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Psychological Safety and How it is Affected by Leadership-styles

A Correlational Study on Startups

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Abstract

This study researched how the leadership styles from the CPE-model affect an employee's *psychological safety* levels within startup companies. This study attempted to contribute to the knowledge of startups, regarding which leadership-style in the CPE-model should be used to attain the highest *psychological safety* among the employees. 52 participants took part in this quantitative study. They completed an online survey. A standard multiple regression was performed examining how the leadership styles in the CPE-model affected the employees' *psychological safety* levels. It was found that the variance of *psychological safety* can be explained by the variance in the leadership-styles in the CPE-model. More specifically, it was found that CCL and ECL have a positive correlation with *psychological safety*, whereas PCL has a negative one. All the results gathered were significant. These findings indicate that if a leader of a startup wants their employees to be as psychologically safe as possible, ECL and focusing on the employees rather than change or production would be a more beneficial leadership style to use. The findings were discussed and future research was proposed.

Keywords – Psychological safety, CPE-model, Leadership, Startups, Leadership styles

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1 Introduction

1.1 Background

In a world where startups are becoming more common and employee well-being is a constantly growing concern for companies (Grant, Christianson & Price, 2007) the need to explore the relationship between the two is growing. The workforce in a startup company is substantially smaller than in a regular established company and the leaders are actively working with their employees on a closer and more ´hands-on` basis.

Psychological safety is “feeling able to show and employ one´s self without fear of negative consequences to self-image, status or career” (Kahn, 1990, p.708). The phenomenon has among other things proven to determine job performance (Brown & Leigh, 1996 and Edmondson, 1999). Startup companies are commonly described as small, young companies that are working with innovative ideas (Robehmed, 2013). Working in a startup is often a struggle as a lot of effort is required from a small number of people and employees never know when they are at risk of being out of a job because the company needs to fire staff or are even going bankrupt (Robehmed, 2013). In an, in many ways, unsafe environment, *psychological safety* can provide some stability and motivation. In startups, the employees are one of the biggest assets (Forrest, 2015), and it is important that these employees can think and act in an innovative way to be able to push the company forward. To be able to do that, they do of course need to feel able to act without fearing consequences for their career.

It has been shown that leadership behavior is a predictor of *psychological safety* (Tynan, 2005). A leader’s behavior can be categorized into leadership styles. There are many different leadership style models that categorize behaviors and attitudes into different styles. This study focuses on the CPE-model that categorizes the leadership into *Change, Production*, and *Employee-centered leadership*. The model was chosen because it categorizes the leadership style on the basis of the behavior rather than self-perceived attitudes (Ekvall & Arvonen, 1994), which corresponds with the previous statement that *psychological safety* has been shown to correlate with leadership behaviors. When researching the concepts, no previous research regarding the impact of specific leadership styles on *psychological safety* was found. Similarly, no literature was found examining *psychological safety* nor leadership styles in startups. This study aims to bridge the gap in the research stated

above and provide startup companies with knowledge regarding how the independent variable (leadership style) affects the level of the dependent variable (*psychological safety*) amongst the employees.

1.2 Purpose

The study is conducted based on the previous research of the CPE-model and *psychological safety*. The purpose of the study is to breach the gap in research and examine if and how the employee's perception of their leader's leadership-style affects their *psychological safety*, in the context of startups. The hope is to thereby contribute to the knowledge of startups, regarding which leadership-style in the CPE-model should be used to reach the highest *psychological safety* amongst their employees. The results will be important to startups as they are based on innovative actions, in order to act in a new and innovative way one needs to feel safe that they will not be reprimanded for their actions. *Psychological safety*, therefore, seems to be an integral part of ensuring the success of a startup by encouraging one of their most important assets to think and act innovatively.

1.3 Disposition

To guide the reader through this thesis, an outline is provided.

Introduction. This section gives the reader a background to the topic and the independent variables, the CPE-model's leadership styles, as well as the dependent variable, *psychological safety* are introduced. Further, the purpose of the study is outlined.

Literature Review. The second chapter outlines the best and most relevant available knowledge found on leadership styles, *psychological safety* and startup companies. Furthermore, the study´s four hypotheses are presented in this section.

Method. Chapter three presents the method of this study. It outlines the quantitative approach, describes the survey used in the study and how the data was analyzed, as well as the ethical concerns and limitations of this approach.

Results. Chapter four examines the results, gathered through the survey and examined in SPSS. The results are presented according to the hypotheses.

Discussion. Chapter five discusses the findings, the method used in the study and possible future research options.

Conclusion. Chapter six concludes the findings and the discussions presented in the thesis.

2 Literature Review

2.1 Psychological Safety

Psychological safety as a concept has been around for decades and has roots in early research regarding organizational change. Schein and Bennis (1965) argued about the necessity of creating *psychological safety* amongst individuals in order for them to feel secure and capable of changing. Although the construct has been discussed for years, the majority of the studies that have investigated it have done so with more of a team or organizational focus. The studies regarding individual levels of *psychological safety* are relatively few (Chen, Gao, Zheng & Ran, 2015). *Psychological safety* is a construct that has been used across a variety of levels. Arguably, most famously it has been defined as a team concept, as “a shared belief that the team is safe for interpersonal risk taking” (Edmondson, 1999, p.354). However, team *psychological safety* is not the same as group cohesiveness. Opposingly, research has shown that cohesiveness may reduce willingness to disagree and challenge others' views, much like in the phenomenon groupthink (Janis & Janis, 1982), implying a deficiency of risk-taking on an interpersonal level. *Psychological safety* is not meant to imply a careless sense of agreeability or even a relentless positive effect but, instead, it suggests a sense of “confidence that the team will not embarrass, reject, or punish someone for speaking up” (Edmondson, 1999, p.354). Mutual respect and trust amongst the individuals in the team lead to this confidence being built (Edmondson, 1999). Although the definition of *psychological safety* in teams is arguably the one that is most commonly used, it has also been applied to an organizational setting and has been defined as “a kind of employees’ perceptions about organizational environment characteristics, including three specific aspects of perception: the support of management, clear job roles and the allowance for self-expression” (Brown & Leigh, 1996).

However, despite these previous ways of describing the construct, this study will be examining *psychological safety* on an individual level. *Psychological safety* is a construct that has been defined in almost as many different ways as there are studies regarding it. However, the definition that this paper will be centered around is the following; “*Psychological safety* is feeling able to show and employ one´s self without fear of negative consequences to self-image, status or career” (Kahn, 1990, p.708).

Psychological safety describes a climate represented by interpersonal trust and mutual respect where individuals feel comfortable being themselves (Edmondson, 1999). Kahn (1990), indicates four other factors that influence *psychological safety* most strongly in his studies: interpersonal relationships, group, and intergroup dynamics, management style and process, and organizational norms. *Psychological safety* should drive learning behavior within work teams because it reduces needless concerns that employees may have relating to others' reactions to actions that could result in embarrassment or other threats. Improved learning behavior has been shown to then improve job performance (Edmondson, 1999). A lot of research has surrounded *psychological safety* and the benefits it provides in relation to job performance. Empirical research has found that *psychological safety* has a positive impact on an individual's job involvement. (Brown & Leigh, 1996 and May, Gilson & Harter, 2004). A link has also been established regarding the employees´ improved job involvement and a positive influence on their work effort and job performance (Brown & Leigh, 1996). A sense of *psychological safety* allows individuals to overcome any anxiety they may be experiencing and use new information well (Sagnak, 2017). This is, therefore, a beneficial trait for companies to attempt to instill in their new recruits as soon as possible as it may help minimize the effects of any potential learning anxiety. *Psychological safety* is, therefore, an element that any workplace should aim to attain amongst their employees. As shown above, there are various positive effects that the construct has on job performance.

2.1.1 Psychological Safety and Leadership. In relation to establishing *psychological safety* amongst a workforce, it has been shown that the management style is correlated with individual *psychological safety* (Kahn, 1990). Tynan (2005) also pointed out that leadership behavior is the most effective predictor variable with regards to employee *psychological safety*. Although there is not one “correct” way to lead or manage a team, it appears that there are certain traits that will help ensure *psychological safety* amongst the employees. The CPE-model, that is used in this study, categorizes leadership styles based on leadership behaviors which have been shown to be an effective predictor for *psychological safety*. Kahn (1990) believed early on that a supportive and open style from a manager may play a promoting role in *psychological safety*. To support this belief, it has been found that when team leaders provide coaching and support to their employees it is positively associated with team *psychological safety* (Edmondson, 1999 & May et al, 2004). Environments

that contained supportive managerial presences provided individuals the comfort required to try and to fail without fear of the consequences (Kahn, 1990). Ning & Jin (2007) also confirmed that the opposite approach, an abusive supervisory style, leads to a negative impact on employees' *psychological safety.* Where managers were reluctant to loosen their control, it resulted in their employees feeling as if they were not to be trusted and therefore feared to overstep their boundaries and potentially trying new things (Kahn, 1990). Additionally, when managers act unpredictably and inconsistently this conveys mixed messages to their employees and results in them being perceived as distrusting (Kahn, 1990). Therefore, a team leader's behavior is distinctly important because team members are likely to pay attention to one another's actions and responses but will always be extremely aware and affected by their leader's behavior (Tyler and Lind, 1992).

