.242
	.228	.013			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 8. Regression results on Innovation Performance, with moderator Type of Feedback

Model	R^2	ΔR^2	β	t	Sig.
1			.064	.262	.794
Age			-.001	-.164	.871
Gender			-.051	-.388	.699
	.002				
2			.043	.199	.843
Age			-.001	-.160	.873
Gender			-.020	-.173	.863
Feedback Seeking Behavior			.378	4.673	.000**
	.212	.210*			
3			.042	.192	.849
Age			-.001	-.160	.873
Gender			-.018	-.149	.882
Feedback Seeking Behavior			.371	4.503	.000**
Type of Feedback			.061	.486	.628
	.214	.002			
4			.097	.443	.659
Age			-.001	-.332	.741
Gender			-.024	-.205	.838
Feedback Seeking Behavior			.409	4.877	.000**
Type of Feedback			.057	.459	.648
FSB x ToF			-.284	-1.822	.072
	.246	.031			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 9. Regression results on Flexibility, with moderator Source of Feedback

<i>Model</i>	<i>R²</i>	<i>ΔR²</i>	<i>β</i>	<i>t</i>	<i>Sig.</i>
1			.320	1.541	.127
<i>Age</i>			-.006	-1.540	.127
<i>Gender</i>			-.040	-.360	.719
	.030				
2			.319	1.525	.131
<i>Age</i>			-.006	-1.530	.130
<i>Gender</i>			-.038	-.337	.737
<i>Feedback Seeking Behavior</i>			.029	.379	.706
	.032	.002			
3			.276	1.327	.188
<i>Age</i>			-.005	-1.290	.201
<i>Gender</i>			-.047	-.422	.674
<i>Feedback Seeking Behavior</i>			.041	.529	.598
<i>Source of Feedback</i>			-.106	-1.734	.087
	.066	.034			
4			.280	1.337	.185
<i>Age</i>			-.005	-1.313	.193
<i>Gender</i>			-.046	-.412	.681
<i>Feedback Seeking Behavior</i>			.038	.496	.621
<i>Source of Feedback</i>			-.098	-1.506	.136
<i>FSB x SoF</i>			.042	.448	.655
	.069	.003			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 10. Regression results on Flexibility, with moderator Type of Feedback

<i>Model</i>	<i>R²</i>	<i>ΔR²</i>	<i>β</i>	<i>t</i>	<i>Sig.</i>
1			.320	1.541	.127
<i>Age</i>			-.006	-1.540	.127
<i>Gender</i>			-.040	-.360	.719
	.030				
2			.319	1.525	.131
<i>Age</i>			-.006	-1.530	.130
<i>Gender</i>			-.038	-.337	.737
<i>Feedback Seeking Behavior</i>			.029	.379	.706
	.032	.002			
3			.319	1.515	.134
<i>Age</i>			-.006	-1.521	.132
<i>Gender</i>			-.038	-.332	.741
<i>Feedback Seeking Behavior</i>			.029	.363	.718
<i>Type of Feedback</i>			.006	.052	.959
	.032	.000			
4			.339	1.592	.115
<i>Age</i>			-.007	-1.575	.119
<i>Gender</i>			-.040	-.352	.726
<i>Feedback Seeking Behavior</i>			.043	.525	.601
<i>Type of Feedback</i>			.005	.038	.969
<i>FSB x ToF</i>			-.106	-.700	.486
	.038	.006			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 11. Regression results on Voice, with moderator Source of Feedback

<i>Model</i>	<i>R²</i>	<i>ΔR²</i>	<i>β</i>	<i>t</i>	<i>Sig.</i>
1					
<i>Age</i>			-.409	-1.578	.118
<i>Gender</i>			.006	1.273	.206
			.192	1.379	.172
	.043				
2					
<i>Age</i>			-.427	-1.770	.080
<i>Gender</i>			.007	1.386	.169
<i>Feedback Seeking Behavior</i>			.219	1.686	.096
			.331	3.716	.000**
	.181	.138*			
3					
<i>Age</i>			-.411	-1.688	.095
<i>Gender</i>			.006	1.292	.200
<i>Feedback Seeking Behavior</i>			.222	1.702	.093
<i>Source of Feedback</i>			.327	3.642	.000**
			.038	.525	.601
	.183	.002			
4					
<i>Age</i>			-.397	-1.640	.105
<i>Gender</i>			.006	1.187	.239
<i>Feedback Seeking Behavior</i>			.225	1.741	.085
<i>Source of Feedback</i>			.319	3.566	.001**
<i>FSB x SoF</i>			.072	.961	.339
			.163	1.494	.139
	.206	.023			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 12. Regression results on Voice, with moderator Type of Feedback

