MASTER THESIS

GENDER DIFFERENCES IN PURCHASING AND SUPPLY MANAGEMENT

A mixed method research into gender differences regarding purchasing professionals' competencies and professional focus

Name: T. Bijl (2214350)

Faculty: Behavioural, Management and Social Sciences (BMS)

Master: Business Administration

Track: Purchasing and Supply Management

Supervisors:

Daily supervisor: K.P.M. Stek

First supervisor: Dr. A.G. Sigurðardóttir

Second supervisor: V.F. Delke

Date: 3 June 2020

Acknowledgement

This research is based upon Project PERFECT (Purchasing Education and Research for European Competence Transfer), which has been set up and funded by the European Union to become the first worldwide region to establish an empirically validated pan-European PSM higher education curriculum. The project is embedded into the ERASMUS+ 2015 KA2 program (Cooperation for Innovation and the Exchange of Good Practices Strategic Partnerships for Higher Education) with the project number 2015-1-DE01-KA203-002174.

This thesis is written as the final part of my master programme Business Administration at the University of Twente, more specifically the Purchasing and Supply Management specialisation. My daily supervisor, K.P.M. Stek supported me during the preparation phase. Therefore, I would like to thank him as his support was very helpful in writing this thesis. Furthermore, I would like to thank my first supervisor, dr. A.G. Sigurdardottir, for her helpful recommendations and critical view that was of great value during this period. Moreover, I would like to thank my second supervisor, V.F. Delke for his critical view, which was very helpful in finalising my thesis. Also, the respondents that took part in the interviews were very meaningful. Therefore, I would like to thank them as well. Additionally, I would like to thank Freek Andriesse, deputy editor Nevi *Deal!* – Magazine about purchasing and supply management, for his constructive feedback. Lastly, I would like to thank my family for their emotional support during my master study at the university.

Goor, 03 June 2020

Tess Bijl

Abstract

In the past decades, females have increasingly entered management positions in organisations, resulting in a more gender diverse workforce. However, theories suggest that these females are often disadvantaged by gender as a consequence of, for instance, the gender stereotypes in society. As a result, they are underrepresented in senior working positions in organisations. In the purchasing and supply management (PSM) profession, females are underrepresented too, as they account for only 12 per cent of the Chief Purchasing Officer (CPO) functions in Europe. This minority of females in PSM is remarkable, as they are argued to have applicable education to perform purchasing functions successfully. Furthermore, having a gender diverse team can have several advantages, such as more creativity and innovation, and also might affect organisational performance. These advantages and its contradictory underrepresentation of females in purchasing roles raises questions regarding gender differences. Therefore, the aim of this study was to examine the differences between males and females in the purchasing profession regarding their competencies and professional focus. Afterwards, in order to gain a more in-depth understanding of these gender differences, experiences of purchasing professionals were explored. The following two central research questions were formulated: ***CRQ1****: "How do males and females differ in the purchasing and supply management profession with regard to their competencies and professional focus?"* and ***CRQ2:*** "*How are these gender differences experienced among purchasing professionals?".* Results regarding the first central research question (CRQ1) were obtained through analysing an existing survey, by applying the one-way ANOVA procedure for analysis of variance in SPSS. The second central research question (CRQ2) was answered by conducting ten semi-structured interviews with Dutch purchasing professionals. The quantitative analysis revealed that most statistically significant gender differences were found for respondents at the age between 40 and 49 years old. Noteworthy is that the first age group, consisting of respondents between 20 and 29 years old, demonstrated mostly positive mean differences, whereas the other age groups showed negative mean differences. These positive mean differences imply that females at the age between 20 and 29 years old assessed themselves higher on the purchasing competencies than males. On the contrary, females at the age between 30 and 59 years old assessed themselves lower than males of that particular age. The qualitative results indicate that it might be differences between individuals having different personal interests, characters, types of employment and years

of experience, instead of differences between males and females. Accordingly, recommendations for future research are given as well as discussing the limitations of this study.

Table of content

List of figures and tables

1. An introduction to gender differences in purchasing and supply management

Purchasing and supply management (PSM) has become increasingly important to organisations as they typically spent approximately 60 per cent of their turnover to supplies (Krause, Pagell, & Curkovic, 2001; O'brien, 2019). As a result of this increasing importance, organisations nowadays perceive the role of purchasing as a value adding activity and frequently use PSM as a strategic tool to increase its optimisation and efficiency (Ballou, 2007; Tan, 2001; Tan, Lyman, & Wisner, 2002). That is, PSM is often recognised as a strategic function that can contribute to firm's performance due to its impact on competitiveness (Monczka, Handfield, Giunipero, & Patterson, 2015). More specifically, instead of focussing on increasing their own performance, organisations concentrate on enhancing their purchasing activities by, for instance, establishing long-term relationships with suppliers. This long-term relationship has become critical to organisations due to the increased global competition of recent years, which has resulted in a decreasing number of available suppliers (Krause et al., 2001). Furthermore, a long-term relationship with suppliers can have several advantages, such as earlier access to supplier's innovation and gaining a preferred customer status (Vos, 2019). Organisations that recognised PSM as a strategic, value adding activity achieved dramatic cost reductions, improvements in quality and time reduction in new product development (Monczka et al., 2015).

This new, strategic role of PSM have obliged organisations to employ purchasing professionals that possess appropriate skills essential for a successful role performance (Giunipero & Pearcy, 2000). Various scholars have therefore argued that the changing circumstances in PSM have impacted the skill set required by purchasing professionals (Bals, Schulze, Kelly, & Stek, 2019; P. L. Carter, 1998; Giunipero & Pearcy, 2000) at which different skills and competencies of purchasing professionals are required nowadays. In other words, due to the evolvement of PSM into a strategic function, alternative competencies are demanded. Bals et al. (2019) investigated these alternative, future competencies and identified a top 10 of PSM competencies needed for a successful role performance in the future. Examples of these future skills are automation, big data analysis, eProcurement technology, and process optimisation skills. A team with purchasing professionals that together possess the right mix of these future competencies will be most successful in their PSM role, but who are those purchasers? Are there differences between male

and female purchasing professionals? As females make up 60 per cent of the student bodies in PSM in Europe (Nouguès, Swette, Djaad, Eblaz, & Hjiej, 2019), it can be argued that they have applicable education to successfully perform the purchasing profession of the future.

Nowadays, however, females seem to underrepresented in purchasing organisations as most purchasing positions are held by males (Leaders, 2017; Nouguès et al., 2019). To illustrate, Nouguès et al. (2019) surveyed more than 300 CPOs in Asia, Europe, and the United States and revealed that, although the number of females working as CPOs is growing, females accounted for only 38 per cent of all CPOs. The procurement salary survey (Leaders, 2017) demonstrated an even worse position of females in purchasing organisations, where only 12 per cent of the CPOs were female. That is remarkable, since it is argued that more creativity and innovation is perceived "thanks to the presence of more females" in a team (Nouguès et al., 2019, p. 21), indicating that these females can bring several advantages to organisations. Moreover, diversity fosters positive attitudes in the work place, creating a higher satisfaction level among employees (Hunt, Layton, & Prince, 2015).

Besides these advantages, diversity might also contribute to organisation's performance. Therefore, various scholars have focused on the relationship between diversity and organisational performance (Lückerath-Rovers, 2013; Moreno-Gómez, Lafuente, & Vaillant, 2018; Wiley & Monllor-Tormos, 2018), and found a positive, significant relationship. Specifically, the studies indicate that increasing the presence of female employees in organisations contributes to better financial performance. Hence, having a gender diverse team can have several advantages and might positively affect organisational outcomes (Green, López, Wysocki, & Kepner, 2002).

In an attempt to increase the presence of females in organisations, several governments, regulators, and industry bodies have set targets for the number of females involved in an organisation (Pouwels, Leenders, & Van den Brink, 2019). In 2005, Norway was the first country that legislated a gender quota law by which strict laws concerning the number of females in an organisation were introduced (Teigen, 2015). This so-called "Quota Law" requires 40 per cent of company directors to be female. When this quota is not complied to, organisations could be subject to monetary penalties. On the other hand, in 2013, the Netherlands introduced a legal aim to include 30 per cent females in organisational boards (Pouwels et al., 2019). In particular, this 30 per cent target is of a 'comply or explain' nature, indicating that when an organisation does not

comply, its gender underrepresentation must be justified in their annual report, as well as procedures followed to achieve the target, and future approaches. Although the share of females in organisational boards in the Netherlands is increasing, the progress on gender diversity is too slowly developing, compared to other European countries such as Norway (Pouwels et al., 2019). Explanations for this stagnation include for instance the negative stereotypes in society towards females, the glass-ceiling effect, the preference of females to obtain part-time roles, and their work-family experience.

The aforementioned changing circumstances of PSM and herewith the changing requirements for PSM professionals, the advantages of increasing the presence of females in organisations, and the overbalance of males in PSM raises questions regarding gender differences in this profession. Therefore, this thesis will focus on the differences between male and female purchasing professionals regarding their competencies and professional focus. In order to find out, an existing survey will be analysed by means of SPSS. Afterwards, in order to gain a more in-depth understanding of these gender differences, experiences of purchasing professionals are explored by conducting ten semi-structured interviews. During those interviews, respondents were asked to give their opinion towards four different topics: gender differences in general, gender differences in competencies, gender differences in perceived importance of those competencies and gender differences in professional focus. This indicates that a mixed method strategy is applied to this study. The following two central research questions are formulated:

CRQ1: *"How do males and females differ in the purchasing and supply management profession with regard to their competencies and professional focus?"*

CRQ2: *"How are these gender differences experienced among purchasing professionals?"*

In order to provide a consistent structure, the first central research question (CRQ1) is divided into three sub questions:

- What are the differences in PSM competencies between the genders?
- What are the differences in perceived importance of the competencies between the genders?
- What are the differences in professional focus between the genders?

Answering those questions is relevant for three reasons. First of all, this study contributes to the PSM literature since none of the papers in the "Purchasing & Supply Management" journal have investigated gender differences the way this study does. Specifically, a review in the aforementioned journal with the term "gender" resulted in 37 searches, of which none investigated differences in PSM competencies or professional focus. Instead, these studies investigated for instance differences in negotiation approaches, salaries and supplier selection techniques. Secondly, organisations that operate in the purchasing profession can obtain from the results how to organise their purchasing department more effectively, as females and males might have different capabilities and competencies. In other words, combining female and male purchasing professionals in purchasing processes might create a "best of both worlds" situation. Thirdly, firms might recognise the importance of including more females in the purchasing profession, as they could for instance bring more creativity to the team. Consequently, organisations get insight into why they should hire more female purchasing professionals, which might bring them closer to gender parity.

In order to answer the central research questions of this paper, it is organised in five sections. In the second section, relevant literature and theories are discussed. In the third section, the methodology to execute this research is defined. The results are presented in the fourth section, followed by a discussion in the fifth section. In the sixth section, a short conclusion is drawn. The limitations and recommendations for future research are presented in the last section.

2. A review of relevant literature and theories essential for this study

Different theories provide more in-depth information essential for this study. First of all, this section will discuss the development of PSM into a strategic function. Secondly, the competencies required by purchasing professionals are discussed. Afterwards, the importance and advantages of gender diversity in organisations will be explored. Then, possible explanations for females' underrepresentation in organisations in general are discussed, followed by an exploration of females' underrepresentation in the PSM profession and its causes. Lastly, the hypotheses that will be tested in this study are presented.

2.1 The development of PSM into a strategic function

In the past decades, the function of purchasing has evolved from a traditional activity into a strategic contribution to firm's performance (Habib, 2011; Monczka et al., 2015; Schütz, Kässer, Blome, & Foerstl, 2019). In a rapidly changing business environment, organisations are forced to maintain and improve its competitive position. Prior to the twenty-first century, the purchasing function was considered as a quite stable and predictable job (Monczka et al., 2015). For instance, customers demanded a product, the purchasing professional then sent a request to its suppliers for competitive bids and awarded short-term contracts. However, with the increasing global competition of recent years, it became apparent to organisations that there was a need to manage its purchasing and supply base differently from this traditional approach (Foerstl, Schleper, & Henke, 2017; Gadde & Wynstra, 2017). Competitors that deviated from the traditional approach achieved dramatic cost reductions (Schütz et al., 2019), improvements in quality (Krause et al., 2001) and time reduction in new product development (Le Dain, Merminod, & Yager, 2019). Also, their new methods featured closer relationships with suppliers, which resulted in more long-term contracts (Monczka et al., 2015).

Before the 1960s, purchasing was often recognized by many firms as an inevitable cost of doing business. During this period, firms used mass production as the primary strategy to minimize production costs and maximize production, with little product or process flexibility (Tan, 2001). Additionally, Ballou (2007, p. 333) argued that the focus in this period was mainly on "getting the right goods to the right place at the right time". With this focus and strategy, the process of new product development was time-consuming and organisations were dependent on their in-house technology. Also, it appeared to be difficult for organisations to respond to the ever-changing

customer demands. Consequently, organisations tried to balance its inventory, resulting in high Work in Process (WIP) costs. During these years, little emphasis was placed on cooperative buyer-supplier relationships, as sharing technologies with your suppliers was considered to be too risky (Tan, 2001).