2.2 Startup Companies

According to the business magazine Fortune's Global 500 list, where they rank the world's biggest companies, today's biggest companies are still dominated by oil, gas and car companies, with seven of the spots on the top ten list (Fortune, 2018). However, Fortune also lists the 100 fastest growing companies. This list paints a picture of a different future, of the top ten, eight spots are occupied by innovative companies that provide relatively new products such as Facebook and Nvidia as well as companies that have found new innovative solutions to old problems, such as Stamps.com and Amazon.com (Fortune, 2018). This shows the power that innovation has today, and many, if not most, of the successful innovative companies, were initially startups.

There are almost as many definitions of startups as there are startups. The phenomenon has been described as a state of mind, a business that just started operations, a company no older than three years but also as a company up to ten years old (Robehmed, 2013). Whilst all of these explanations may be true, they are not clear enough to establish a comprehensive definition of the population of this study. In this thesis, the definition of a startup will be a company no more than eight years old with a maximum of 15 employees. The company should work in an innovative way.

Sweden has for a long time been leading when it comes to startups, with a long list of successful startups emerging from the country. Skype, Spotify, Klarna,

and iZettle are just some of the innovating companies that started as small startups in Sweden. In the Forbes article “Why The Third Wave Of Swedish Startups Will Be More Successful Than Spotify, Skype And King”, the author describes the startup's history in Sweden as three waves. The first one being created by “geeks” that worked for a long time before getting accepted, the second wave being dominated by big names, money and “hype” and the third and present wave being defined by the success of many through finding ways of improving society. The startups in the third wave are not trying to replicate what the companies in the previous two waves did, instead, they innovate the way they work and try to find new ways of working (Warström, 2018).

With the creation of startup companies becoming increasingly more common, this results in a simultaneously rising amount of competition. Startups are not only competing with established companies but have to face one another as well. It can be argued that due to the size of startups and the low average number of employees, that startup companies are more dependent on their employees performing highly. The competence of their employees is a startup's biggest resource (Forrest, 2015). By bridging the gap in the research stated in the purpose section of this study, startups could further increase the likelihood of having a higher level of *psychological safety* amongst their employees, which in turn could result in a better chance of having a successful company.

Due to the nature of startups where innovation is at the forefront, *psychological safety* becomes important as it allows the employees to try and to fail without fear of the consequences (Kahn, 1990).

2.3 The CPE-Model

How leaders influence their teams could be considered one of the most rapidly growing research areas (Al-Malki & Juan, 2018). Leadership styles are the sets of skills and characteristics that are used by a manager to influence their subordinates (Hansson & Molander, 2013). There are several different leadership style theories, such as: Transactional leadership (Bush, 2007) and Situational leadership (Hersey & Blanchard, 1982). The concept has been researched since the 1940/50s when perhaps the most influential studies on the subject were conducted. The Ohio State leadership studies and The Michigan leadership studies, both found, as have almost all studies after them, two categories of leaders, one focused on the

production and the other focused on human relations (Hansson & Molander, 2013). At the beginning of the 1960s, the CPE-model was called The two-dimensional model and only entailed two styles, the ones mentioned above. Since the old model only described leadership in the stable environment an addition of Change-centered leadership was made. The two-dimensional model was not seen as sufficient enough when organizations were forced to make changes due to the competition in the labor market (Arvonen & Pettersson, 2002).

The CPE-model is used as a tool to determine the leadership style of a person based on their behaviors. The model contains the three leadership styles: Change-centered leadership (CCL), Production-centered leadership (PCL), and Employee-centered leadership (ECL), hence “CPE”. CCL focuses on changes and development, PCL focuses on the structure and getting the tasks done while ECL focuses on relationships (Ekvall & Arvonen, 1994).

Based on the previous findings stated above the first hypothesis of this study was formulated. The findings that influenced the creation of the hypothesis are namely: Kahn (1990) that management style is correlated with an individual's *psychological safety* and Tynan’s (2005) findings regarding leadership behavior being the most effective predictor of *psychological safety.*

Hypothesis 1: The variance in the leadership-styles in the CPE-model will be able to explain the variance of *psychological safety*.

2.3.1 Change-Centered Leadership. CCL is a leadership style that focuses on listening to and accepting new ideas as well as encourage cooperation. A leader of this leadership-style does not feel the need to finish a plan for the sake of it, nor do they have any problem making quick decisions. The focus is on development, both on the work itself as well as on the organization (Ekvall & Arvonen, 1991). Flexibility is a notable trait in a change-centered leader. Flexibility is important to be able to facilitate development and innovation within an organization. In this leadership-style, subordinates are often given a prominent role within the hierarchy, this is one of the strengths of the style (Ekvall & Arvonen, 1991).

Yukl, Gordon & Taber (2002) named four behaviors that describe the leadership style. They are external monitoring, envisioning change, encouraging innovative thinking and taking personal risks to implement change.

External monitoring is important in order for the leader to identify threats and opportunities for the organizations, posted by the external environment. The leader scans the environment and then processes the information. (Yukl et al., 2002)

Envisioning change is important to be able to see a vision of a better future and being able to deliver the vision to subordinates. Good vision can be effective in influencing the motivation and commitment of the subordinates.

Encouraging innovative thinking is an important addition to ensure that employees propose new innovations of their own. This behavior can also lead to intellectual stimulation for the employees which could lead to new ideas being implemented, which in turn challenges the employees (Arvonen & Pettersson, 2002; Yukl et al., 2002).

Taking personal risks to implement change is the fourth and final CCL-behavior described by Yukl et al. (2002). Implementing change can be risky, but a change-centered leader is expected to take some personal risk to implement change, even when change does not seem needed. (Yukl et al., 2002)

The findings stating that employees under an employee-centered leader often get a more prominent role in the hierarchy (Ekvall & Arvonen, 1991) and the behaviors stated by Yukl (1989), namely encouraging innovative thinking and taking personal risks to implement change were considered the most significant information to use as the basis for the second hypothesis of this study.

Hypothesis 2: Change-centered leadership will correlate positively with *psychological safety*.

2.3.2 Production-Centered Leadership. A PCL leadership style primarily focuses on production and results. Whatever the company is selling needs to be manufactured so that it can be sold or provided in terms of goods or services. The wellbeing of the employees can only be seen as a bonus and is secondary in the interest of the production centered leader (Likert, 1961). Leaders with a high degree of PCL are often controlling, thorough in planning and clear when giving instructions (Arvonen & Pettersson, 2002).

According to Yukl et al. (2002), short term planning, clarifying responsibilities- & monitoring operations and performance are all specific production-centered behaviors.

Short term planning is the activity of deciding what should be done in the future when it needs to be done, who should do it and how it should be done. Planning is often most easily visible when the plan is taken into action, a process in which the other two behaviors named below, often are included.

Clarifying responsibilities is the process of communicating plans, policies and roles. The most important part is to make sure that subordinates know who is supposed to do what and how they are supposed to do it, partly by setting task objectives (Yukl et al., 2002). It is one of the most studied leadership behaviors and has been proved to have a big impact on the leadership (Yukl, 1989).

Monitoring operations and performance mainly concerns gathering information about the work´s progression, employees' individual performance, the quality of product or service, and the success of the operation. Monitoring can take many forms, such as reading reports, observing works or holding a meeting, among others. (Yukl et al., 2002)

As stated in the *psychological safety* section of the literature review, an abusive supervisory style leads to a negative impact on employees' *psychological safety* (Ning, Jin & Mingxuan, 2007) and when managers wanted to keep their control over the employees it lowered the employees' *psychological safety* as they were afraid to overstep their boundaries (Kahn, 1990). These are behaviors that can be seen in production-centered leaders, they often act controlling by monitoring their subordinates' results and performance (Arvonen & Pettersson, 2002 and Yukl, 1989). These findings were the basis for the third hypothesis of this study.