Model	R^2	ΔR^2	β	t	Sig.
1					
Age			-.409	-1.578	.118
Gender			.006	1.273	.206
			.192	1.379	.172
	.043				
2					
Age			-.427	-1.770	.080
Gender			.007	1.386	.169
Feedback Seeking Behavior			.219	1.686	.096
			.331	3.716	.000**
	.181	.138*			
3					
Age			-.422	-1.764	.081
Gender			.007	1.397	.166
Feedback Seeking Behavior			.210	1.626	.108
Type of Feedback			.353	3.939	.000**
			-.202	-1.481	.143
	.202	.021			
4					
Age			-.360	-1.514	.134
Gender			.006	1.236	.220
Feedback Seeking Behavior			.202	1.595	.115
Type of Feedback			.397	4.348	.000**
Type of Feedback			-.206	-1.540	.127
FSB x ToF			-.322	-1.898	.061
	.237	.035			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 13. Regression results on Information Sharing, with moderator Source of Feedback

<i>Model</i>	<i>R²</i>	<i>ΔR²</i>	<i>β</i>	<i>t</i>	<i>Sig.</i>
1					
<i>Age</i>			-.185	-.940	.350
<i>Gender</i>			.003	.878	.383
			.045	.423	.673
	.012				
2					
<i>Age</i>			-.195	-1.029	.307
<i>Gender</i>			.003	.923	.359
<i>Feedback Seeking Behavior</i>			.060	.588	.558
			.189	2.695	.009**
	.092	.080*			
3					
<i>Age</i>			-.203	-1.058	.293
<i>Gender</i>			.004	.960	.340
<i>Feedback Seeking Behavior</i>			.058	.568	.572
<i>Source of Feedback</i>			.191	2.702	.008**
			-.020	-.357	.722
	.094	.002			
4					
<i>Age</i>			-.209	-1.083	.282
<i>Gender</i>			.004	1.008	.317
<i>Feedback Seeking Behavior</i>			.057	.553	.582
<i>Source of Feedback</i>			.195	2.735	.008**
<i>FSB x SoF</i>			-.033	-.560	.577
			-.063	-.723	.472
	.099	.006			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 14. Regression results on Information Sharing, with moderator Type of Feedback

<i>Model</i>	<i>R²</i>	<i>ΔR²</i>	<i>β</i>	<i>t</i>	<i>Sig.</i>
1			-.185	-.940	.350
<i>Age</i>			.003	.878	.383
<i>Gender</i>			.045	.423	.673
	.012				
2			-.195	-1.029	.307
<i>Age</i>			.003	.923	.359
<i>Gender</i>			.060	.588	.558
<i>Feedback Seeking Behavior</i>			.189	2.695	.009**
	.092	.080*			
3			-.194	-1.018	.312
<i>Age</i>			.003	.919	.361
<i>Gender</i>			.058	.562	.576
<i>Feedback Seeking Behavior</i>			.195	2.726	.008**
<i>Type of Feedback</i>			-.052	-.482	.631
	.095	.003			
4			-.200	-1.033	.305
<i>Age</i>			.004	.931	.354
<i>Gender</i>			.058	.565	.573
<i>Feedback Seeking Behavior</i>			.191	2.567	.012**
<i>Type of Feedback</i>			-.052	-.475	.636
<i>FSB x ToF</i>			.031	.227	.821
	.095	.000			

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 15. Regression result testing for mediation Empowering Leadership, Feedback Seeking Behavior

Model	Innovation Performance			Flexibility			Voice			Information Sharing		
	β	Sig.	β	β	Sig.	β	β	Sig.	β	Sig.	β	Sig.
1		.841	.320		.133	-.431		.078		-.198		.300
	Age	.000	-.006		.136	.007		.139		.004		.317
	Gender	-.061	.628	-.043	.703	.178		.173		.037		.718
	Empowering Leadership	.259	.005**	.064	.426	.341		.000**		.199		.008**
2		.873	.316		.136	-.441		.059		-.204		.276
	Age	.000	-.006		.138	.007		.124		.004		.311
	Gender	-.031	.792	-.041	.715	.203		.106		.051		.614
	Empowering Leadership	.173	.046*	.060	.471	.272		.004**		.160		.033*
Feedback Seeking Behavior	.337	.000**	.015	.852	.266		.003**		.151		.036*	

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.

Table 16. Regression results testing for mediation Empowering Leadership, Motivation to Improve

<i>Model</i>	β	<i>t</i>	<i>Sig.</i>
1	.685	3.259	.002
<i>Age</i>	-.013	-3.142	.002**
<i>Gender</i>	-.129	-1.144	.256
2	.674	3.273	.002
<i>Age</i>	-.013	-3.130	.002**
<i>Gender</i>	-.136	-1.228	.223
<i>Empowering Leadership</i>	.168	2.129	.036*

*. Correlation is significant at the 0.05 level, **. Correlation is significant at the 0.01 level.