Afterwards, in the 1960s, firms recognized that having high WIP costs was an ineffective way of doing business. Accordingly, the concept of total costs developed, with firms focusing on total costs instead of one sort of costs (Ballou, 2007). This new approach indicated that firms should manage its activities collectively instead of separately. To illustrate, firms recognized that although transportation costs may be high, it can contribute to faster delivery and more reliable service (Ballou, 2007; Tan, 2001). Even though this new approach showed an improved understanding, emphasis was only placed on the outbound movements of goods, with little emphasis on inbound movements (Ballou, 2007). That is, firms only focused on the coordination among the activities within the physical distribution function, instead of coordinating among the other functions. Subsequently, in the 1970s, many firms realised the importance of inbound- and outbound movements and the concept of business logistics was soon to follow. Thus, during these years, the focus changed from maximizing production and minimizing costs to increasing performance (Ballou, 2007).

As the global competition intensified in the 1980s, organisations were forced to deliver low cost, high quality and reliable products with greater design flexibility. Therefore, manufacturers utilized the concept of Just in Time (JIT) to improve its performance and efficiency further. Owing to the concept of JIT, manufacturers began to realize "the potential benefit and importance of strategic and cooperative buyer-supplier relationships" (Tan, 2001, p. 41). Furthermore, manufacturers outsourced their logistics in order to focus on their core competencies. Consequently, the importance of strategic purchasing slowly became apparent. As an example, Porter (1980) included suppliers in his five forces model as a mean to gain competitive advantage. With his model, he showed that the relationship with suppliers, often maintained by the purchasing department, is of strategic importance to gain a competitive advantage. Afterwards, in 1983, Kraljić developed a matrix to categorise a firm's suppliers (see: Figure 1).

Kraljić's categorisation is based on (1) the importance of purchasing and (2) the complexity of the supply market, which allows four quadrants to be defined (Kraljić, 1983). The first quadrant

with low importance and low complexity contains the suppliers that deliver non-critical items with abundant supply. The second quadrant with high importance and low complexity are referred to as leverage items. Those goods have a high impact on organisation's profit, however, lots of suppliers are available to deliver these items. The third quadrant, bottleneck items with high complexity and low importance, contains the suppliers that might be harder to find, however, they are not crucial to the firm. The fourth quadrant with high importance and high complexity are defined as the strategic items. These goods are often scarce and critical to the firm.

		Complexity of supply market	
		Low	High
Profit impact	High	*Leverage items*	*Strategic items*
	Low	*Non-critical items*	*Bottleneck items*

Figure 1: Kraljić matrix. Adapted from Kraljić (1983)

For the different items defined in the matrix, various strategies on how to approach the suppliers are determined by Kraljić (1983). As an example, organisations should obtain a long-term and collaborative relationship with suppliers that deliver strategic items. This long-term and collaborative relationship is becoming increasingly important due to the decreasing number of suppliers. This decreasing number indicates the difficulties organisations face in finding new suppliers for their strategic goods (Schiele, Calvi, & Gibbert, 2012). In addition to this, suppliers' share of patents are going up, especially in high-tech industries where innovations determine a large part of companies' competitive advantage. Consequently, organisations become aware of the benefits of establishing a long-term and collaborative relationship with their suppliers. Organisations nowadays try to become a preferred customer and integrate their supply chain partners in the early stage of new product development (Schiele et al., 2012; Vos, 2019).

2.2 Purchasing competencies required for a successful role performance in PSM

As a result of the aforementioned changing circumstances, appropriate personnel to perform the purchasing function successfully are necessary. As Porter (1980, p. 12) argued, "to meet the demands of the new supply strategy, the company must also upgrade the skills and experience it requires of key purchasing people". Accordingly, Bals et al. (2019) investigated which competencies are needed for a successful role performance in the future. They argued that the following top 10 future competencies are required by purchasing professionals: analytical skills,

automation skills, big data analysis, computer literacy, eProcurement technology, holistic supply chain thinking, process optimisation, strategic sourcing, strategic thinking, and sustainability. These future competencies are different from the current competencies in PSM (e.g. negotiation and communication), implying that other competencies and skills are required for strategic purchasing nowadays. It is critical for organisations to have competent purchasing professionals that possess these future competencies so that they can contribute to organisation's performance. In particular, a purchasing department that consists of professionals that all have their own excellent competencies will create a "best-of-both worlds" situation. Yet it is not clear in literature how this situation is created: how is the purchasing department organised most effectively so that it can contribute to organisation's performance? Who possess the PSM competencies needed for a successful role performance in the future? Putting it differently, what are the differences in purchasing competencies between male and female professionals? Although some scholars revealed that females and males do not differ in their abilities (Hargittai & Shafer, 2006), it is not clear whether this also applies to the purchasing profession.

Since females have outperformed males in educational attainment (Figlio, Karbownik, Roth, & Wasserman, 2019; Jacob, 2002; Jacobs, 1996; Morris, 2012), it might be argued that females also will exceed males in these future competencies. Moreover, Nouguès et al. (2019, p. 25) revealed that "women currently make up 60 percent of the student bodies of procurement and supply chain master's programs in major European countries", implying that females have applicable education to perform supply chain functions in organisations. Furthermore, these females will enter the workforce in a few years, which might indicate a transformation of more females in influential purchasing positions in the future. Also, females might focus on different performance outcomes compared with males, resulting in a more extensive focus on a diverse set of purchasing activities. This implies that increasing the presence of female purchasing professionals could be advantageous for organisations. However, they seem to be underrepresented in the PSM profession (Leaders, 2017; Nouguès et al., 2019)

2.3 What advantages do females bring to purchasing and supply management?

Various scholars have argued that the presence of females in organisations can have several advantages. Especially with the increasing global competition of the last years, organisations become increasingly dependent on their human capital. Therefore, it can be advantageous to have a gender diverse organisational team, since diversity in the workplace can have many advantages

(Green et al., 2002). For instance, Nouguès et al. (2019) revealed that more creativity and openness to change is perceived due to the presence of females in organisations.

In literature, various advantages of gender diversity are reported. Research by Hunt et al. (2015) investigated the factors driving better financial performance in diverse organisations and found four key advantages of diversity in an organisation. The first advantage reflects the advantage in talent recruitment, as talented employees have become scarcer and pricier. Consequently, organisations have to compete with other organisations to attract and retain talented employees. Hunt et al. (2015, p. 9) suggest that leadership diversity can ensure "access to more sources of talent, gain a competitive recruitment advantage, and improve its global relevance". Secondly, it is argued that an organisation's diversity can contribute to improved customer orientation. With a diverse organisational team, companies are able to adjust their organisation to their customer base and establish stronger bonds with them in two ways: reaching key purchasing decision makers and taking a customer perspective. The third advantage reflects the satisfaction among employees. It is argued that, due to more diverse organisational teams, employees feel more satisfied. More specifically, diversity "fosters positive attitudes and behaviours in the workplace" and "boosts individuals' confidence and self-esteem" (Hunt et al., 2015, p. 11). Finally, the fourth advantage of diversity refers to the decision making process. With more diverse members in one team, different perspectives on a problem are added, which might result in a quality improvement of the answers. This quality improvement in turn contributes to a firm's innovation. In brief, according to Hunt et al. (2015), organisational diversity can contribute to (1) improved talent recruitment, (2) improved customer orientation, (3) employee satisfaction and (4) better decision making and innovation.

Likewise, another study by Carter, Simkins, and Simpson (2003) also mentioned five advantages of gender diversity. The first advantage is partly in line with the advantage of improved customer orientation of Hunt et al. (2015), while Carter et al. (2003) have gone one step further. Particularly, the latter argued that diversity promotes a better understanding of the market place, also including suppliers, instead of only its customers. More precisely, a diverse organisation may increase its ability to penetrate the market by matching itself with potential diverse suppliers and customers. Secondly, diversity improves the creativity and innovativeness of an organisation. This advantage is in line with the results of the study by Nouguès et al. (2019), who argue that more

creativity is perceived due to the presence of females. Thirdly, it is argued that diversity contributes in a positive way to problem solving, indicating that problem solving is more effective with a diverse board. According to this view, problems are evaluated in many perspectives with different views on how the problem should be solved. This advantage is partly in line with the last argument of Hunt et al. (2015), as problem solving is part of the decision making process. This implies that Hunt et al. (2015) have related their advantage to a greater subject compared to Carter et al. (2003). Fourth, with a diverse team at the top, managers tend to take a broader view, which in turn positively contributes to effective leadership. As an example, managers that operate in a diverse team better understand the complexities in the environment of the organisation, which then leads to more astute decisions (Carter et al., 2003). Finally, the last argument indicates that diversity enhances an organisation to establish more global relationships, by being sensitive to other cultures instead of only its own culture. Thus, according to Carter et al. (2003), gender diversity can contribute to (1) a better understanding of the market place, (2) improved creativity and innovativeness, (3) more effective problem solving, (4) more effective corporate leadership, and (5) establishing global relationships.

In accordance with these advantages, some scholars also investigated the relationship between diversity and organisational performance. For instance, Hunt et al. (2015) investigated the relationship between diversity and performance for 366 public companies across different industries in the United Kingdom, the United States, Canada and Latin America. Their results have shown that the companies that are in the top quartile for gender diversity were 15 per cent more likely to have above industry average financial returns. Likewise, companies that were in the fourth quartile for gender diversity correlated with poorer financial performance. However, this relationship is only correlational and not causal, indicating that financial performance does not improve as the gender diversity in the organisation increases. In fact, it only states that organisations who are gender diverse, are more successful than organisations that have low gender diversity. In like manner, Adler (2001) found a strong correlation between firms with a high number of female executives and profitability. The study used data from 215 Fortune 500 companies in a time period of 19 years, from 1980 till 1998, and measured profitability in four different ways. The results show a clear pattern: Fortune 500 firms with a high number of female executives outperformed their industry median firms on all measures of profitability. In addition, firms that scored highest on promoting females, were more profitable than firms that gained a

"good" score (Adler, 2001). Similarly, Gill (2018) found among the 99 largest listed companies in the United Kingdom, a significant positive relationship between diversity and financial performance. More precisely, financial performance is measured by five performance indicators, i.e. return on invested capital (ROIC), current ratio, return on assets (ROA), asset turnover, and return on equity (ROE). The results indicate that diversity is significantly positively correlated with financial performance, measured in terms of ROIC, ROA, current ratio and asset turnover. However, no statistically significant relation was found between diversity and ROE. In conclusion, the study revealed that diversity leads to better social reputation, organisational performance and financial performance. Furthermore, another study by Perryman, Fernando, and Tripathy (2016) revealed that organisations with higher diversity correspond with lower risk and better performance. More specifically, organisations take less risk and deliver better performance with the presence of females in boards.

Despite the above findings, a study by Galbreath (2018) argues that gender diversity and financial performance are not directly correlated. His study takes the position that this relationship is indirect and mediated by social corporate responsibility. More specifically, organisations that have high diversity in their boards, with for instance more females, are more likely to engage with the principles of social corporate responsibility, which then positively influences a firm's financial performance. By using a sample of 296 Australian firms, the study found evidence for this indirect link between gender diversity and financial performance. Additionally, Lauring and Villeseche (2019) investigated the relationship between a firm's openness to diversity and its performance. In other words, the study researched whether firms that are open to organisational diversity performed better. The results indicate that there is no significant direct relationship between gender diversity and firm performance. Although they found a positive significant relationship between openness to diversity and performance, their results suggest that this relationship is moderated by the gender composition of an organisational team. More specifically, positive diversity attitudes are more effective to an organisation when team gender diversity is high (Lauring & Villeseche, 2019).

To summarise, a gender diverse workforce can have several advantages. Moreover, gender diversity might contribute to better financial performance. This indicates that increasing the presence of females in organisations can be advantageous, as they can provide organisations with a greater variety of knowledge, skills, and insights. Although the abovementioned studies

addressed the advantages of gender diversity in organisations in general, or in other words are not PSM-specific, it is assumed that these advantages also apply to the purchasing profession.

2.4 Potential explanations for females' underrepresentation in organisations

With the aforementioned correlational relationship between gender diversity and organisational performance, and the advantages of gender diversity, it can be questioned why there are still fewer females at the top of organisations than males. Therefore, this part will discuss the rationale for the underrepresentation of females in higher working positions.

Formerly, most influential roles in organisations were occupied by males (Kalev & Deutsch, 2018; Powell, 2018). Nowadays, however, organisations are obliged to resolve the imbalance of males and females in senior working positions, as females are argued to be as equally capable as males in fulfilling executive officer roles (Chen, Crossland, & Huang, 2016). Even though quota laws and targets might have helped females by increasing their representation in higher working positions, females still obtain lower percentages in executive officer roles compared to males. In almost all countries, the proportion obtained by females in management positions is increasing, however, males still have an overbalance in these functions (Powell, 2018). To illustrate, in 1996 only 0.2 per cent of the CEOs in Fortune 500 companies were female, whereas in 2019 6.6 per cent of these CEOs were female. Thus, while the number of female CEOs has increased with 6.4 per cent point in the last 23 years, females still represent a small share of all CEOs. As Powell (2018, p. 3) argued, female managers often concentrate in "lower management levels", and "hold positions with less status, power and authority" compared to males.