Hypothesis 3: Production-centered leadership will correlate negatively with *psychological safety*.

2.3.3 Employee-Centered Leadership. ECL's primary focus is on the employees in the organization. The main priority for the leader is to care for the people and their wellbeing in order to create good relationships. Strong relationships are then believed to create better results and higher efficiency (Likert, 1961).

According to a study made by Yukl et al. (2002), there are five behaviors that are typical for ECL: supporting, coaching, recognizing, consulting and empowering. Supporting is defined as a leader's shown consideration, acceptance, and interest for feelings and needs of its employees. Supporting leadership has been shown to

be successful in building relationships but also maintaining already existing ones. The stronger relationships facilitate a happier environment and more satisfied employees. (Yukl et al., 2002)

Coaching is a broad concept. In the studies regarding ECL, it has been defined as the leader's ability to guide an employee by showing how a task should be completed and help the employees to learn from their mistakes. By explaining the task rather than showing how to complete a task, the leader can amplify the employees' chance of learning and developing. (Yukl et al., 2002)

Another important behavior amongst employee centered leaders is recognizing. It often includes different kinds of rewards, but recognizing is a clear and important behavior regardless of reward. (Yukl et al., 2002)

Consulting behavior is mainly based around including employees in important decisions. Using consulting can result in many benefits including better decisions and employees having a greater acceptance with the made decisions. (Yukl et al., 2002)

A leader is empowering when they delegate and provide autonomy as well as discretion to their employees. The behavior can make employees more committed to efficiently implement decisions and do a more qualitative job as the subordinate's expertise grows larger than the leaders'. (Yukl et al., 2002)

A leader with a high degree of ECL has been shown to often be the most popular among their employees (Ekvall & Arvonen, 1994).

As stated in the *psychological safety* section of the literature review, a supportive and open style from a manager may play a promoting role in *psychological safety* (Kahn, 1990). Furthermore, support and coaching provided by leaders are positively associated with *psychological safety*. Both support and coaching are behaviors stated by Yukl (1989) as typical behaviors in an employee-centered leader. Another thing that has been stated as influential for *psychological safety* is interpersonal relationship (Kahn, 1990), a phenomenon that is central within ECL. These factors created the basis for the study's fourth and final hypothesis.

Hypothesis 4: Employee-centered leadership will correlate positively with *psychological safety*.

2.4 Summary of Literature Review

Psychological Safety	"*Psychological safety* is feeling able to show and employ one´s self without fear of negative consequences to self-image, status or career" (Kahn, 1990, p.708). It has been shown that leadership behavior is the most effective predictor variable with regards to employee *psychological safety* (Tynan, 2005).
Startup Companies	The definition of a startup company for this study is a company no more than eight years old with a maximum of 15 employees. The company should work in an innovative way. It can be argued that due to the size of startups and the low average number of employees, that startup companies are more dependent on their employees performing highly. The competence of their employees is arguably a startup's biggest resource (Forrest, 2015).
CPE-Model	The CPE-model is used as a tool to determine the leadership style of a person based on their behaviors. The model contains the three leadership styles: *Change-centered leadership* (CCL), *Production-centered leadership* (PCL), and *Employee-centered leadership* (ECL). CCL is a leadership style that focuses on listening to and accepting new ideas as well as encourage cooperation. The primary focus of a PCL leadership style is on production and results. ECL's primary focus is on the employees in the organization. (Ekvall & Arvonen, 1994)

3 Method

3.1 Procedure

Firstly, the two constructs *psychological safety* and the CPE-model were identified as interesting research topics and the gap in research regarding the use of the two together in startups were noted. Different alternative questionnaires were researched. After deciding which ones would be used, a survey was constructed. The survey was distributed using Google Forms. The Survey was sent to different start-up companies, startup hubs and incubators in Sweden. The contact person at each company then forwarded the survey to the employees and the contact person at each hub/incubator distributed the survey to all the startups active within their locations. A total of 52 employees answered the survey. When the data had been collected, a multiple regression analysis was conducted using SPSS.

3.2 Design

A correlational study was conducted through a survey. The participants were selected using a purposive sampling. The study examined the correlation between;

- *Psychological Safety* levels (Dependent Variable) and *the CPE-model* (Independent Variable)

- *Psychological Safety* levels (Dependent Variable) and *Change-centered leadership* (Independent Variable)

- *Psychological Safety* levels (Dependent Variable) and *Production-centered leadership* (Independent Variable)

- *Psychological Safety* levels (Dependent Variable) and *Employee-centered leadership* (Independent Variable)

All three of the leadership styles were considered as separate independent variables. This study involved minimal interference as the data was collected via a survey. The study was conducted in a noncontrived setting (Sekaran & Bougie, 2016).

3.3 Material

3.3.1 Survey. An in-depth description of the various subsections of the survey used in this study will be provided. The Survey contained three subsections.

Section 1: This section contains some simple questions regarding descriptive information about the respondents. It contained 3 questions; firstly, it asks about the participant's ´Gender`. Secondly, it addresses their age. This contains five options: ´18-25, 26-35, 36-45, 46-55, 56+`. Age groups were used instead explicitly stating one's age in order to further the participants' anonymity. The third and final question of this section is about how many employees (that are not in the leadership position) work at the startup and the potential answers were; ´1, 2, 3, 4-9 or 10-15`.

Following this are two sections which each contain a different standardized questionnaire: The CPE-model and the *Team Psychological Safety Scale* (See Appendix B).

Section 2: The *CPE-model* section examines the leadership styles by having the participants answer to what extent their leaders display certain behaviors. The participants are given 30 statements regarding their leader's behavior, to which the participants will answer whether they disagree or agree. This is done on a three-point scale. An example of a statement is displayed below;

My manager pushes for growth

Disagree *1.* *2.* *3.* *Agree*

Ten questions are associated with CCL, ten with PCL and ten with ECL (See Appendix B). An average is then calculated for the ten CCL questions, giving an average score for the managers CCL, and the same procedure is done for PCL and ECL. In other words, every participant produces an average for each of the three leadership styles.

Section 3: The *Team Psychological Safety Scale* subsection of the survey examines the participants' *psychological safety* levels. This section is comprised of seven questions. Each question provides the participant with a statement regarding the *psychological safety* of their workplace. The participants indicate their response by selecting the option that best represents how they interpret their working

environment to be. The options they must choose from are on a five-point scale. An example of a question and the potential answers is provided below;

Members of this team are able to bring up problems and tough issues.
Disagree 1. 2. 3. 4. 5. Fully Agree

To avoid any biases, such as; participants answering number 5 on every question, three of the seven questions are reversed and asked with a negative assumption as a base. An example is displayed below;

If you make a mistake on this team, it is often held against you.
Disagree 1. 2. 3. 4. 5. Fully Agree

These questions have to be reversed before analyzing the data. The scores were reversed as followed; 1=5, 2=4, 3=3, 4=2 and 5=1. The questions that require this score reversal are the questions: 1, 3 and 5. The final scores for this subsection of the survey are then acquired by measuring the average score across all seven items.

3.3.2 Type of Survey. The type of survey used in this study is an ´Internet-mediated questionnaire` which was used because the size of the sample can be kept large, while the likelihood of contamination could be kept low. Since time was of the essence, the fact that this survey is relatively fast in terms of completion and collection was beneficial for this study (Saunders, 2011).

3.3.3 Why a Survey? There are various alternatives available for researchers to use to gather data in a study, such as interviews, questionnaires and observations. Ultimately, it was decided that a survey would be used for this research project. Surveys are extremely commonly used data collection techniques within the survey strategy (Saunders, 2011). To be able to quantify the study, all participants were asked to answer the same question to be able to quantify, standardize and compare the answers. The survey provided this study with a more efficient way of collecting responses from a large sample that would be standardized data, which would allow this study to make easy comparisons through quantitative analysis. Because of the constant evolution of technology, surveys are now a part of people's everyday lives as they can be encountered on a regular basis across a wide

spectrum of different circumstances, for example; in lectures, in the workplace, at restaurants, etc. (Saunders, 2011). This means that individuals are now comfortable with and accustomed to filling out self-administered surveys. In addition to that, the survey strategy is relatively easy to explain and comprehend. The use of surveys is also a popular and common strategy in business and management research (Saunders, 2011). Furthermore, a deductive approach will be applied throughout this study and this type of research method is usually associated with surveys (Saunders, 2011). However, there are also drawbacks to using questionnaires. The response rate to online questionnaires is usually low. A 30% response rate is usually regarded as acceptable among online questionnaires (Sekaran & Bougie, 2016). Researchers that send out email invitations to their studies may face issues, unwanted emails can be portrayed as an invasion of privacy and this may result in the invitation being deleted (Sekaran & Bougie, 2016). Another disadvantage of administering an online questionnaire is that any doubts that a participant may have will not be able to be clarified. Despite the disadvantages mentioned, this study aimed to gather data from as many employees within startup companies located in Sweden as possible. Therefore, other research methods, such as interviews would be too time-consuming to perform. They would also not be beneficial for the startup companies involved, as all of their employees would need to be interviewed, resulting in a substantial loss of employee work time. Furthermore, interviews cannot be standardized in the same way as surveys. The reasons mentioned above solidified the fact that a survey would be the preferred tool to use to collect the data for this study.

3.3.4 Validity and Reliability. For this study, two different questionnaires were selected, one examining the independent variables and one examining the dependent variable. The two questionnaires were used as 2 different subsections in the survey. These two items being; the *Team Psychological Safety Scale* developed by Edmondson (1999) and the CPE-Model developed by Ekvall and Arvonen (1994).

The *Team Psychological Safety Scale* was initially developed by Edmondson in 1999 to assess team levels of *psychological safety*. However, with time, it became apparent to researchers that the scale was flexible enough to use in other ways. It has since been used in several studies to measure individuals' levels of *psychological safety* (Kark & Carmeli, 2009; Li, Wu, Liu, Kwan & Liu, 2014 & Sagnak, 2017). This scale has also been used as a subsection of overall surveys to

assess *psychological safety* levels of individuals across different organizations (Carmeli, 2007). Apart from being able to be used to assess levels across different organizations, it has also been used to gather the *psychological safety* levels of healthcare teams (Kessel, Kratzer & Schultz, 2012). This highlights the scale´s flexibility in terms of industries. Therefore, this questionnaire could arguably be used on any company regardless of the industry that they are in. Apart from being extremely flexible in terms of use, this scale is also reliable with a Cronbach's Alpha of; .72. These, amongst others, were some of the reasons for using this scale as a subsection of the survey.

The CPE-Model developed by Ekvall and Arvonen in 1994 is an instrument which captures the leadership style factors of the CPE-model, being; *Change-centered leadership*, *Production-centered leadership*, and *Employee-centered leadership*. This instrument has been used in studies comparing different types of organizations (Hansson & Molander, 2013). The CPE-model has been used a lot in the Scandinavian countries which show it fits Swedish culture (e.g., Ekvall & Arvonen, 1994; Arvonen & Ekvall, 1999; Arvonen & Pettersson, 2002; Andersen, 2010; Andersen & Hansson, 2011; Skogstad & Einarsen, 1999). Over time, it has been modified on multiple occasions in order to be more easily answered and more reliable. For these stated reasons, the CPE-model was chosen as the best alternative for this study.

In order for a question to be reliable and valid, it must be phrased in a manner that will allow it to be consistently comprehended and decoded in the way that the researcher intended it to be. Not only that, but the answers provided must subsequently be able to be understood by the researchers the way the respondent intended. There must be no room for misunderstanding amongst questions. If these stages are completed the question can be considered valid and reliable (see *figure 1.1).*

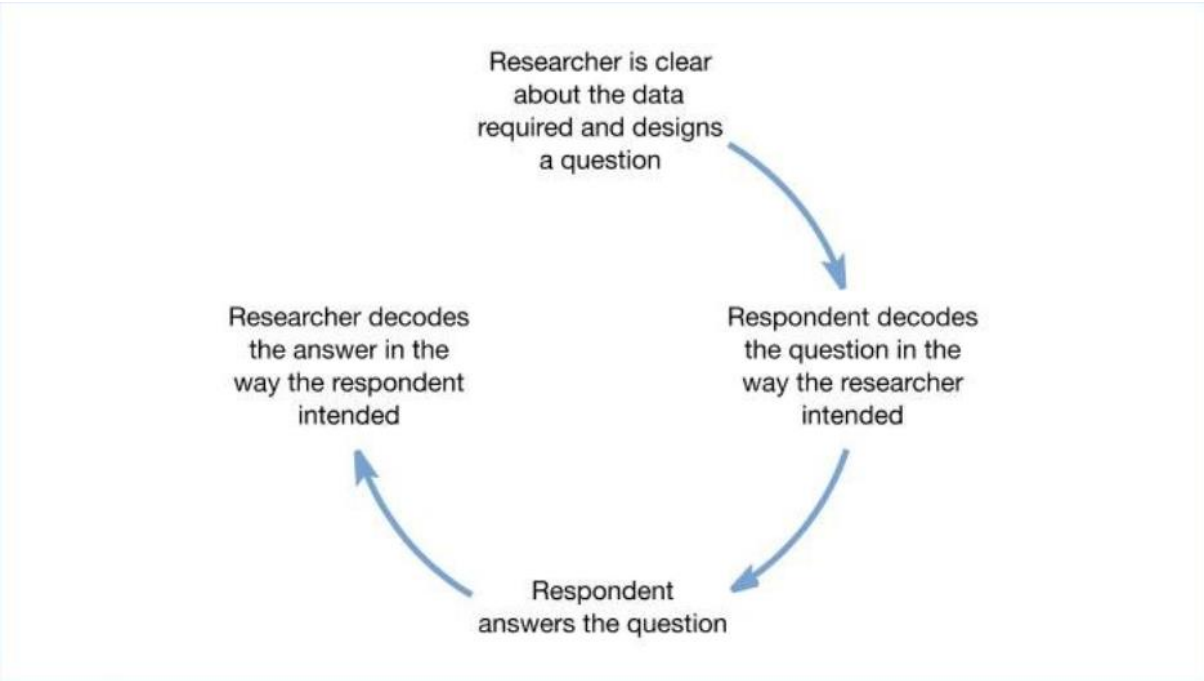

Figure 1.1 (Foddy, 1994)

Questionnaires work best with questions that will allow researchers to be confident in the fact that they will be interpreted the same way by all respondents (Saunders, 2011). The two different questionnaires used as subsections in this study, have been trialed across various diverse studies and have proved to be reliable. This, therefore, indicates that the survey to be used in this study should be valid and reliable. However, as a precautionary measure, in order to further ensure the reliability and validity of this study, the recommended steps according to Saunders (2011) were followed whilst constructing the survey.

1. *Careful design of individual questions.* As previously mentioned, the questionnaires used in this study are pre-existing and have been tried and proven to be reliable across a number of previous studies. None of the individual questions have been altered, added or removed. This was done in order to retain the validity that has been found in previous studies.
2. *Clear layout of survey form.* Much thought was put into the layout of the questionnaire. The visual design of questions and questionnaires "can significantly impact whether and how people respond to surveys" (Dillman, Smyth & Christian, 2014, p. 172). The basic page layout, alternating font sizes and shape and location (the spacing and alignment of elements) were all

factors taken into account whilst composing the survey. This was done in order to make the experience of filling out the survey more enticing and pleasant for the participants.

3. *Lucid explanation of the purpose of the survey.* A clear and concise explanation of the study was provided at the start of the survey. It was worded in a way that was believed to provide the participant with clarity regarding their role in the study and the survey´s purpose.
4. *Pilot testing.* In order to ensure that the survey was comprehensible and that the responses gathered would be assessable, a few surveys were distributed to external individuals that fit the inclusion criteria of this study. Their feedback regarding the survey was taken into account and helped formulate the final product that was ultimately distributed.
5. *Carefully planned and executed administration.* This step was performed by keeping track of where the survey was distributed to. Reminders were also sent to hubs and incubators to ensure that they did not forget to pass on the survey to the companies located there.

3.4 Participants

3.4.1 Target Population. The target population for this study is startup companies within Sweden. More specifically, Malmo/Lund, Stockholm/Uppsala, and Gothenburg were three areas that were heavily targeted as they have a high quantity of startup companies and incubators.

3.4.2 Inclusion Criteria. In this thesis, the definition of a startup will be a company of no more than 8 years and a maximum of 15 employees. The company should work in an innovative way. The subjects will be startup companies within Sweden that match the definition stated above and have at least a minimum of 1 employee, not including leadership positions.

3.4.3 Sample. The participants were sourced via an online survey that was sent out by email. The survey was sent out to startup companies that matched the inclusion criteria for this study. The survey was also sent to startup hubs and incubators to be distributed amongst the startups active within those locations**.** A total of 516 surveys were distributed.