2.4.1 Gender stereotypes

Scholars often refer to the presence of gender stereotypes and the glass-ceiling concept in explaining gender differences in organisations. Those gender stereotypes generate biased perceptions affecting the way females are evaluated in work settings (Heilman & Parks-Stamm, 2007a). However, it affects not only how males evaluate females, but also how females view themselves (Ellemers, 2018; Nouguès et al., 2019). Furthermore, individuals are not stereotyped based on what they have done or what they have achieved, yet it is because they belong to a specific gender group that has general expectations (Heilman, 2012). As a result, females are often impeded in their career advancement.

In literature, females are stereotyped as more communal whereas males are perceived as agentic (Eagly & Mladinic, 1989; Ellemers, 2018). Communal qualities are defined as being kind and caring, concerned with others and sensitive to others' feelings (Ellemers, 2018; Kite, Deaux, & Haines, 2008). Agentic traits, on the other hand, are defined as being task-oriented, competitive, assertive, dominant and rational, "which can be characterized as reflecting social dominance" (Ellemers, 2018; Heilman, 2012; Rudman & Glick, 2001, p. 745). These gender stereotypes explain the series of obstacles females face in entering managerial and leadership roles, since most qualities needed for high-authority jobs are believed to be the qualities that are consistent with stereotypes of males (Heilman & Caleo, 2018; Heilman & Parks-Stamm, 2007a). Consequently, females are often thought of as insufficient in their qualities to have such upper-level positions as males are still evaluated more favourably in their core competences (Eagly & Mladinic, 1989; Ridgeway, 2001). Hence, most females are disadvantaged by gender, even if they are viewed equally powerful as males.

The aforementioned gender stereotypes also seem to be present in the purchasing profession. More specifically, Nouguès et al. (2019) asked 300 CPOs in their survey to react to some common stereotypes. The results demonstrate that more than 45 per cent of the CPOs stated that interpersonal skills –such as empathy and caregiving- are feminine strengths, whereas risk-taking, decision-making, and rationality are considered as masculine strengths. Furthermore, almost 40 per cent of the CPOs argued that negotiating and working long hours is considered as a masculine attribute, while "high flexibility is key for women" (p.12). These agreements on the common stereotypes are in line with the gender stereotypes mentioned above. Also, 33 per cent of the CPOs in the survey feel that males have greater chances to develop professionally compared to females. This implies that, according to Nouguès et al. (2019), males still win at career development in PSM.

2.4.2 The glass-ceiling concept

Another reason for the underrepresentation of females in leadership roles relates to the glass-ceiling concept, which is an important topic in understanding the barriers females face in organisations (Barreto, Ryan, & Schmitt, 2009). The glass-ceiling concept is often used to describe the experiences of females in the workplace. It denotes that males dominate the upper functions of management in organisations and that gender disadvantages are stronger at the top of the

organisation than at lower levels (Cotter, Hermsen, Ovadia, & Vanneman, 2001; Glass & Cook, 2016). More specifically, Barreto et al. (2009) define a glass-ceiling as follows:

> The word ceiling implies that women encounter an upper limit on how high they can climb on the organisational ladder, whereas glass refers to the relative subtlety and transparency of this barrier, which is not necessarily apparent to the observer (p.5)

This glass-ceiling also seems to be present in PSM (Nouguès et al., 2019), as 42 per cent of the CPOs surveyed stated that females are not promoted at the same speed as males. Additionally, 38 per cent feel that females "have less chance of being promoted to management positions" and 39 per cent feel that "women's access to senior company leaders is more restricted than that of men" (Nouguès et al., 2019, p. 8). These findings indicate that, also in PSM, males more easily dominate management functions than females. In other words, females often feel disadvantaged by gender in advancing up the ladder to management and executive positions.

It is important to note that the glass ceiling must be distinguished from other formal and legitimated barriers, such as work experience and educational level, as the latter are measurable and visible, whereas the glass ceiling is considered as artificial and not visible. Cotter et al. (2001) defined four criteria that should be met in order to define a gender inequality as a glass-ceiling effect. Firstly, the concept of glass-ceiling should reflect a job difference that is unexplained by a person's past qualifications or achievements. Secondly, the glass ceiling concept should refer to inequalities at high levels of outcomes, indicating that gender differences increase as one moves up the hierarchy. The third criteria is described as: "A glass ceiling inequality represents a gender or racial inequality in the chances of advancement into higher levels, not merely the proportions of each gender or race currently at those higher levels" (Cotter et al., 2001, p. 659). This criteria states that the glass ceiling concept is about the change over time in promotions to higher positions and raises of income, instead of the percentage females at the top at a moment in time. Finally, the fourth criterion states that the disadvantages of the glass-ceiling should increase during the career. Those different conditions imply that not all gender inequalities should be referred to as the glass-ceiling and that the concept is often misunderstood. However, the "real" glass-ceiling concept is often argued to disadvantage females in working positions.

2.4.3 Social role theory

The development of gender stereotypes implies that people have allocated different attributes to males and females. Also, it shows how people believe in the existence of overall differences between males and females. As research on gender stereotypes intensified in the 1980s, it became clear that there was some kind of a consensus between the beliefs people hold on gender differences and the scientifically documented sex differences (Eagly, Wood, & Diekman, 2000). Partially owed to this, the social role theory was developed, as researchers wanted to explain why people of different sexes behaved differently. The theory argues that people stereotype males and females based on their observations of the role performance (Eagly et al., 2000). To put it differently, the social role theory reflects two aspects: (1) the sexual division of labour and (2) the gender hierarchy in society. Here, the sexual division of labour refers to the typical roles males and females have in society. To illustrate, females are more likely to be homemakers and to take care of the children, whereas males are more likely to have full-time roles (Bird & Codding, 2015). Furthermore, the gender hierarchy refers to the phenomena of inequalities between males and females: females are often seen as "a man's subaltern" and it is argued that "she evolves under his shadow" (N'guessan, 2011, p. 186). These two aspects are argued to foster differences in the behaviour of both sexes.

As argued by the social role theory, gender differences in behaviour originate from the division of males and females into social roles within their society. That is, they are derived from the typical characteristics that people hold for different roles (Eagly & Wood, 2016; Eagly et al., 2000). Those different roles contain different activities, which is often not proportionate, indicating that there is a differing balance of activities performed by males and females. Consequently, males and females try to fit in these activities by acquiring the skills that are needed for a successful role performance. Furthermore, it is argued that the different sexes adapt their social behaviour to that specific role. Here, a distinction is made between characteristics related to communal social behaviour and agentic social behaviour. In other words, social behaviours are categorised based on the gender stereotypes in society. For instance, in a homemaker-resource provider division of labour, females acquire skills for cooking and child caring, where males learn skills that are marketable for the paid-economy, such as building from wood. Consequently, the role of females in cooking and child caring favours a "being kind-" and "concerned with others" approach, which is referred to as communal behaviour (Eagly et al., 2000). Hence, females behave communally to

perform their role as a child carer successfully. On the other hand, male employers often behave aggressive and decisive, which is referred to as agentic behaviour. This agentic behaviour is assumed to be necessary to perform the role as an employer successfully. In brief, males and females try to accommodate to the roles that are available to them, and to acquire the specific skills needed for a successful role performance.

Although the social role theory explains the different behaviours for males and females by the differing assignments into social roles, the differences in behaviour also seem to be mediated by psychological and social processes (Eagly et al., 2000). An important facet here is the formation of gender roles, which includes the shared expectations people have for an identified sex. Such a gender role is adopted when people behave according to their stereotype. In particular, the gender stereotype of females as being more communal are incorporated into a gender female role. Likewise, the gender stereotype of males as being more agentic is incorporated into the gender role of males. Those different gender roles "begin to be acquired early in childhood and are elaborated throughout childhood and adolescence" (Eagly et al., 2000, p. 221). The gender expectations associated with each gender role "act as a normative pressure that foster behaviours consistent with sex-typical work roles, through expectancy confirmation processes and self-regulatory processes" (Eagly et al., 2000, p. 222). As a result, gender roles can increase differences in behaviour among males and females, while there is no difference in psychological or inborn characteristics.

2.4.4 "Opting-out" or "pushed out"

Another explanation for the low representation of females in higher working positions refers to the "opt out" revolution. This concept reflects the perception of the experiences of working mothers. It contends that females are not discriminated or impeded, instead, they experience multiple choices of which to choose from (Jones, 2012; Kossek, Su, & Wu, 2017). For instance, if a woman chooses an option that contradicts her equality, she forsakes senior positions, or in other words, denies the discussion of discrimination, because she admires to adopt the traditional female role at home. In simpler, females opt themselves out of senior working positions by choosing to be selfless and put their children first.

In 2003, Lisa Belkin wrote an article about this opt-out revolution in the New York Times, aiming to demonstrate that professional, highly educated females were leaving the work force in

large numbers (Belkin, 2003). By conducting interviews with forty highly educated females, she revealed that most females had chosen to leave their jobs in favour of staying at home and taking care of the children. Other mothers have not left the workforce completely, but have scaled down their roles in the crucial career-building years (25 to 44 years) (Belkin, 2003). The study also demonstrates the low percentage of females working fulltime: from the classes of 1981, 1985 and 1991, only 38 per cent of the females were working fulltime. Although there are also ambitious, achieving females that climbed the organisational ladder and are equals of any man, most females opt themselves out in consciously choosing to leave the workforce. Thus, as Belkin (2003, p. 18) stated in her article: "It's not just that the workplace has failed women. It is also that women are rejecting the workplace".

Instead of choosing to opt out the workforce as an explanation for females' underrepresentation in senior working positions, other scholars have argued that females' career progress are impeded. This view is referred to as "pushed out" (Kossek et al., 2017) and contends that females are subject to specific, observable impediments in their personal career development. Three perspectives on these impediments in females' career equality are identified, that is (1) career preference, (2) gender bias, and (3) work-family experiences. The first perspective, career preference, suggests that females choose work environments and jobs that are in line with their career interests and goals, which adversely affect gender equalities. It holds that females tend to leave the workforce because they perceive an unsuitable balance between their career preferences and the work environment (Kossek et al., 2017). Specifically, females tend to have stronger preferences for work environments that suit with communal characteristics, such as working with and helping others. Besides, females tend to place more importance on work-life balance, whereas males are more likely to prioritize their personal career development. The second perspective of gender bias draws upon the social role theory, stating that differences in social roles cause role expectancies for each gender. These expectancies then influence assumptions of how the different genders should behave. On the individual level, females tend to incorporate within the gendered expectations and adjust their behaviours to these expectations. Consequently, females assess themselves with prejudices in their fit with male gender-typed jobs and do not enter these jobs. Moreover, females who work in male-dominated roles encounter negative stereotypes on their role performance. These stereotypes also affect females' motivation to enter these jobs and constrain their abilities to develop their personal career. The third perspective of career inequalities reflects

the work-family experiences of the genders. More specifically, this view argues that work and family roles are irreconcilable due to conflicts in time, energy and behaviours. This impacts those workers that are involved in family care the most, which are predominantly females. Furthermore, females have greater interest in jobs with flexible work policies so that they are able to take the main responsibility for childcare. Consequently, females are constrained in their advancement because employers tend to value work-centric employees that have work as the main focus in life instead of employees that value flexibility. In addition, due to their interest in high flexibility, females are often characterized as "less motivated" compared to males (Kossek et al., 2017; Williams, Blair-Loy, & Berdahl, 2013).

According to the above discussion, there are two different explanations for females' underrepresentation. In short, the opt-out revolution argues that females opt themselves out by choosing to put their children first, whereas the pushed-out concept argues that females are obstructed by three observable impediments. The opt-out and pushed-out concepts are different from the earlier mentioned glass-ceiling, gender stereotypes and social role theory explanations, as the latter explains that females are affected by their environment, whereas the opt-out and pushed-out concepts suggest that the problem is at females themselves.

2.4.5 Gender differences in risk attitude: low risk appetite among females

Another explanation for females' underrepresentation in senior working positions refers to gender differences in risk taking. This gender difference might have important implications for organisations, implying that it can be critical to its success (Johnson & Powell, 1994). More specifically, an organisation's success is partly associated with the decision making and risk ability of its managers. For instance, organisations might benefit from managers that are willing to make risky decisions positively contributing to an organisation's performance. As males are often argued to have a higher degree of risk appetite, organisations tend to hire male managers instead of females. In order to find out how males and females differ in their risk taking behaviours, this part will discuss the scientifically documented gender differences.

In the literature, females are often argued to be more risk averse than males (Charness & Gneezy, 2012; Friedl, Pondorfer, & Schmidt, 2019). More than twenty years ago, Byrnes, Miller, and Schafer (1999) conducted one of the first meta-analyses of 150 studies to compare the risk-taking trends among gender. In general, their results have shown that males are more likely to take

risks compared to the female participants. However, a more detailed analysis indicated that these gender differences vary among context and age level. As an example, gender differences in risk taking while driving increased with age, whereas differences in age for gambling only increased at a small rate. To confirm the variation among context and age level, several scholars have subsequently focussed on investigating in which context and age level gender differences in risk taking appear.