3.4.4 Completed Sample. There was a total of 52 participants that completed the survey, resulting in a 10% completion rate. An acceptable completion rate is 30%

among online questionnaires, meaning that this study failed to meet those standards (Sekaran & Bougie, 2016). The gender split for this study was; 57.3% male, 42.3% female, 0% other and 0% prefer not to say. 46.2% of the participants were aged between 18-25 years old, 30.8% were between the ages of 26-35, 19.2% were between 36-45 and 3.8% were between 46-55. It is noteworthy to mention than 77% of the participants in this study were 35 years old or younger and that nobody was over the age of 55. The company size quite was evenly distributed; 11.5% had 1 employee, 17.3% had 2 employees, 19.2% had 3 employees, 30.8% had 4-9 employees and 21.2% had 10-15 employees.

3.4.5 Sampling Error. 77% of the participants were under the age of 35, this could mean that only a certain section of the population was reached, but it could also be a statistically representative sample of the average worker within the startup industry. Furthermore, there were many people that did not answer the study, but due to the way the survey was distributed, control and knowledge about who did not answer were limited.

3.5 Data Analysis

The three different leadership styles were each considered as separate independent variables. That means that there are a total of four variables; the three leadership styles, and psychological safety. A multiple regression analysis was then performed with the leadership styles as the independent variables and psychological safety as the dependent variable.

The first part of the analysis ensured that normal distribution, homoscedasticity, and linearity are met. A Kolmogorov-Smirnovs and Shapiro-Wilks test was run to test for normality. They can, however, be overly sensitive which was important to be aware of (Field, 2013). Multicollinearity then needed to be checked for through a collinearity diagnostics test to ensure that the different independent variables did not correlate too strongly.

To examine how the different independent variables affected the dependent variable, the beta (b) was then calculated. Since the independent variable's individual effect on the dependent variable is what was examined, the standardized coefficient was used instead of the non-standardized (Pallant, 2010). Further, a t-value was then calculated to determine whether the beta-value is significant.

The multiple correlation coefficient values (R) were calculated, followed by R2 and Adjusted R2. This was done to calculate the effect size.

3.6 Ethics

Several measures were taken in order to ensure that this study was ethically sound. At the start of the survey that was distributed there was a text that provided a simple, clear and informative explanation of the study as a whole to inform participants of what sort of study they were partaking in. The text also informed the participants of all their rights (such as the right to withdraw) and that by completing the survey that they were giving informed consent to their data being used in the study (See Appendix B). Steps were taken to provide anonymity for the participants, such as: at no point were they asked to give their or their company's name and the options for the question regarding their age were grouped (e.g. 18-25 years old). An age limit of 18 years old was decided upon to ensure that all participants were of a legal age to decide whether to participate. These steps ensure that it be much harder to identify a participant based on their answers. This study also ensured that the participant's confidentiality was respected, all of the data gathered was exclusively used in this study and will not be distributed anywhere else.

4 Results

SPSS version 25 for Mac was used for all statistical procedures. Quantitative research methods were performed in this study to gain insight into the relationship between the dependent variable (*psychological safety*) and independent variables (the leadership styles: CCL, PCL, and ECL).

After examining the *Normal Probability Plot of Regression Standardized Residual* and *Scatter Plot*, which only showed a slight skewness, it was determined that the assumption of normality was not rejected (See Appendix A). Furthermore, tests to examine the assumptions of homoscedasticity and linearity showed no reason to reject the assumptions. The *collinearity diagnostics* showed *Tolerance* levels that were over .10 for all the independent variables in the model (CCL=.51, PCL=.99, ECL=.51). This indicates that the risk of having multiple correlations between the independent variables was not too high.

4.1 Hypothesis 1

A significant regression equation was found; ($F(3, 45) = 52.24$, $p = .000$) meaning that the effect with high probability cannot be explained by coincidence. A standard multiple regression was run, to predict how the different leadership styles from the CPE-Model impact an individual's *psychological safety* levels. R^2 is a statistical measure that represents how close data is fitted to the regression line, it is always on a scale between 0-100. 0% would indicate that the model explains none of the variability of the response data around its mean and 100% would mean it explains all of it. The R^2 value is usually an overly optimistic estimation of the true value in the population, therefore an adjusted R^2 was run to adjust the figure to be a more realistic estimate of the population (Pallant, 2010). The R^2 value was found and then converted to adjusted R^2 ($R^2 = .78$, Adjusted $R^2 = .76$) that indicated that the data gathered is fitted closely to the regression line and has a strong effect size according to Cohen's d (Field, 2013). It was therefore found that the leadership styles in the CPE-model together had a significant effect on an employee's *psychological safety* levels. The fact that statistically significant values were found means that the first hypothesis is supported.

Table 1

The Models beta value and significance as well as the effect size (N=52)

	Psychological Safety	
Variable	Beta	p
Change Centered Leadership	.20	.052
Employee Centered Leadership	-.27	.000
Production Centered Leadership	.69	.000
R^2	.78	
Adjusted R^2	.76	
F		<.001

4.2 Hypothesis 2

The mean value and standard deviation for CCL (*Change-centered leadership*) were tested (M=2,710, SD= .34). A statistically significant correlation value was found that showed a strong positive relation between CCL and the dependent variable (r= .69, p= .000.) These findings mean that hypothesis 2 is supported. There was no significant value found for the beta, which is the value used to show each independent variable's unique contribution to the model (Pallant, 2010). Since no significance was found, it is not possible to draw any conclusions from the value (beta= .20, p= .052). Further, a significant value was found for the correlation between CCL and another of the independent variables, ECL (r= .70, p= .000), but no significant correlation was found between CCL and PCL (r= - .02, p= .438).

4.3 Hypothesis 3

A measure of the mean and standard deviation was made for PCL (*Production-centered leadership*) (M=2.34, SD= .43). A significant negative

correlation was found between PCL and the dependent variable (r= -.26, p= .037). The results support the third hypothesis of the study, that PCL will correlate negatively with the dependent variable. A significant value was found for the beta (beta= -.27, p= .000), which shows that PCL has a unique influence on *psychological safety*. No statistically significant results were found for the correlation between PCL and ECL (r= .02, p= .435) nor between PCL and CCL (r= -.02, p= .438).

4.4 Hypothesis 4

The mean and standard deviation for ECL (*Employee-centered leadership*) was measured (M=2.637, SD= .41). A significant value was found for the correlation between ECL and the dependent variable (r= .83, p= .000). This means that hypothesis 4 is supported by the results as ECL does have a strong positive correlation with *psychological safety.* The results further show a significant value for the beta (beta= .69, p= .000) meaning that ECL has a unique influence on the dependent variable. No significance was found for the correlation between ECL and PCL (r= .02, p= .435) but significance was found between ECL and CCL (r= .70, p= .000).

Table 2

The independent variables' individual correlation with the dependent variable and their significance (N=52)

	Psychological Safety	
Variable	R	p
Change Centered Leadership	.69	.000
Employee Centered Leadership	.83	.000
Production Centered Leadership	-.27	.037

4.5 Results Summary

A standard multiple regression was conducted to examine how the leadership styles in the CPE-model affect an employees' *psychological safety* levels. A significant regression equation was found; (F (3, 45) = 52.24, p= .000), meaning that the effect that the CPE-model has on an employee's psychological safety is not coincidental. The variance of *psychological safety* can therefore be explained by the variance in the leadership-styles in the CPE-model. More specifically, it was found that CCL (r= .69) and ECL (r= .83) have a positive correlation with *psychological safety*, whereas PCL (r= -.26) has a negative one. All of the findings were significant and supported the hypotheses proposed in this study.

5 Discussion

The purpose of the study is to examine if and how the perceived leadership-style affects an employee's *psychological safety*. By doing that this study aims to contribute to the knowledge of startups, regarding which leadership-style in the CPE-model should be used to reach the highest *psychological safety* amongst the employees in a startup. Four different hypotheses were proposed, and statistical analysis was carried out. The results gathered confirmed all four hypotheses. The tests ran obtained significant results. This discussion will thereby discuss these findings.

Leadership and how leaders ´lead` is regarded as a critical tool for teams. The reason is that leaders play an important role in establishing collective norms, helping the team members to address and resolve challenges that have arisen in the team environment (Al-Malki & Juan, 2018). Leadership behavior has been shown to be the most effective predictor variable with regards to employee *psychological safety* (Tynan, 2005). *Psychological safety* is not only important for an employee's mental well-being, but it also impacts areas of work, such as performance (Edmondson, 1999) and job involvement (May et al, 2004). It is, therefore, an important factor for companies to consider if they want to get the most out of their employees.
The influence that leaders have on teams could be considered one of the most rapidly growing research areas (Al-Malki & Juan, 2018).