First of all, Weber, Blais, and Betz (2002) assessed the (1) risk perceptions and (2) risk behaviours among gender for decisions from five content domains: financial, health/safety, recreational, ethics and social decisions. Their results firstly show that male and female respondents differ significantly in their risk *perception* of all content domains, except for social risks. Specifically, females perceived financial, health/safety, recreational and ethical risks to be greater compared to males. This contradicts the more recent finding of Friedl et al. (2019), who found that females are, also in social environments, more risk averse than males. On the contrary, it is in line with the findings of Charness and Gneezy (2012), who revealed that females make smaller investments than males and thus are financially more risk averse. Secondly, the analysis of gender differences in risk *behaviours* also reported significant gender differences in all domains, except social risk. Moreover, female respondents were less likely to engage in risky behaviours (except for social risk behaviour). Overall, the study has shown that gender differences are indeed content-specific, confirming Byrnes et al. (1999)'s finding that gender differences in risk taking vary across context (Weber et al., 2002).

In like manner, Reniers, Murphy, Lin, Bartolomé, and Wood (2016) found among female and male students that "males perceived behaviour as less risky, took more risks, were less sensitive to negative outcomes and were less socially anxious" than females (p. 7). Furthermore, they revealed that age indeed has an influence on respondent's risk perception and risk-taking behaviour. Specifically, although the authors predicted that risk-taking would decrease with age, the results revealed that older respondents were more likely to engage in risky situations. These results are thus in line with the findings of Weber et al. (2002), who stated that gender differences in risk taking vary among age.

The studies mentioned above all report the same conclusion: females are more risk averse than males (Charness & Gneezy, 2012; Friedl et al., 2019; Reniers et al., 2016), which seems to

affect the professional career advancement of females. In order to find out why females have this lower risk appetite, Croson and Gneezy (2009) identified three potential explanations. First of all, gender differences in risk taking may stem from differences in emotional reactions to risky situations. Specifically, females tend to experience emotions more strongly than males, affecting the utility of a risky decision. As an example, Croson and Gneezy (2009) argue that females report more intense nervousness and fear in anticipation of negative outcomes compared to males. This more intense nervousness and fear is confirmed by McLean and Anderson (2009, p. 502) who demonstrate that females report "greater fear and anxiety than man across the life span". This fear in turn negatively affects the risk appetite among females, implying that they tend to be more risk averse in evaluating outcomes relative to males. The stronger evaluation of emotions among females also seem to affect the evaluation of probabilities, in which females overweight the probability of losing and consequently will act in a more risk-averse manner (Croson & Gneezy, 2009).

The second explanation offered for the increased risk aversion among females is based on its confidence level (Croson & Gneezy, 2009). In literature, males and females are often argued to be overconfident, with males being more overconfident in uncertain situations than females (Barber & Odean, 2001; Huang & Kisgen, 2013; Lonkani, 2019). In explaining this overconfidence, scholars often refer to the "Dunning Kruger effect" (Kruger & Dunning, 1999). This Dunning Kruger effect is a cognitive bias in which people overestimate their competencies relative to their peers. Especially those who performed poorly were completely unaware of their incompetence. In essence, Dunning and Kruger demonstrate that people are not only incompetent, they also overestimate their own competencies. This overconfidence, especially among males, consequently influences the perception of a risky situation, and will be further discussed in paragraph 2.4.6 below.

The third explanation of gender differences in risk taking preferences and behaviour refers to the interpretation of the situation involving risk. Particularly, males often perceive a risky situation as a challenge, whereas females perceive the identical situation as a threat. The interpretation of challenging among males demands for participation, whereas females' interpretation as a threat encourages avoidance (Croson & Gneezy, 2009). The differences in risk

taking might thus also be the result of differences in how the risk is evaluated, in which females are differently motivated than males.

In conclusion then, females are often argued to be more risk averse compared to males. However, this gender difference is claimed to vary among age and context. Additionally, potential explanations for gender differences in risk taking might stem from differences in (1) emotional reactions to risky situations, (2) confidence level, and (3) the interpretation of the risky situation (Croson & Gneezy, 2009). As argued by Carr, Leong, and Sheu (2000, p. 1432): "purchasing must be willing to take risks before the function can develop the strategic orientation necessary to contribute to the firm". This indicates that risk-taking is critical for purchasing professionals to successfully perform their function, and that females are thus disadvantaged by their risk-aversion.

2.4.6 Gender differences in self-assessment and confidence level: low confidence level among females

In literature, various differences between the genders are reported, such as the above-mentioned differences in risk perception and attitude. Another gender difference that is important for this study are the differences between males and females in their self-assessment and confidence level. This gender difference is important since a low confidence level might hinder individuals' chance to promotion (Sarsons & Xu, 2015). As females are often argued to have a lower confidence level compared to males, this might be an explanation for the underrepresentation of females too. Accordingly, this section will discuss the reported gender differences in self-assessment and their confidence level.

In literature, females are often argued to underestimate their performance and abilities as a result of their lower expectancies of success compared to males (Beyer, 1990). These low expectancies indicate that females tend to attribute success more externally, or in other words, do not take credit for their successful performance. This phenomenon is in literature also known as self-derogatory bias. Males, on the contrary, perceive it as important to underscore their successful performance, which is referred to as self-enhancing bias. Beyer (1990) therefore investigated whether gender differences in these biased self-perceptions exist and found that self-consistency tendencies can partially explain self-perception biases. In particular, he found that males overestimated their performance on three tasks, whereas females overestimated twice. Furthermore, males underestimated performance only once, whereas females underestimated their performance on four tasks (Beyer, 1990).

Likewise, Swanson and Lease (1990) investigated gender differences in self-ratings of abilities and skills among 112 psychology students in which they should rate themselves on 14 general abilities and 30 specific skills on a 5-Point Likert scale. Here, significant gender differences between self-ratings of females and males are found on two different categories: males rated themselves higher on realistic skills compared to females, whereas females rated themselves higher on social skills. Another study by Blanch-Hartigan (2011, p. 8) among medical students found that "females tend to underestimate and males tend to overestimate performance". This finding is also confirmed by Lenney (1977, p. 117), who theorised that "in many situations, (…) men tend to overestimate their performance and women tend to underestimate their performance". However, Jakobsson (2012) only found that females underestimate themselves, whereas no evidence was found for males in overestimating themselves.

As a possible explanation for the aforementioned gender differences in self-assessment, scholars often refer to confidence level differences between males and females. In particular, males are often argued to be more confident compared to females (Pallier, 2003). Therefore, Sarsons and Xu (2015) investigated the confidence gap between top economists of U.S. universities and found that females are less confident than males along three margins. First of all, females were less likely to provide any answer on survey questions regarding the economy. Secondly, females were less likely to give extreme answers. This indicates that females would rarely give answers such as "strongly agree" or "strongly disagree". Thirdly, females seem to be less confident in their answer accuracy and express a level of confidence that is 0.27 points lower than males (measured on a scale of 1 to 10). The authors add that this lower level of confidence is mainly a consequence of females' answers on topics that are outside of their field of expertise.

The idea of females being less confident than males is confirmed by Bleidorn et al. (2016), who tested for gender differences in self-esteem among almost 1 million individuals living in 48 different nations. Firstly, they revealed that males consistently reported higher self-esteem levels than females. Besides, they also found an age difference in self-esteem. Specifically, they indicated that "both genders showed age-graded increases from late adolescence to middle adulthood" (Bleidorn et al., 2016, p. 405). This age difference is confirmed by Shaw, Liang, and Krause (2010), who found that the gender gap in self-esteem develops in adolescence, and continues through early and middle adulthood.

In conclusion, several explanations for the underrepresentation of females in senior working positions are reported. These explanations are summarised in Figure 2 below.

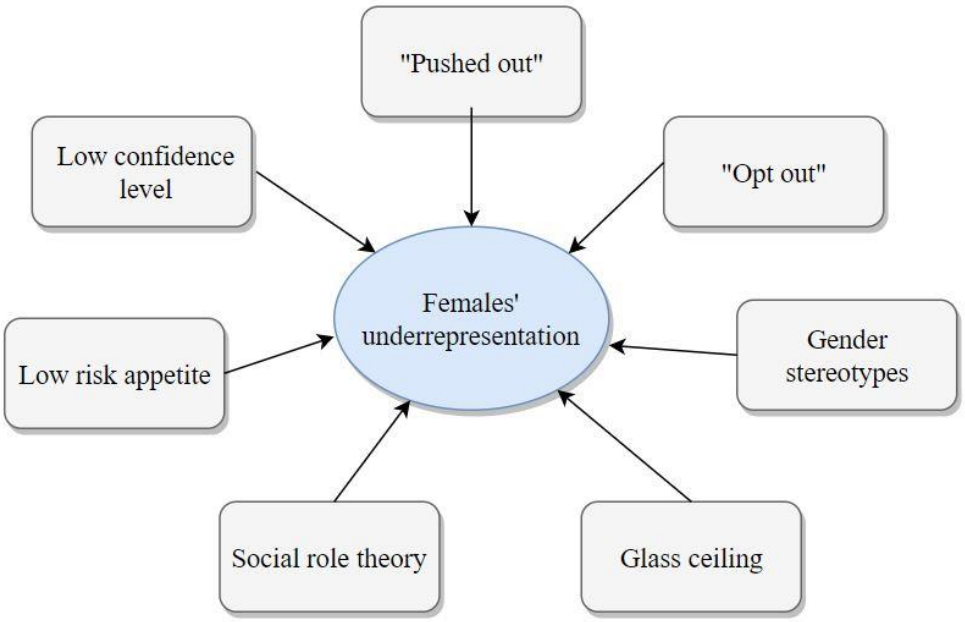

Figure 2: Explanations for females' underrepresentation in senior working positions

2.5 The low representation of females within PSM and its causes

Besides females' underrepresentation in senior working positions in general, females also seem to be underrepresented in the PSM profession. Nouguès et al. (2019) demonstrated for instance that 20 per cent of the CPOs in Asia, Europe and the United States were female, while the procurement salary survey found that only 12 per cent of the CPOs worldwide were female (Leaders, 2017). Furthermore, the representation of females within PSM are lower than in other professions, such as in HRM and marketing (Lawrence, Lonsdale, & Le Mesurier, 2018). This is noticeable since 60 per cent of the students in supply chain studies in Europe are female (Nouguès et al., 2019). Therefore, Lawrence et al. (2018) investigated the origins for the low representation of females within procurement. In order to find out, they conducted semi-structured interviews with both male and female procurement professionals from the United Kingdom. First of all, the interviews confirmed the observable impediments of females' career progress of Kossek et al. (2017). In other words, the impediments are also applicable in the PSM profession. Specifically, females are underrepresented in senior executive positions within PSM due to "opt-out" choices, inadequate work designs, male-dominated cultures, and negative stereotypes. Besides these evidences,

Lawrence et al. (2018) also found two PSM-specific impediments for females' underrepresentation in PSM. The first impediment relates to the very high level of travel associated with PSM. This high level of travel is often irreconcilable for females that prefer to take care of their children. Consequently, females prefer other professions with lower levels of travel to fulfil their ambitions. A survey by Phlippen and Duijn (2019) confirmed this explanation. Their study showed that females want to travel shorter distances than males, as females prefer to travel 21 kilometres less than males. More specifically, males are willing to travel 49 kilometres for their job, whereas females have a maximum of 28 kilometres. As a result, their career opportunities are limited. The second impediment refers to the aggressive ethos "that is still believed to characterise many procurement functions and influence actions within them" (Lawrence et al., 2018, p. 310). This aggressive ethos seems to be unattractive to females, as they prefer to have jobs that require communal qualities. Accordingly, females tend to prefer other professions where communal qualities are higher valued.

2.6 Hypothesis development

Various scholars have argued that females can bring several advantages to organisations, such as more creativity and a higher level of satisfaction among employees (Nouguès et al., 2019). In addition, a gender diverse team might positively contribute to firm's financial performance (Gill, 2018; Hunt et al., 2015). Yet, most purchasing positions are held by males. In other words, females are underrepresented in the PSM profession, due to several aspects such as the gender stereotypes in society, females' tendency to underestimate and their low confidence level (Bleidorn et al., 2016; Ellemers, 2018; Jakobsson, 2012). As a consequence of females' low confidence level, their tendency to underestimate performance, and their less years of experience due to opt-out choices, it is expected that females rate themselves lower on the PSM competencies than males. Therefore, the following hypothesis is formulated:

H1: Females rate themselves significantly lower on all PSM competencies than males.

In addition, theories have shown that females are often stereotyped as being more communal, particularly defined as being kind and social, concerned with others and sensitive to others' feelings (Ellemers, 2018; Kite et al., 2008). Therefore, it is expected that females would perceive several competencies more important than males, such as advanced networking, corporate

social responsibility, cross-functional cooperation, and supplier relation management, as those competencies reflect their concern about others. The following hypotheses are formulated:

H2a: Females perceive cross-functional cooperation and supplier relation management skills significantly more important for a successful role performance than males.