However, despite the increasing number of studies regarding leadership, there was still no research done exploring specific leadership styles and their impact on employee's *psychological safety*. This study, therefore, breached that research gap.

5.1 Result Discussion

5.1.1 Hypothesis 1 - The variance in the leadership-styles in the CPE-model will be able to explain the variance of *psychological safety*.

This study has found that the leadership styles in the CPE-model together had a significant effect on an employee's *psychological safety* levels. These findings have confirmed the first hypothesis. Individual´s in leadership positions within startup companies should, therefore, be mindful of how they lead and behave within the workplace as it will have an effect on their employees. This is particularly relevant to startup companies as they are usually smaller with fewer employees which could

arguably result in a lot more direct contact between the employees and their manager. With more exposure to a leader's behaviors, it would only make it easier for the employees to be affected by behavioral traits that are exerted by particular leadership styles.

The fact that the first hypothesis is confirmed by the significant results of the study, show that the CPE-model and *psychological safety* can be combined within the context of startups. This has implications both for startup companies but also for future research as the two constructs can now continue to be examined in this new setting.

5.1.2 Hypothesis 2 - *Change-centered leadership* will correlate positively with *psychological safety*. The second hypothesis in the study was confirmed by the results found, as CCL has shown to have a significantly positive correlation with an employee's *psychological safety* levels. One possible explanation for this might be that a change centered mindset is inherent in startups, startup companies constantly have to innovate. There are four main behaviors that characterize a CCL leadership style; external monitoring, envisioning change, encouraging innovative thinking and taking personal risks to implement change (Yukl et al., 2002). Having a leader that has a CCL leadership style, that will do things such as encouraging innovative thinking will arguably have a positive impact on the individuals that want to work for startup companies in that creative and innovative environment. Seeing that startups are by nature innovative, it is not surprising that this was the leadership style that had the highest mean. The same fact might be the reason that no statistically significant beta was found for the leadership style, the inherent innovative nature of a startup may imply that all leaders, regardless of which style they really have, are likely to be heavily change centered as well. This would render CCL hard to distinguish as all leaders then become more or less change centered.

5.1.3 Hypothesis 3 - *Production-centered leadership* will correlate negatively with *psychological safety*. The results found confirmed the third hypothesis of this study. When the individuals in a leadership position have a PCL leadership style and are more focused on production, the employees may feel that they are disposable if they are not producing the right results. Additionally, one of the behaviors stated by Yukl et al. (2002) that is specific for a production-centered leader, is monitoring operations and performance. If one has a supervisor that is monitoring their actions, it is probably easier to feel more self-aware and doubt one's

decisions. This implies that startup companies probably ought to avoid having production centered leader. If a startup does however have an individual with that specific leadership style, it would be in their best interest to put in measures to promote *psychological safety.* For example, Kahn (1990) states that group and intergroup dynamics and organizational norms are factors that influence an employee's *psychological safety* levels.

5.1.4 Hypothesis 4 - *Employee-centered leadership* will correlate positively with *psychological safety*. The final hypothesis of this study was supported by the results as ECL does correlate positively with *psychological safety*. These findings may be explained by the fact that in a startup company with a few amounts of employees it is important that leaders develop a positive relationship with their employees. If the individual's in the leadership positions are employee centered and encouraging it will probably make it easier for employees not to doubt their decision and rather "feel able to show and employ themselves without fear of negative consequences to self-image, status or career" (Kahn, 1990, p.708). Yukl et al. (2002) stated five behaviors as typical for an employee centered leader. Supporting, developing, recognizing, consulting and empowering are all behaviors that make sense to be good at facilitating a good *psychological safety* as they all can be seen as good for ensuring that an employee can deploy one's true self. Startup companies are usually an innovative environment, bosses that encourage and support employees and create a good relationship with them, will undoubtedly have a positive effect and help their employees to a high level of *psychological safety*. It could also be argued that the employees are one of the most important assets in a startup (Forrest, 2015). If that is the case, it makes sense that a leader that creates a good environment for said employees creates an environment where those employees can thrive and work with innovation while feeling safe enough to try and fail.

5.1.5 Overall Results Discussion. Despite what was mentioned in the introduction regarding the uncertainty of employment in an uncertain work environment, such as startups. The average level of *psychological safety* from the participants was high. This could be due to the fact that the participants were subjected to more CCL & ECL leadership styles than PCL.

This study brought together two separate questionnaires (The *Team Psychological Safety Scale* and the CPE-Model) and created a new combined

survey. This will contribute to future research as it provides a newly created model that could be used in future studies regarding leadership styles and *psychological safety*. The application of this newly created model in this study is also arguably a contribution that has been made by the researchers as it has now not only been used but has produced significant results as well. This study also took two previously existing questionnaires and simultaneously applied both of them to a new setting (startup companies). This further highlights the versatility of the questionnaires that were used. The significant results gathered from this study will provide an argument supporting the use of this new survey in future studies.

The results of this study have implications for startup companies. The results suggest that startups should focus on having individuals with ECL type leadership styles in a leadership position within their companies in order to get the most out of their employees. If future research supports the findings of this study, it could result in a trend amongst the recruiting processes within startup companies going forward as they look for employee centered leaders. When recruiting individuals for a leadership position within their company, startups could begin to place even more importance on an individual's characteristics, ensuring that their behaviors and points of view correspond with an ECL leadership style rather than focusing on their previous work experience.

The results that ECL has the strongest correlation with the dependent variable ads weight to previous research stating that interpersonal relationships as well as a manager that shows support and openness are factors that have a promoting role on *psychological safety* (Kahn, 1990). These factors should be noted by startups, especially those that have a production centered leader. These leaders could make sure to create openings in the schedules of everyone at the company, with the purpose of hosting activities that could facilitate the creation of interpersonal relationships and openness between all individuals at the office. These activities would be positive for startups as they could offset some of the negative effects that a PCL leadership style has on an employee's *psychological safety.*

The results also showed that CCL and ECL were closely correlated. This fact can have implications regarding the study's findings. It could be possible that the two different leadership styles are so similar that they pretty much show the same result, and this could likely explain why no statistically significant result was found in the beta for CCL. One possible reason for them correlating more in this study than in

previous research may be the innovative environment that is present in startups (Robehmed, 2013). Since startups often are focused on finding new ways of working, there might not be that big of a difference between ECL and CCL. Maybe the CPE-model is redundant in startups. This would render the original *two-dimensional model* more suitable when both production-centered and employee-centered leaders are already expected to be pushing for growth and think along new lines, which could be the case in a startup. If this is the case, it would be interesting as CCL was originally added to the *two-dimensional model* in 1991 by Ekvall & Arvonen, because of the growing trend involving developments and changes in the labor market. This happened just before the dotCom era that gained traction it the middle of the 1990's and the subsequent emergence of startups (Weber, 2004). As these developments kept going in the same direction, startups as a phenomenon have grown and become a big part of the corporate world (Fortune, 2018). If business keeps evolving this way, it is not impossible that innovation soon takes over as one of the most pivotal parts of any company, in that case, CCL might become redundant even in the "regular" companies as it will be incumbent on all leaders to be change centered on top of their production or employee centeredness.

ECL and PCL both had a statistically significant beta, meaning that they had an individual effect on *psychological safety*, however, CCL did not. As mentioned above, it may have to do with the correlation between CCL and ECL. On the other hand, it does give further weight to the argument that maybe the three-dimensional CPE-model is redundant in a startup as CCL shows to have no individual effect on the dependent variable in this study. The argument against that would, of course, be that CCL was found to have a correlation with the independent variable, albeit a bit weaker than ECL.

Some interesting things were found in the statistics regarding the participants of the study. One thing that stands out is the fact that 77% of the participants were under the age of 35. It cannot be said that this is definitely representative of all startups, but since the survey was mostly shared through hubs or directly to the startups, and not through Facebook pages or similar media where the participants may be skewed towards a certain demographic group. It probably says something about the average startup employee. It is possible that the young age of startup employees has influenced the results. It is likely that younger people are more willing to try new things and develop as they are relatively new in the job market.

Furthermore, it could affect the *psychological safety* levels as one is likely to feel less self-confident in an industry that they are relatively new in compared to if they have worked in the industry for over 20 years (Rompf, Royse & Dhooper, 1993). This is most likely the case in startups, our results showed that the majority of the participants in this study were under the age of 35, which indicates that the average employee in a startup company cannot have worked in the industry for 20 years.