H2b: Females perceive advanced networking and corporate social responsibility skills significantly more important for a successful role performance than males.

On the other hand, males are in literature often stereotyped as being more agentic, particularly defined as being competitive, decisive, aggressive and forceful (Ellemers, 2018; Rudman & Glick, 2001). Therefore, it is expected that males would perceive two competencies more important than females, that is (1) cost reduction and (2) negotiation skills, as those competencies reflect males' preference to participate in competitive environments. The following hypothesis is formulated:

H2c: Males perceive cost reduction and negotiation skills significantly more important for a successful role performance than females.

Then, regarding purchasing professionals' focus, females are expected to focus more intensively on outcomes that are in accordance with their stereotype of being concerned with others, such as increasing sustainability and supplier's satisfaction. Males, on the contrary, are expected to focus more intensively on outcomes that are in line with their agentic characteristics, such as reducing costs and gaining a competitive advantage. Accordingly, the following hypotheses are formulated:

H3a: Females are significantly more intensively focused on increasing sustainability and supplier's satisfaction than males.

H3b: Males are significantly more intensively focused on reducing costs and gaining a competitive advantage than females.

3. Methodology

3.1 Research design

The purpose of this research is to provide insights into gender differences in purchasing professionals' competencies and professional focus, and to explore their experience regarding those differences. Accordingly, the following two central research questions are formulated:

CRQ1: *How do males and females differ in the purchasing and supply management profession with regard to their competencies and professional focus?*

CRQ2: *How are these gender differences experienced among purchasing professionals?*

In order to provide a consistent structure, the first central research question (CRQ1) is divided into three sub questions:

- What are the differences in PSM competencies between the genders?
- What are the differences in perceived importance of the competencies between the genders?
- What are the differences in professional focus between the genders?

The first central research question (CRQ1) will be answered by means of a quantitative analysis, while the second central research question (CRQ2) will be reported using a qualitative methodology. This indicates that a mixed-method approach is applied to this study, which is a research design at which both quantitative and qualitative methods within the same study are used. Mixed methods research include several types of design categories, such as explanatory, exploratory, parallel and nested designs (Shorten & Smith, 2017). For this research, an explanatory sequential mixed method is applied. This particular method involves quantitative data analysis first, and then collecting and analysing qualitative data with the aim of explaining the quantitative results. This method allows for viewing phenomena from different viewpoints and to gain a better understanding of those phenomena (Shorten & Smith, 2017), implying that it is most appropriate for this study. Furthermore, mixed method research can be helpful in clarifying the nature of intentions or accomplishments (Kelle, 2006; Subedi, 2016).

As mentioned above, the first approach in the explanatory sequential mixed method includes the quantitative data analysis. In order to explore the gender differences regarding purchasing professionals' competencies and professional focus, or in other words to answer the

first central research question (CRQ1), an existing survey will be analysed by means of SPSS. This analysis involves the one-way ANOVA analysis of variance with post-hoc test LSD and aims to investigate on which competency and professional focus subjects males and females differ from each other.

The second approach in the explanatory sequential mixed method is the qualitative data analysis. In order to get an in-depth understanding of purchasing professionals' experiences regarding gender differences, or in other words to answer the second central research question (CRQ2), semi-structured interviews will be conducted among ten PSM professionals. These interviews are conducted to intensively explore the experience of the PSM professional concerning gender differences and will be analysed using open and axial coding.

Hence, in order to answer the two central research questions of this study, an explanatory sequential mixed method is applied. The overall research methodology is visualised in Figure 3 below. The explanatory sequential mixed method is explained graphically in Figure 4.

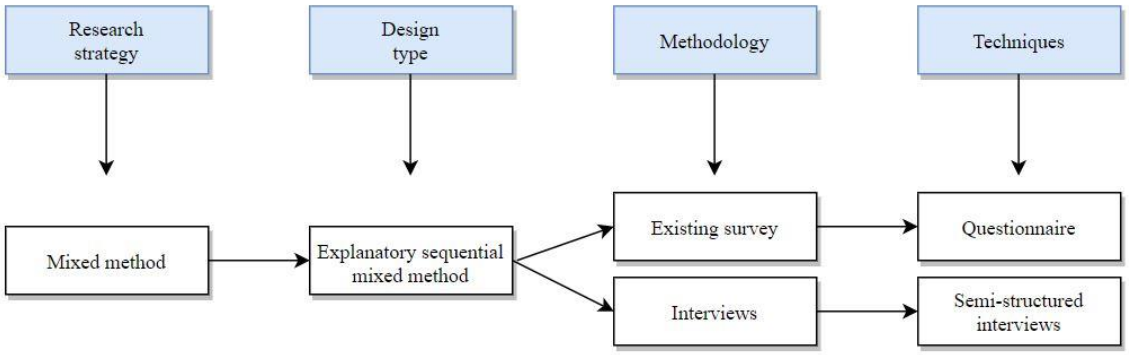

Figure 3: Overall research methodology

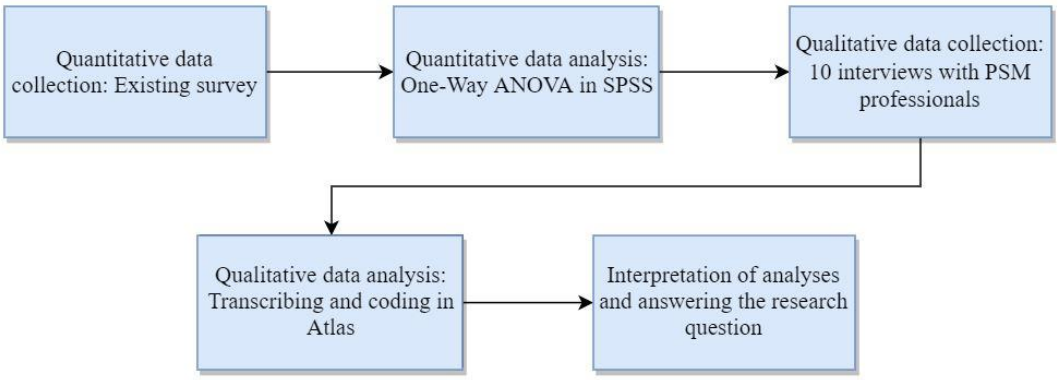

Figure 4: Explanatory sequential mixed method applied to this study

3.2 Unit of analysis

The unit of analysis for this study are employees that operate in the purchasing and supply management profession. The purchasing professionals that filled out the European Survey on Purchasing skills were from European countries (predominately Dutch, 68%), work at three different levels (junior, senior, executive) and in three different sectors (industry, service, public procurement). The purchasing professionals that took part in the interviews all have a Dutch nationality and are employed in the private as well as the public sector. In turn, the term "respondents" will refer to the purchasing professionals that filled out the European Survey or took part in the interviews.

3.3 Data collection

The explanatory sequential mixed method approach includes two types of data collection: quantitative and qualitative. For structuring and clarifying purposes, this paragraph is split into two sub sections, at which both quantitative and qualitative collection methods are explained.

3.3.1 Quantitative data collection

First of all, the basis of this study is the European Survey on Purchasing Skills 2017, which was collected by project PERFECT. PERFECT stands for Purchasing Education and Research for European Competence Transfer and aims to define what PSM knowledge, skills and competencies are needed for a professionals' success. On behalf of this project, a survey was conducted among European PSM professionals in 2017. Approximately 3200 European purchasing professionals were invited via LinkedIn to participate in the online survey, which resulted in a response rate of >18% (n = 581). Females accounted for approximately 25 per cent of the respondents, whereas 75

per cent were males, with a mean age of 43 and 46 respectively. Males had, on average, more years of experience in the purchasing profession (12) compared to females (10). Most respondents had an Western-European nationality, with 68 per cent being Dutch, 12 per cent French and 7 per cent German.

The survey contained 250 question items, in which participants were asked to describe their role, purchasing objectives, professional focus, personal information, the extent to which several subjects are important for their job, and the extent to which they are competent on these subjects. The subjects were divided in six categories, including planning and strategy, organisational structure, process organisation, human resources and leadership, controlling, and personal skills. Most of these questions were measured on a 5 Likert scale, ranging from strongly disagree to strongly agree, not important to very important and no competence to training others in this skill. Questions concerning professionals' job title and personal information were open ended or multiple choice. A more extensive overview of the question items can be found in Appendix 1.

3.3.2 Qualitative data collection

Secondly, in order to get an in-depth understanding of purchasing professionals' experience regarding gender differences in the purchasing profession, the results of the European Survey are further investigated by conducting semi-structured interviews with ten PSM professionals. Semi-structured interviews are chosen so that experiences can be assessed on a personal level. Although the questions and interview guide in semi-structured interviews are prepared beforehand, it is allowed to deviate from these questions. Semi-structured interviews therefore enable the interviewer to define follow-up questions based on the participant's response (Kallio, Pietilä, Johnson, & Kangasniemi, 2016) and is thus most appropriate for this study. The semi-structured interview guide can be found in Appendix 2.

Participants were invited via a private message in LinkedIn or via email to take part in the interviews. Specifically, three male buyers, three female buyers, two male recruiters and two female recruiters were invited. This resulted in ten purchasing professionals to be interviewed. While most participants responded within seven days, some did not respond. In order to address this problem, a public message on LinkedIn was posted. The aim of this post was to find two female buyers that were willing to participate in the interviews. Within one week, two female buyers who were willing to take part responded.

The interviews lasted approximately 30 to 45 minutes and were recorded. Participants have been informed about this by means of an interview protocol on beforehand (see: Appendix 3). This protocol informed the participants about the aim of the study, the information processing, the use of recording materials and the confidentiality of the interview, and was signed by the participant to ensure permission. The interviews were held at the office of the participant or, as a consequence of the Corona crisis, via telephone or Skype. During the interviews, notes were made. An overview of the respondents can be found in Table 1 below.

Table 1: Overview respondents interviews

Respondent	Function	Gender	Respondent	Function	Gender
RO1	Buyer	Female	RO6	Buyer	Male
RO2	Buyer	Female	RO7	Recruiter	Female
RO3	Buyer	Female	RO8	Recruiter	Female
RO4	Buyer	Male	RO9	Recruiter	Male
RO5	Buyer	Male	RO10	Recruiter	Male

3.4 Data analysis

Again, this paragraph is split into two sub sections, at which both quantitative and qualitative analysis methods are explained.

3.4.1 Quantitative data analysis

The survey outcomes are analysed using a quantitative approach. Babbie (2015, p. 412) described a quantitative approach as: “the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomena that those observations reflect”. This method of analysis is most often used for data that is collected through questionnaires, surveys and polls and is therefore appropriate for this study. The quantitative data is analysed using the Statistical Package for the Social Sciences (SPSS).

Preparation of the data: Identifying missing values and creating a comparable sample

Before data analysis, the dataset was prepared in order to create a comparable sample. First of all, missing values were identified. Specifically, respondents with gender “unknown” were excluded from the analysis, as this study tries to explain gender differences between males and females. Respondents with gender “unknown” are thus not part of any of those groups. Furthermore, respondents with educational level “other” were discarded, since it is not clear what education they completed and can thus be considered as a missing value. Respondents that were older than 59

years were also excluded from analysis, since this group was largely represented by males (>90%), which makes a comparison in this group useless. This resulted in a sample of *n* = 474. An overview of the sampling methodology can be found in Table 2.

Table 2: Overview sampling methodology

Action taken	**Sample size**
Original dataset	*n* = 581
Exclude gender "unknown"	*n* = 564
Exclude educational level "other"	*n* = 533
Exclude age > 59 year	*n* = 474 *Females*: 120 *Males*: 354

After identifying the missing data, respondents were classified in four different age groups to create comparable samples. The first age group consists of respondents with an age between 20 and 29 years old, old the second age group has an age between 30 and 39 years old, the third group includes respondents with an age between 40 and 49 years old, and the fourth group consists of respondents with an age between 50 and 59 years old. Subsequently, respondents were categorised on gender, resulting in 8 comparable groups (4 groups * 2 genders). Sample sizes among the age groups can be found in Table 3.

Table 3: Overview age groups

Age group	**Females**	**Males**	**Total sample size**
1: 20 - 29 years old	*n* = 16	*n* = 35	*n* = 51
2: 30 - 39 years old	*n* = 32	*n* = 81	*n* = 113
3: 40 - 49 years old	*n* = 38	*n* = 120	*n* = 158
4: 50 - 59 years old	*n* = 34	*n* = 118	*n* = 152

After the division in age groups, it is tested whether these age groups have similar education, since significant differences in educational level might bias the results. In order to investigate whether there are significant differences in educational level among males and females, the Mann-Whitney U-test is performed. This test is executed four times, separately for all age groups. The results indicate that there are no significant differences in educational level among males and females in all age groups (*p= .350, .803, .963* and *.696* respectively*)*, which makes the sample comparable. The results of the Mann-Whitney U-test can be found in Appendix 4.