Furthermore, different generations may have different views on how certain behaviors are categorized. For example, a question such as “is controlling in his/her supervision of the work” may be answer differently depending on generation. These things can become a problem for the study if it is not representative, but can also be seen as an explanation for the results if the statistics are representative. The way the survey was distributed and the fact that startups are a relatively new and fashionable places to work, points to the results being representative. However, there could of course always be hidden biases that may influence why mostly young people answered the survey. An individual might, for example, be more willing to help out with a survey if they themselves have recently been in a similar position where they were desperately seeking participants for a study of their own.

5.2 Method Discussion

5.2.1 Limitations. There were limitations encountered while conducting this study. The first issue was the number of participants. A lower number of participants could make the results less credible and be considered a unique occurrence. Another potential limitation was strictly using an online survey. Although it is an easy method to contact and attempt to obtain participants, it does not allow them to ask any clarifying questions (Meyerson & Tryon, 2003), this could result in participants misreporting information. Online questionnaires also have the potential to have a low response rate, which is what happened in this study. Several ´reminder emails` were sent out to companies to remind them to participate, and to individuals at hubs/incubators to remind them to distribute the survey throughout the location. Yet despite these efforts, it was difficult to get individuals to participate in the study. This does, of course, have implications for the representability of the study. A further explanation for the low response rate in this study is the nature of startup companies. Lots of startup companies replied that their company solely consisted of the group of founders or that their company was in the middle of a big project that required the full

attention of all of their employees and therefore they preferred not to participate. Those sorts of factors hindered the gathering of a larger sample size. It was especially interesting that certain startups answered that they were in no position to participate due to time constraint. It could just have been a coincidence, but it could also mean that the study only obtained answers from specific startups that for one reason or another were not as pressured by time. It would have been interesting to see how the different leadership styles would have scored in these more pressured environments.

Additionally, although the results gathered from this study are significant, they are only a statement regarding Sweden and cannot be considered on a global scale.

The last limitation of the study was the decision not to code the surveys. This did not allow for as much control over the participants as was initially desired, however, it was a necessary choice as it was decided that the survey also needed to be distributed via startup incubators and hubs in order to try and get more participants. Coded surveys could have given the additional option of comparing different startups and to look at *psychological safety* on a group level as well as an individual level. This is something that would be interesting to examine in future research.

5.2.2 Strengths. This study can easily be replicated as all subsections were valid and reliable. Not only were the questionnaires used as subsections for the survey relevant to the topic of the study, but they are preexisting and have been used in previous studies. This allows for future research to more easily build upon this study. Another strength was the online survey, it made it easier for participants to answer potentially sensitive questions, for example; questions regarding their boss's leadership behaviors or how ´safe` they perceived their work environment to be. An online survey also makes it easy to contact a high quantity of people to potentially participate in a study. Anonymity and confidentiality were also strengths of this study, it allowed participants to answer honestly without feeling judged about the responses they submitted and whilst knowing that the information gathered would solely be used for this study and would not be distributed anywhere else. This ensured that the results were not as skewed by biases as might otherwise have been the case. An additional strength in this study was targeting startup companies, this allowed for the gathering of information from employees that have more contact with the individuals in leadership roles. In regular established companies an

employee's *psychological safety* may be affected by the company's overall culture. The results of this study would most likely not have been as strong since the *psychological safety* levels found are likely the result of the leadership style more than the result of the corporate culture. A final strength of this study was the use of the CPE-model. The CPE-model has previously been used in numerous studies throughout Scandinavia, showing that it is compatible and works well within the national culture of this study's target population.

One of the most significant strengths of this study is the fact that two different models were used together and applied in a new context. This allowed the study to contribute in the chosen field of startups as a new combination of models were studied with good results that can be applied.

5.3 Future Research

Any future research in these fields would be beneficial. If this study were to be replicated, the limitations stated in this study, should be addressed.

An example for future research, would be to look at another geographical location. It would be interesting to see whether the findings from this study would be consistent with those of a replicated study performed in another country.

A case study could be a good alteration to make in future research to build upon the findings discovered in this study. A case study simultaneously examining various companies could be performed. The companies could be within the same industry in order to minimize external factors that may influence results. The leadership styles and *psychological safety* levels from each company could be assessed and then compared to one another. Another case study that could be conducted is one that is centered around a company that is about to hire a new individual in a leadership position, this could prove to be very interesting. The employee's *psychological safety* levels could be measured before the new leader joins the office and then further measurements could be taken once the new leader has settled into the office. A comparison could be made between the levels of *psychological safety* under the old and the new manager. The results would then be analyzed in respect to their leadership styles. However, if conducting said case studies, it would be beneficial to validate the application of the survey used in this study, as the two different questionnaires/constructs have never been used together outside of a startup context.

Another alteration that could be made for future research would be to change the variables. Now that this study has shown that the CPE-model correlates with employee's *psychological safety* levels, it could be interesting to see if the leadership model has similar effects on other employee-related variables, for instance; job performance. Another option could be to investigate if a company's culture directly affects the employee's *psychological safety* and follow up that study with one examining the relationships between the CPE-model leadership styles and a company's culture.

In relation to the CPE-model, ECL and CCL correlated with each other, and CCL was shown to not have an individual and unique effect on *psychological safety*. As discussed above, this could be because of the change centered environment in startups. Further discussed above is the possibility that this change centeredness is spreading to the rest of the business world. If that is the case, it would be interesting to see if the correlation between CCL and ECL would be found in all companies in the future and not just startups. A similar study to this one could then be conducted to see if the same relationship with ECL and an absence of a statistically significant beta would be found for CCL. These studies could be conducted in a lot of different industries such as; the oil industry, service industry or in a company with a lot of factories that have a strong production centered culture in comparison to the average company. Depending on the results in those studies, it could be possible to say something about whether the development towards a more change centered world has kept going in the same direction and if it has taken over so much that CCL would be redundant to measure even in an average established company.

An extension of this study could be to conduct the study with a mixed method approach. For example, follow up interviews could be conducted in order to gain a deeper understanding of why participants answered as they did. This would facilitate findings of common themes that can give a deeper understanding to why certain leaderships styles result in a higher level of *psychological safety.* Furthermore, interviews could help investigate possible intermediate or other affecting variables.

Overall, it would be interesting to see how the results gathered from this study can contribute to future research and whether or not replicatory studies would produce different results than the ones found in this study.

6 Conclusion

Psychological safety is not only important for an employee's mental well-being, but it also impacts areas of their work, such as performance (Edmondson, 1999) and job involvement (May et al, 2004). This, therefore, means that it is an important factor for companies to consider if they want to get the most out of their employees.

This study found that the CPE-model can predict the employee's *psychological safety* levels in a startup company. More specifically, that ECL and CCL have positive correlations with employee's *psychological safety*, whilst PCL had a negative correlation. These findings were significant and proved the alternate hypotheses in this study to be correct. Furthermore, ECL and PCL leadership styles were shown to have a direct and unique effect on the employee's *psychological safety* levels.

These findings have implications for startup companies, they mean that if a leader of a startup wants their employees to be as psychologically safe and innovative as possible, there are arguments that ECL and focusing on the employees rather than change or production would be a more beneficial leadership style to use.

Future research is proposed to expand on the findings of this study by conducting case studies, applying mixed methods or looking at other industries.

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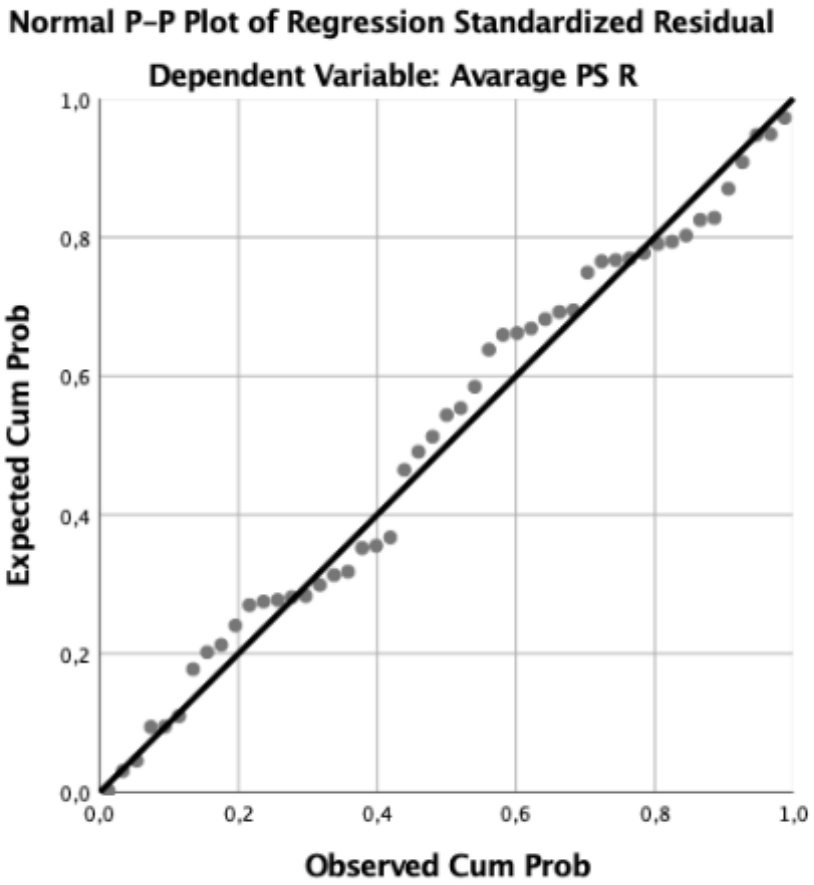
Appendix A