Statistical methods used to explore gender differences

As the comparability of the sample is confirmed in the previous section, this study continues by executing an exploratory factor analysis for the 88 skill items asked in the survey. This factor analysis is used to analyse interrelationships among the variables and to explain these in terms of their common underlying factors. The objective is to condense the skill items in a smaller set of factors with minimal loss of information (Bandalos & Finney, 2018).

In order to determine whether the data is suitable for a factor analysis, the Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity are firstly performed. The KMO measure represents a value of .965, which is above the threshold of .5 (Kaiser, 1970, 1974). Furthermore, Bartlett's test of sphericity shows a significance level of .000, which is smaller than .05 (Bartlett, 1950). In other words, the outcomes of the KMO measure and Bartlett's test of sphericity indicate that the data is suitable for a factor analysis. Accordingly, an exploratory factor analysis in SPSS is executed. The method applied to execute this factor analysis is principal component analysis with equamax rotation. This method is chosen as it combines both quartimax and varimax criteria and simplifies the variables and factors to spread variances more equally (Sass & Schmitt, 2010). Based on the Eigenvalues above 1, the factor analysis resulted in 15 factors, representing the 88 skill items asked in the survey. After the factor analysis, new variables were computed as factors of the underlying variables. The composition of these factors can be found in Appendix 5.

Using the 15-factor solution, it will be investigated whether there are statistically significant differences among gender in (1) self-assessed competency levels, (2) the importance of these competencies to successfully perform purchasing activities, and (3) their professional focus. These differences will be analysed separately for the four different age groups. The statistical test chosen to examine gender differences is the one-way ANOVA analysis of variance. However, with significant outcomes of ANOVA, it can only be stated that at least one group differs from another. This indicates that it does not report which group differs and how (Ross & Willson, 2017). In order to address this problem, the post-hoc method LSD is followed, as this method enables to analyse differences between specific groups. With the one-way ANOVA and LSD procedures, a decision can be made whether to reject or confirm the hypotheses of this study.

3.4.2 Qualitative data analysis

Before analysing the qualitative data, the interviews were transcribed and explored. Then, the transcripts of the interviews were sent to the respondent for approval. After receiving the respondent's approval, the transcripts were coded and analysed by means of the grounded theory in order to structure the transcripts (Glaser & Strauss, 1967). This particular method is chosen as it enables to flexibly and openly explore the qualitative data. Then, in order to code the qualitative data, the software programme Atlas.ti is used. Codes were defined using the open-coding technique, followed by axial coding. Whereas the open-coding approach is a technique to structure and categorise the qualitative data, axial coding puts the data back together and connects the categories defined by the open-coding approach (Kendall, 1999). These coding methods together enable to intensively explore purchasing professionals' opinions towards gender differences in PSM.

3.5 Validity and reliability

When designing a study, researchers should ensure its validity and reliability "from data collection through to data analysis and interpretation" (Zohrabi, 2013, p. 258). In order to boost the internal validity of this study, data is collected through two different sources: a questionnaire and interviews. This way of data collection, also known as triangulation, can confirm findings in obtaining the same results, and internal validity can be ensured. Furthermore, this triangulation can enhance the reliability of the results (Zohrabi, 2013). Besides the data collection through two different sources, this study also used two equally large groups of five males and five females for the interviews, which positively contributes to the internal validity of this research.

Regarding external validity, the interviewees were only informed about the goal and method of the interview. This implies that all interviewees had the same information before the start of the interviews and that reactivity was avoided, which positively affects the external validity of this research. Moreover, as the interviews were conducted, recorded and coded in the same way, internal reliability is ensured. This internal reliability is also ensured by describing the used methodology clearly above, which makes it possible for other researchers to replicate the study. Besides, by demonstrating the interview protocol and questions in the appendices, the reliability of this research increases.

4. Results

In this chapter, the results of both the quantitative and qualitative analysis are presented. The chapter is divided into two paragraphs, at which the quantitative and qualitative results are described separately.

4.1 Quantitative results

This paragraph will discuss the gender differences regarding purchasing professionals' competencies and professional focus, which are derived from the one-way ANOVA procedure with post-hoc test LSD in SPSS. The results are presented on three different topics: gender differences in self-assessed competency levels, gender differences in perceived importance of the PSM competencies, and gender differences in professional focus.

4.1.1 Gender differences in self-assessed competency levels

Gender differences in self-assessed competency levels are investigated using an analysis of variance technique, more specifically the one-way ANOVA procedure with post-hoc test LSD. The competency levels are defined as the dependent variables, whereas the respondents are categorised on gender and age. The ANOVA procedure is executed four times, separately for all age groups and should answer the first sub question of this study: "*What are the differences in PSM competencies between the genders?"*. Besides, a decision can be made whether to reject or confirm hypothesis 1, formulated as:

H1: Females rate themselves significantly lower on all PSM competencies compared to males.

For structuring and clarifying purposes, this paragraph is divided into four subsections that describe the gender differences in PSM competencies per age group.

Age group 1: Differences in PSM competencies between females and males at the age between 20 and 29 years old

The results of the one-way ANOVA procedure for age group 1 are illustrated in Table 4. From this table, it can be noted that most mean differences are positive (see: column 4), indicating that females at the age between 20 and 29 years old assess themselves higher on the PSM competencies asked in the survey than males, except for creativity and forecasting. However, the mean differences are too small to state these females significantly differ from males in the first age group. The biggest difference appears to be in tactical purchasing process skills, however, it is also not

significant at the 5% level (*p=.096).* In conclusion then, females at the age between 20 and 29 years do not assess themselves significantly lower on the PSM competencies compared to males of that same age. Therefore, hypothesis 1 is rejected for the first age group.

Table 4: Gender differences in PSM competencies in age group 1 (n=51)

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Tactical purchasing process skills	3.063	2.571	0.492	0.096
Automation skills	3.102	2.800	0.302	0.135
Negotiation skills	2.563	2.324	0.239	0.328
Supplier relations skills	2.667	2.457	0.210	0.430
Advanced networking skills	3.000	2.849	0.151	0.521
Analytical skills	2.646	2.495	0.151	0.521
Personnel management skills	2.141	1.996	0.145	0.526
Category strategy management skills	2.422	2.286	0.136	0.550
Cost reduction skills	2.969	2.850	0.119	0.608
Forecasting skills	2.156	2.243	-0.087	0.724
Technical needs specification skills	2.281	2.214	0.067	0.774
Entrepreneurial skills	2.672	2.621	0.051	0.806
Cross functional cooperation skills	2.594	2.543	0.051	0.823
Corporate social responsibility skills	2.438	2.400	0.038	0.884
Creative skills	2.771	2.800	-0.029	0.895

Age group 2: Differences in PSM competencies between females and males at the age between 30 and 39 years old

The results of the one-way ANOVA procedure for age group 2 are illustrated in Table 5. As can be seen in the table, most competencies are assessed higher by males, resulting in negative mean differences (see: column 4), except for automation and corporate social responsibility skills. However, not all differences are significant at the 5% level. More specifically, there are statistically significant differences between the genders as determined by one-way ANOVA for advanced networking (*p=.004),* category strategy management (*p=.011),* cost reduction (*p=.016),* supplier relations (*p=.020),* cross functional cooperation (*p=.022),* and tactical purchasing process skills (*p=.047).* Putting it differently, females at the age between 30 and 39 years old assess themselves significantly lower on the six competencies mentioned above compared to males at that age. This

indicates that hypothesis 1 is only partially confirmed for age group 2, as there are still nine skills that show no statistically significant difference.

*Table 5: Gender differences in PSM competencies in age group 2 (n=113). *Difference is significant at .05 level*

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Advanced networking skills	2.438	2.840	-0.402	**.004***
Category strategy management skills	3.075	3.472	-0.397	**.011***
Cost reduction skills	2.906	3.293	-0.387	**.016***
Supplier relations skills	2.625	3.000	-0.375	**.020***
Cross functional cooperation skills	2.461	2.821	-0.360	**.022***
Tactical purchasing process skills	3.176	3.424	-0.248	**.047***
Analytical skills	2.635	2.880	-0.245	.108
Forecasting skills	2.297	2.537	-0.240	.158
Entrepreneurial skills	2.758	2.944	-0.186	.190
Personnel management skills	2.313	2.485	-0.172	.309
Technical needs specification skills	2.578	2.735	-0.157	.333
Negotiation skills	2.677	2.830	-0.153	.336
Creative skills	3.094	2.975	0.119	.377
Automation skills	3.021	3.136	-0.115	.602
Corporate social responsibility skills	2.609	2.630	0.021	.910

Age group 3: Differences in PSM competencies between females and males at the age between 40 and 49 years old

The results of the one-way ANOVA procedure for age group 3 are illustrated in Table 6. The table shows that all mean differences in age group 3 are negative (see: column 4), implying that males at the age between 40 and 49 years old assess themselves higher on the PSM competencies compared to females of that age. However, also here, not all mean differences are significant at the 5% level. In particular, statistically significant gender differences are found for five PSM competencies, which are cost reduction (*p=.006)*, personnel management (*p=.014)*, entrepreneurial (*p=-.030)*, technical needs specification (*p=.038)*, and creative (*p=.045)* skills. In other words, females at the age between 40 and 49 years old assess themselves significantly lower on the aforementioned five competencies compared to males of that age. This indicates that hypothesis 1 is again only partially confirmed for age group 3, as there are still ten competencies that show no significant gender difference.

*Table 6: Gender differences in PSM competencies in age group 3 (n=158). *Difference is significant at .05 level*

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Cost reduction skills	3.099	3.492	-0.393	**.006***
Personnel management skills	2.474	2.846	-0.372	**.014***
Entrepreneurial skills	2.658	2.958	-0.300	**.030***
Technical needs specification skills	2.809	3.085	-0.276	**.038***
Creative skills	3.009	3.283	-0.274	**.045***
Supplier relations skills	2.930	3.142	-0.212	.057
Tactical purchasing process skills	3.342	3.535	-0.193	.084
Category strategy management skills	2.770	2.951	-0.181	.095
Forecasting skills	2.395	2.571	-0.176	.098
Analytical skills	2.719	2.883	-0.164	.116
Negotiation skills	2.974	3.106	-0.132	.119
Automation skills	2.790	2.911	-0.121	.262
Advanced networking skills	3.332	3.445	-0.113	.348
Cross functional cooperation skills	2.921	2.979	-0.058	.678
Corporate social responsibility skills	2.842	2.888	-0.046	.775

Age group 4: Differences in PSM competencies between females and males at the age between 50 and 59 years old

The results of the one-way ANOVA procedure for age group 4 are illustrated in Table 7. Regarding the respondents at the age between 50 and 59 years old, no statistically significant gender differences are found (see: column 5). Even though females assess themselves higher on corporate social responsibility, creative, entrepreneurial and negotiation skills, the differences are not big enough to state that females differ statistically significant from males. The biggest difference is found for automation skills at which males assess themselves higher, however, this competency item also shows no statistically significant difference (*p=.132).* In short then, females at the age between 50 and 59 years old do not assess themselves statistically significant lower on any of the 15 competencies compared to males of that age. Accordingly, hypothesis 1 is rejected for age group 4.

Table 7: Gender differences in PSM competencies in age group 4 (n=152)

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Automation skills	2.927	3.246	-0.319	.132
Personnel management skills	2.875	3.030	-0.155	.327
Cross functional cooperation skills	2.897	3.023	-0.126	.389
Entrepreneurial skills	3.279	3.153	0.126	.389
Cost reduction skills	3.287	3.396	-0.109	.397
Creative skills	3.461	3.356	0.105	.464
Corporate social responsibility skills	3.177	3.081	0.096	.564
Negotiation skills	3.235	3.164	0.071	.650
Analytical skills	2.902	2.952	-0.050	.741
Advanced networking skills	3.571	3.598	-0.027	.826
Category strategy management skills	2.971	2.994	-0.023	.875
Technical needs specification skills	2.721	2.742	-0.021	.890
Supplier relations skills	3.314	3.331	-0.017	.922
Tactical purchasing process skills	3.585	3.594	-0.009	.934
Forecasting skills	2.559	2.564	-0.005	.976

A more extensive overview of the results of the ANOVA and LSD procedures can be found in Appendix 6.

4.1.2 Gender differences in perceived importance of the PSM competencies

Gender differences in perceived importance of the competencies are also analysed using the one-way ANOVA procedure with post-hoc test LSD. The importance levels are defined as the dependent variables, whereas the respondents are categorised on gender and age. The ANOVA procedure will be executed four times, separately for all age groups and should answer the second sub question of this study: "*What are the differences in perceived importance of the competencies between the genders?".* Besides, a decision can be made whether to reject or confirm hypotheses 2a, 2b and 2c, formulated as:

H2a: Females perceive cross-functional cooperation and supplier relation management skills significantly more important for a successful role performance than males.

H2b: Females perceive advanced networking and corporate social responsibility skills significantly more important for a successful role performance than males.

H2c: Males perceive cost reduction and negotiation skills significantly more important for a successful role performance than females.