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Avarage PS R
Expected Cum Prob
Observed Cum Prob
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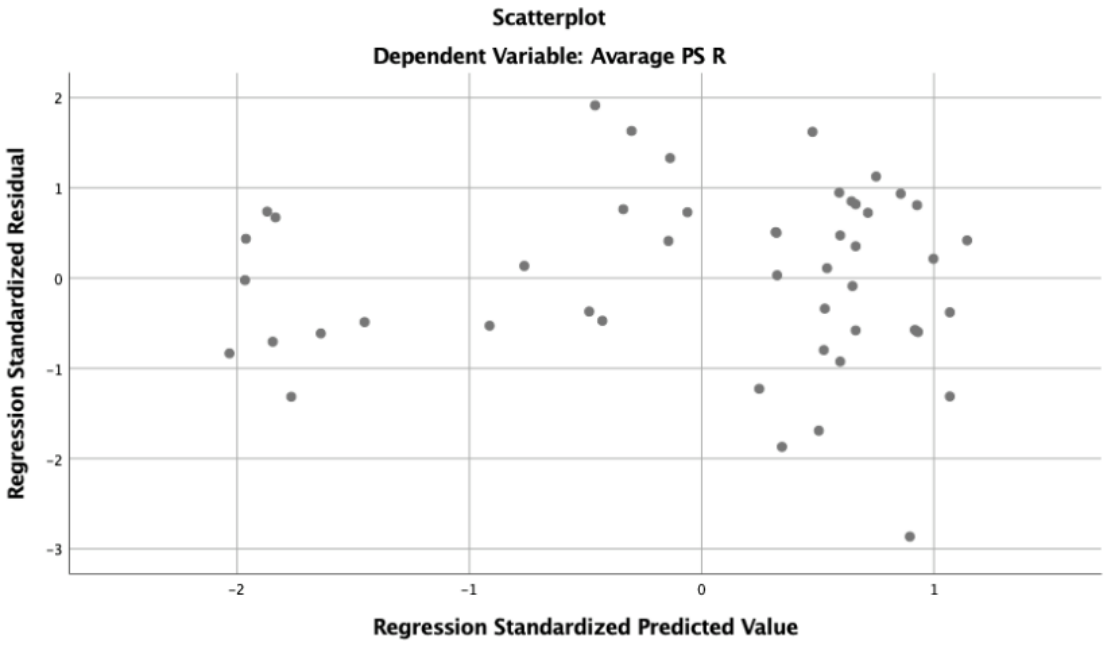
0,2
0,4
0,6
0,8
1,0


Scatterplot
Dependent Variable: Avarage PS R
Regression Standardized Residual
Regression Standardized Predicted Value
2
1
0
-1
-2
-3

Appendix B

Leadership styles in startups

We are two Master students at Lund University, who are currently writing a thesis on Leadership and its implications regarding Psychological safety. Psychological safety is "feeling able to show and employ one´s self without fear of negative consequences to self-image, status or career".

Leadership will be assessed in terms of leadership-style, meaning that your answers won't be an assessment of your managers quality, but rather their style.

The Survey includes three parts, the first is some simple questions regarding descriptive information about the respondents, the second part is a questionnaire about your manager's leadership style and the third part includes a questionnaire about the psychological safety at your workplace.

This survey is completely voluntary and participants can decide to end the survey at any time. All personal results will be confidential and anonymous, handled only by the two of us. No one at your company will be able to see your answers. By submitting the results you agree to them being used for the study under the regulations mentioned above.

Section 1

Sex

- Female
- Male
- Prefer not to say
- Other

Age

- 18-25
- 26-35
- 36-45
- 46-55
- 56+

How many employees (that are not in a leadership position) are there at your startup?

- 1
- 2
- 3
- 4 or more
- 10 or more

Section 2

Leadership styles

My manager…

(1) is friendly

Disagree *1.* *2.* *3.* *Agree*

(2) creates order
Disagree *1.* *2.* *3.* *Agree*

(3) relies on his/her subordinates
Disagree *1.* *2.* *3.* *Agree*

(4) is willing to take risks in decisions
Disagree *1.* *2.* *3.* *Agree*

(5) is very clear about who is responsible for what
Disagree *1.* *2.* *3.* *Agree*

(6) has an open and honest style
Disagree *1.* *2.* *3.* *Agree*

(7) encourages thinking along new lines
Disagree *1.* *2.* *3.* *Agree*

(8) likes to discuss new ideas
Disagree *1.* *2.* *3.* *Agree*

(9) makes a point of following rules and principles
Disagree *1.* *2.* *3.* *Agree*

(10) creates trust in other people
Disagree *1.* *2.* *3.* *Agree*

(11) gives thoughts and plans about the future
Disagree *1.* *2.* *3.* *Agree*

(12) pushes for growth
Disagree *1.* *2.* *3.* *Agree*

(13) sets clear goals
Disagree *1.* *2.* *3.* *Agree*

(14) is considerate
Disagree *1.* *2.* *3.* *Agree*

(15) initiates new projects
Disagree *1.* *2.* *3.* *Agree*

(16) is very exacting about plans being followed
Disagree *1.* *2.* *3.* *Agree*

(17) stands up for his/her subordinates
Disagree *1.* *2.* *3.* *Agree*

(18) experiments with new ways of doing things

Disagree *1.* *2.* *3.* *Agree*

(19) is controlling in his/her supervision of the work

Disagree *1.* *2.* *3.* *Agree*

(20) creates an atmosphere free of conflict

Disagree *1.* *2.* *3.* *Agree*

(21) sees possibilities rather than problems

Disagree *1.* *2.* *3.* *Agree*

(22) defines and explains the work requirements clearly to the subordinates

Disagree *1.* *2.* *3.* *Agree*

(23) is just in treating subordinates

Disagree *1.* *2.* *3.* *Agree*

(24) makes quick decisions when necessary

Disagree *1.* *2.* *3.* *Agree*

(25) plans carefully

Disagree *1.* *2.* *3.* *Agree*

(26) allows his/her subordinates to decide

Disagree *1.* *2.* *3.* *Agree*

(27) gives clear instructions

Disagree *1.* *2.* *3.* *Agree*

(28) shows regard for the subordinates as individuals

Disagree *1.* *2.* *3.* *Agree*

(29) offers ideas about new and different ways of doing things

Disagree *1.* *2.* *3.* *Agree*

(30) analyses and thinks through before deciding

Disagree *1.* *2.* *3.* *Agree*

Section 3

Psychological safety

(1) If you make a mistake on this team, it is often held against you.

Disagree 1. 2. 3. 4. 5. Fully Agree

(2) Members of this team are able to bring up problems and tough issues.

Disagree 1. 2. 3. 4. 5. Fully Agree

(3) People on this team sometimes reject others for being different.

Disagree 1. 2. 3. 4. 5. Fully Agree

(4) It is safe to take a risk on this team.

Disagree 1. 2. 3. 4. 5. Fully Agree

(5) It is difficult to ask other members of this team for help.

Disagree 1. 2. 3. 4. 5. Fully Agree

(6) No one on this team would deliberately act in a way that undermines my efforts.

Disagree 1. 2. 3. 4. 5. Fully Agree

(7) Working with members of this team, my unique skills and talents are valued and utilized.

Disagree 1. 2. 3. 4. 5. Fully Agree

Division of CPE-model questions:

Questions measuring CCL – 4, 7, 8, 11, 12, 15, 18, 21, 24 & 29

Questions measuring PCL – 2, 5, 9, 13, 16, 19, 22, 25, 27 & 30

Questions measuring ECL – 1, 3, 6, 10, 14, 17, 20, 23, 26 & 28