This paragraph is again divided into four sub sections, at which gender differences in perceived importance are analysed per age group.

Age group 1: Differences in perceived importance of PSM competencies between females and males at the age between 20 and 29 years old

The results of the one-way ANOVA procedure for age group 1 are displayed in Table 8. As can be seen from this table, one statistically significant gender difference is found for advanced networking skills (*p=.029)* (see: column 5). As this mean difference is positive, it can be concluded that females at the age between 20 and 29 years old perceive networking significantly more important for a successful role performance than males of that age. Hypothesis 2b is therefore partially supported for age group 1, as corporate social responsibility skills show no statistically significant difference. In addition, the table demonstrates positive mean differences for cost reduction and negotiation skills (see: column 4), indicating that females perceive those competencies more important than males. Putting it differently, males at the age between 20 and 29 years old do not perceive cost reduction and negotiation skills significantly more important for their purchasing activities than females of that particular age. This indicates that hypothesis 2c for age group 1 should be rejected too. Furthermore, no evidence is found in the first age group that support hypothesis 2a. Accordingly, hypothesis 2a is rejected.

*Table 8: Gender differences in perceived importance in age group 1 (n=51). *Difference is significant at .05 level*

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Advanced networking skills	4.013	3.577	0.436	**.029**
Entrepreneurial skills	3.063	2.665	0.398	.128
Automation skills	3.125	2.729	0.396	.135
Technical needs specification skills	3.438	3.071	0.367	.153
Negotiation skills	3.438	3.077	0.361	.189
Cost reduction skills	3.719	3.486	0.233	.320
Creative skills	3.292	3.179	0.113	.642
Category strategy management skills	2.813	2.702	0.111	.666
Personnel management skills	2.375	2.279	0.096	.751
Analytical skills	2.917	2.848	0.069	.806
Forecasting skills	2.844	2.900	-0.056	.853
Corporate social responsibility skills	2.750	2.700	0.050	.874
Tactical purchasing process skills	3.580	3.540	0.040	.891
Supplier relations skills	3.250	3.225	0.025	.893
Cross functional cooperation skills	2.969	2.979	-0.010	.971

Age group 2: Differences in perceived importance of PSM competencies between females and males at the age between 30 and 39 years old

Table 9 shows the results of the one-way ANOVA procedure for age group 2. Even though all competencies, except for automation and corporate social responsibility skills, are perceived more important by males (i.e. show a negative mean difference), females and males do not differ significantly from each other in their perceived importance of the PSM competencies. In other words, no statistically significant gender differences are found between the respondents at the age between 30 and 39 years old, as none of the mean differences were statistically significant at the 5% level (see: column 5). This indicates that hypothesis 2a, 2b and 2c are all rejected for age group 2.

Table 9: Gender differences in perceived importance in age group 2 (n=113)

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Supplier relations skills	3.125	3.465	-0.340	.103
Technical needs specification skills	2.719	3.031	-0.312	.104
Entrepreneurial skills	3.164	3.417	-0.253	.129
Category strategy management skills	2.922	3.154	-0.232	.197
Cost reduction skills	3.430	3.650	-0.220	.233
Cross functional cooperation skills	2.922	3.116	-0.194	.240
Personnel management skills	2.453	2.629	-0.176	.257
Advanced networking skills	3.863	4.023	-0.160	.294
Creative skills	3.302	3.455	-0.153	.336
Forecasting skills	2.531	2.676	-0.145	.446
Analytical skills	3.125	3.263	-0.138	.478
Negotiation skills	3.188	3.305	-0.117	.559
Automation skills	3.094	2.982	0.112	.602
Corporate social responsibility skills	3.125	3.074	0.051	.816
Tactical purchasing process skills	3.781	3.790	-0.009	.945

Age group 3: Differences in perceived importance of PSM competencies between females and males at the age between 40 and 49 years old

Table 10 shows the results of the ANOVA procedure for age group 3. Firstly, it can be noted that all mean differences are negative (see: column 4), implying that males between the age of 40 and 49 years old perceive all 15 competencies more important for a successful role performance than females of that age. Therefore, hypotheses 2a and 2b are rejected for age group 3. However, not all of these competencies are significant at the 5% level, indicating that hypothesis 2c cannot be confirmed immediately. In particular, males in the third age group perceive personnel management (*p=.000),* entrepreneurial (*p=.001),* tactical purchasing process (*p=.005),* supplier relations *(p=.008),* cost reduction (*p=.017),* technical needs specification (*p=.030),* and category strategy management (*p=.031)* skills statistically significant more important than females of that age. Accordingly, hypothesis 2c is only partially supported for age group 3, since negotiation skills are not perceived more important by males than by females.

*Table 10: Gender differences in perceived importance in age group 3 (n=158). *Difference is significant at .05 level*

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Personnel management skills	2.355	3.148	-0.793	**.000***
Entrepreneurial skills	2.993	3.494	-0.501	**.001***
Tactical purchasing process skills	3.643	4.135	-0.492	**.005***
Supplier relations skills	3.061	3.422	-0.361	**.008***
Cost reduction skills	3.355	3.702	-0.347	**.017***
Technical needs specification skills	2.829	3.168	-0.339	**.030***
Category strategy management skills	2.908	3.243	-0.335	**.031***
Creative skills	3.290	3.569	-0.279	.057
Negotiation skills	3.175	3.439	-0.264	.077
Forecasting skills	2.526	2.779	-0.253	.177
Analytical skills	3.018	3.249	-0.231	.252
Automation skills	2.790	3.017	-0.227	.262
Corporate social responsibility skills	3.250	3.371	-0.121	.536
Advanced networking skills	3.874	3.935	-0.061	.618
Cross functional cooperation skills	3.125	3.181	-0.056	.736

Age group 4: Differences in perceived importance of PSM competencies between females and males at the age between 50 and 59 years old

The results of the one-way ANOVA procedure for age group 4 are illustrated in Table 11. As this table indicates, none of the competencies are perceived statistically significantly more important by males or females, as their significance levels are all greater than .05 (see: column 5). Even though most competencies (i.e. 10 out of 15) are perceived more important by males, or in other words show a negative mean difference, the differences are not large enough to conclude that gender significantly affects the importance of the PSM competencies. Likewise, the competencies that females perceive more important (i.e. 5 out of 15) are also not significantly different from males. In short, according to the one-way ANOVA procedure, there were no statistically significant differences between females and males at the age between 50 and 59 years old concerning their perceived importance of the PSM competencies. Therefore, all three hypotheses (h2a, h2b and h2c) are rejected for age group 4.

Table 11: Gender differences in perceived importance in age group 4 (n=152)

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Automation skills	2.927	3.246	-0.319	.132
Cross functional cooperation skills	2.941	3.148	-0.207	.304
Corporate social responsibility skills	3.588	3.408	0.180	.311
Category strategy management skills	3.052	3.224	-0.172	.334
Forecasting skills	2.515	2.685	-0.170	.335
Cost reduction skills	3.449	3.618	-0.169	.339
Technical needs specification skills	2.882	3.044	-0.162	.346
Creative skills	3.716	3.604	0.112	.565
Analytical skills	3.108	3.210	-0.102	.578
Personnel management skills	3.029	3.130	-0.101	.602
Entrepreneurial skills	3.596	3.517	0.079	.612
Advanced networking skills	4.106	4.042	0.064	.621
Tactical purchasing process skills	3.979	3.944	0.035	.825
Negotiation skills	3.324	3.350	-0.026	.850
Supplier relations skills	3.441	3.466	-0.025	.898

A more extensive overview of the ANOVA and LSD results for all age groups can be found in Appendix 7.

4.1.3 Gender differences in professional focus

Gender differences in professional focus are again analysed using the one-way ANOVA procedure with post-hoc test LSD. The professional focus of the respondents are defined as the dependent variables, whereas the respondents are categorised on gender and age. The ANOVA procedure will be executed four times, separately for all age groups and should answer the third sub question of this study: *"What are the differences in professional focus between the genders?".* Besides, a decision can be made whether to reject or confirm hypotheses 3a and 3b, formulated as:

H3a: Females are significantly more intensively focused on increasing sustainability and supplier's satisfaction compared to males.

H3b: Males are significantly more intensively focused on reducing costs and gaining a competitive advantage compared to females.

This paragraph is divided in four subsections that describe the gender differences in professional focus per age group.

Age group 1: Differences in professional focus between females and males at the age between 20 and 29 years old

The results of the ANOVA procedure for the first age group are displayed in Table 12. As can be seen from this table, the differences among gender are fluctuating. Females focus for instance most intensively on supplier satisfaction (i.e. highest mean score), whereas males focus mostly on improving the supply delivery process (i.e. highest mean score) (see: column 2 and 3 respectively). This has resulted in various gender differences, ranging from negative to positive mean differences. With regards to for instance sustainability, it can be noted that males more intensively focus on achieving this higher level of sustainability than females do. On the contrary, females more intensively focus on achieving cost reductions compared to their counterparts. However, the differences in these professional focus are all not significant at the 5% level, indicating that these differences are too small to make statistical inference. Putting it differently, no statistically significant gender differences in professional focus are found for the respondents at the age between 20 and 29 years old. This implies that both hypotheses (h3a and h3b) are rejected for age group 1.

Table 12: Gender differences in professional focus in age group 1 (n=51)

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Focus on supplier satisfaction	3.583	3.295	0.288	.150
Focus on innovation	2.875	3.157	-0.282	.186
Focus on sustainability	2.667	2.857	-0.190	.393
Focus on gaining long-term competitive advantages	2.854	2.914	-0.060	.766
Focus on improving the supply delivery process	3.375	3.343	0.032	.865
Focus on cost reductions	3.125	3.105	0.020	.930
Focus on quality improvement	3.208	3.200	0.008	.964

Age group 2: Differences in professional focus between females and males at the age between 30 and 39 years old

Gender differences in professional focus in age group 2 are displayed in Table 13 below. From this table, it can be noted that most mean differences are negative, except for sustainability (see: column 4). This indicates that males are more intensively focused on all performance outcomes,

except for sustainability. The biggest difference among gender is found for the supplier satisfaction-focus, where males are more exhaustively focused to improve the relationship with its suppliers than females. Nevertheless, none of the gender differences are significant at the 5% level. This indicates that, as determined by one-way ANOVA, gender differences in professional focus do not statistically significantly differ among gender for respondents at the age between 30 and 39 years old. Therefore, both hypotheses (h3a and h3b) are again rejected for age group 2.

Table 13: Gender differences in professional focus in age group 2 (n=113)

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Focus on supplier satisfaction	3.323	3.556	-0.233	.093
Focus on cost reductions	3.469	3.675	-0.206	.199
Focus on quality improvement	3.365	3.510	-0.145	.277
Focus on gaining long-term competitive advantages	3.271	3.408	-0.137	.300
Focus on innovation	3.406	3.534	-0.128	.311
Focus on improving the supply delivery process	3.281	3.403	-0.122	.352
Focus on sustainability	3.219	3.111	0.108	.485

Age group 3: Differences in professional focus between females and males at the age between 40 and 49 years old

Gender differences in professional focus are also investigated for the third age group (see: Table 14), which consists of the respondents at the age between 40 and 49 years old. Again, most mean differences are negative, except for the sustainability and innovation focus, indicating that males in this age group are more intensively focused on most performance outcomes than females in that group. However, not all mean differences are significant at the 5% level. More specifically, males at the age between 40 and 49 years old are statistically significant more intensively performance focused on achieving higher cost reductions (*p= .012)*, achieving a long-term competitive advantage (*p= .012)*, and improving the supply delivery process (*p= .031)* compared to females in that age group. From this, it can be concluded that hypothesis 3b is confirmed, whereas hypothesis 3a is rejected for age group 3.

*Table 14: Gender differences in professional focus in age group 3 (n=158). *Difference is significant at .05 level*

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Focus on cost reductions	3.368	3.731	-0.363	**.012***
Focus on gaining long-term competitive advantages	3.088	3.451	-0.363	**.012***
Focus on improving the supply delivery process	3.211	3.464	-0.253	**.031***
Focus on quality improvement	3.447	3.532	-0.085	.446
Focus on supplier satisfaction	3.518	3.593	-0.075	.490
Focus on innovation	3.401	3.360	0.041	.756
Focus on sustainability	3.114	3.083	0.031	.823

Age group 4: Differences in professional focus between females and males at the age between 50 and 59 years old

Gender differences in the fourth age group, including respondents at the age between 50 and 59 years old, are displayed in Table 15 below. All mean differences are negative, implying that males in this age group are more intensively focused on all 7 professional focus compared to females in this age group. Therefore, hypothesis 3a is rejected. Yet, at the 5% significance level, only one gender difference in professional focus is significant, which is the focus on gaining a long-term competitive advantage (p=.048) (see: column 5). In particular, males at the age between 50 and 59 years old are significantly more intensively performance focused on gaining this long-term competitive advantage compared to females of that age. This implies that hypothesis 3b is partly confirmed for respondents in the fourth age group.

*Table 15: Gender differences in professional focus in age group 4 (n=152). *Difference is significant at .05 level*

	Mean females	**Mean males**	**Mean difference (F-M)**	**Significance**
Focus on gaining long-term competitive advantages	3.078	3.336	-0.258	**.048***
Focus on cost reductions	3.402	3.648	-0.246	.065
Focus on innovation	3.228	3.470	-0.242	.068
Focus on sustainability	2.980	3.215	-0.235	.104
Focus on improving the supply delivery process	3.108	3.274	-0.166	.174
Focus on supplier satisfaction	3.451	3.559	-0.108	.401
Focus on quality improvement	3.461	3.466	-0.005	.964

A more extensive overview of the ANOVA and post-hoc LSD procedures are displayed in Appendix 8.

4.2 Qualitative results

This paragraph will discuss the experience of the PSM professional, which is measured by conducting ten semi-structured interviews. The results of these interviews are presented in four different paragraphs, at which experiences are presented on four different topics: gender differences in general, gender differences in PSM competencies, gender differences in the importance of PSM competencies and gender differences in professional focus.

4.2.1 Professionals' experience of gender differences in general

When asking respondents how they experience gender differences in general, most respondents firstly came up with several characteristics of females and males that came to mind in their daily life. Three respondents indicated for instance that males are *"more direct" –RO2, RO7, RO9* compared to females, whereas others refer to males' "*competitiveness" –RO5* and "*carelessness" –RO10.* On the other hand, females were described as being *"softer" –RO1, "more structured" –RO9* and *"at the consensus" –RO5.* In contrast, other respondents argued that gender is not an issue to them. Putting it differently, these respondents did not experience differences between gender in their organisation or daily life. As one respondents argued: *"I do not experience any gender differences. Everyone in the organisation here is my colleague, and I do not distinguish between them based on their gender" –RO6.* A male buyer assented with this point of view and mentioned that "*I do not experience real gender differences. In my opinion, gender is not even an issue" –RO4.* Instead of differences between the genders, these respondents referred to differences

in capabilities between individuals. Specifically, they indicated that it is not gender you distinguish from, however, it is about the capabilities that person possesses. *"You are great for a job or you are not, that's it. And if you are great, you will get that job, and it does not matter then whether you are male or female" –RO4.* The other purchaser agreed on this and mentioned that it is about the skills a person owns: *"I think someone should just be capable in their function and that is the way you judge someone. You should just look at the one that is best for the job" – RO6.*

In addition to this, other respondents argued that it are differences in character, personal interests, type of employment and years of experience, instead of differences in gender. Particularly, one respondent argued that differences between individuals do exist, yet it was attributed to differences in character. *"I am not sure whether it are differences between males and females. Of course, males are more convenient, but that also might have to do with character. (…) As I said, I think it are largely differences in character and not differences in gender" –RO2.* Another respondent argued that it are differences in personal interests rather than gender differences: *"Sometimes, there are just professions that are liked more by males. Or professions that females like better. And that might cause differences in the number of females in organisations. But that starts by differences in personal interests. Or differences in how you look at things. That has nothing to do with gender" –RO3.* Other interviewees argued that it might be differences between part-timers and full-timers instead of gender differences. As females often choose to adopt the traditional female role at home and take care of their children, and thus start working part-time, they are *"less visible" –RO4.* Furthermore, one respondent argued likewise that it is not gender you distinguish from, though it might be differences in years of experience: *"I am not sure if it has to do with males or females, but also with for example age or years of experience, because I think people with more years of experience are taken more seriously" –RO7.*

When asking for explanations for the underrepresentation of females in senior working positions, several explanations are given by the respondents. While some respondents argued that the problem is at females themselves, others have argued that it is traditionally determined a long time ago. One respondent argued: *"Even if gender differences exist, it is determined by the person itself: what do you like and what are you going to study? I really think females control it themselves" –RO4.* Another respondent assented on this and mentioned that *"we have to search the problem at ourselves" –RO1.* On the contrary, other respondents argued that *"gender*

differences, if they even exist, are determined traditionally, a very long time ago" –RO2 and they *"stem from the past" –RO7.*

Other explanations given by the interviewees refer to the opt-out concept. More specifically, the underrepresentation of females might be a consequence of choosing to take care of the children and work part-time. *"If you get children and you choose to work part-time, that's a choice that might limit your career opportunities. That's quite logical" –RO3.* In like manner, another respondent mentioned that *"children play a major role in that"* because formerly *"females stayed home for their children"* and consequently "*had less time for their work, which made it difficult to take steps in developing their career. And I feel like many females hope to be it like that, (…) that females actually choose to take care of their family and consequently work part-time and are less likely to get a career" –RO9.* Yet another respondent mentioned that she could imagine females are limited due to family preferences: *"I can imagine, if females wish to have children, it might not be convenient to apply for a job that requires 40 hours of working, because they might want to start working part-time in a year" –RO8.* A female respondent confirmed this opt-out revolution as a possible explanation for females' underrepresentation from her own experience: *"I have been calling this since I have children and a nice job, I will never be a real 'career-tiger'. But that is a choice and I do not even want to be like that" –RO1.*

Additionally, two other respondents referred to male-dominated cultures as a possible explanation for females' underrepresentation. More specifically, females might not apply for a job if the team is male-dominated because *"they will wonder if they are able to work in a male dominated team" –RO7.* Another respondent added that, during his own research, he found that *"males tend to choose males for management positions in organisations if a place becomes available for job applications" –RO10.* This indicates that, if the management team is male-dominated, chances are that a male will join that team instead of a female. On the contrary, another interviewee argued that females are less interested in high working positions and that they might *"attach less value to management positions or to have power compared to males" -RO8.* She clarified that by referring to herself: *"I do not want to be a CEO or something. And that is not because I could not be it, but simply because I do not have that ambition" –RO8.*

Besides these explanations, another respondent tried to explain females' underrepresentation specifically in purchasing functions. He argued that it might be a result of the

prejudices individuals have on the purchasing profession, at which purchasing is considered as "dusty". In particular, *"the underrepresentation of females in purchasing organisations is a consequence of the image purchasing had formerly. More specifically, 20 to 25 years ago, purchasing had a "dusty" image. In that time, a purchaser was a middle-aged male that preferred to choose his suppliers by letting them walk by the office and use their power in choosing a supplier. That way of acting is something that females do not like, I think." –RO5.* This stereotype thus also might be an explanation for the underrepresentation of females. In contrast, respondents did not consider the glass ceiling as a barrier that could limit females' career opportunities. *"I don't think we, as females, experience a glass ceiling. And even if we do, we should search the problem at ourselves" –RO1.* Likewise, another respondent argued: *"I do not think the glass ceiling exists. On the contrary, I think females adapt themselves to it. If you keep talking about it and believe in it, it will feel like it does exist. It is like a self-fulfilling prophecy" –RO4.*

The above-mentioned results are visualised in Table 16, at which the respondents are categorised on function and gender.

Table 16: Overview qualitative results - gender differences in general

Experience of gender differences in general

Buyers		Recruiters	
Female	*Male*	*Female*	*Male*
"It might be differences in character"	"It might be differences in capabilities"	"It might be differences in years of experience"	
"It might be differences in personal interests"	"It might be differences in type of employment"		

Explanations for females' underrepresentation

"Problem is at females"	"Problem is at females"		
"It is determined a long time ago"		"It is determined a long time ago"	
"Opt-out choices"	"Opt-out choices"		"Opt-out choices"
"Females attach less value to higher working positions"		"Purchasing is male dominated"	"Purchasing is male dominated"
"There is no glass-ceiling in purchasing"	"There is no glass-ceiling in purchasing"		

4.2.2 Professionals' experience of gender differences in PSM competencies

The opinions of purchasing professionals regarding gender differences in PSM competencies are divided. Whereas some respondents argue that they do not experience gender differences in the competencies, others do. Some even have examples of competencies males or females might be better at. *"I think females are way more accurate and structured. I think, we as females, have things better organised than males. But that does not mean we are better purchasers. And on the other side, males are in my opinion better at networking for example." –RO1.* Other respondents agree on this statement, stating for instance that females are more *"pünktlich" –RO2* and *"less chaotic" –RO10* whereas males are *"better negotiators" –RO5* and *"more selfish" –RO9.* Other characteristics of males regarding their competencies were for instance *"more task-oriented"-RO7, "having more guts" -RO9* and *"saying things more easily with more certainty" –RO8.* Additionally, females were described as *"relations-oriented"-RO7, RO8,* being on *"personal connections and relationships" –RO9* and like to *"work together" –RO5.*

On the contrary, other interviewees indicated that differences in competencies are person-related instead of gender-related and that these differences should be nuanced. *"I think that is again personal. They often say that females are "softer" and males more "business-like". But I'm not sure if that is true. I have also seen many females that were very business-like. And of course, I believe that there is an overall difference between females and males, but that is always position and person dependent. You can't spread the stereotypes over males and females in general" -RO4.* Another respondent agreed on this and stated that it is *"difficult to allocate that differences to gender" –RO8.*

Regarding potential explanations for differences in competencies, opinions are again divided. While most respondents had no clarification, one respondent argued that it might stem from the insecurities females have. *"I think gender differences in competencies arise from the insecurities females might have. Looking at myself, I'm not very good in English. And because I can't, I won't do it. Males would at least try it, it does not matter for them if they fail" –RO1.* Similarly, another respondent assented with this point of view and mentioned the anxiety of being exposed as a possible explanation for gender differences in competencies: *"I think females are way more aware of things, also in work environments. If they have an idea in mind, they will first rethink if they should say it or not, because they might be afraid of being exposed. And males do not experience it that way" –RO8.* Another interviewee indicated that differences in competencies are determined a long time ago or are in the nature of females or males: *"I think these differences are determined a long time ago. While you might be trainable on certain competencies, I think it is in nature, in the origin, that these differences just do exist" –RO2.* Another interviewee agreed on this and stated that it is indeed *"in the nature of males or females" –RO5.* Yet another respondent referred to the prejudices people hold about females' and males' competencies and indicated that it is *"really institutionalised"* and that "*it is the image people have about females or males, and people keep thinking that way. But it does not have to be like that" –RO7.*

The above-mentioned results are visualised in Table 17 on the next page, at which the respondents are categorised on function and gender.

Table 17: Overview qualitative results - gender differences in competencies

Experience of gender differences in competencies

Buyers		**Recruiters**	
Female	*Male*	*Female*	*Male*
"Females are more structured and pünktlich"			"Females are less chaotic"
"Females are more insecure"		"Females are afraid of being exposed"	
	"Males are better negotiators"	"Males say things more easily with more certainty"	"Males are more selfish"
"Females are more relation-oriented"	"Females like to work together"	"Males are more task-oriented"	"Females are on personal relationships"
"It is difficult to allocate differences to gender"	"Differences are not gender-related"		
"Differences in competencies are in nature"	"Differences in competencies are in nature"	"Differences raise from prejudices and stereotypes in society"	

4.2.3 Professionals' experience of gender differences in perceived importance of the PSM competencies

When asking for gender differences in perceived importance of the PSM competencies, most respondents indicated that they did not experience any gender differences. More specifically, differences in importance are dedicated to personal differences, such as differences in character. "*I think the importance also has to do with character. Some feel more responsible and then in turn find it more important to be responsible for their purchasing tasks"-RO2.* Another interviewee assigned it to differences in personal interests: *"Again, I think it is not a male-female discussion. It is about what you like, what you find important. And I think that is not gender dependent. Everyone perceives other things important, and you cannot generalise that over the whole population" –RO4.* This argument is in line with that of other interviewees, who stated that differences are again not gender-dependent: *"I do not experience differences that way. I regard that separately from gender" –RO6.*

On the contrary, some other interviewees specifically appointed competencies that males (females) perceive more important in their function compared to females (males). For instance, one respondent indicated that *"males find it more important to be visible and to show that they could do things"* whereas females perceive it more important *"to be structured and organise things well" –RO1.* Likewise, another respondent indicated that males find it important to show their *"prestige and proud" –RO9.* He added that females find it important *"to be together and do things together" –RO9.* Furthermore, other respondents referred to females' importance of being softer, more communal and on personal relations. Specifically, a female respondent indicated that she perceived *"the social part very important" –RO7.* A male respondent agreed with this and mentioned that *"females find it important to be more people-oriented, more social" –RO10* and referred to himself as perceiving it important *"to be objective and transparent" –RO10.*

The above-mentioned results are visualised in Table 18 below, at which the respondents are categorised on function and gender.

Table 18: Overview qualitative results - gender differences in perceived importance

Experience of gender differences in perceived importance of competencies

Buyers		**Recruiters**	
Female	*Male*	*Female*	*Male*
"It rather are differences in character"	"It rather are differences in personal interests"		
	"Differences in importance are not gender-dependent"		
"Males like to be visible"			"Males like to show their prestige and proud"
"Females like to organise things well"		"Females find the social part important"	"Females like to do things together and to be people-oriented"

4.2.4 Professionals' experience of gender differences in professional focus

With regards to gender differences in professional focus, interviewees gave diverse opinions. First of all, four respondents indicated that males seem to be more intensively focussed on reducing costs, whereas females are more intensively focussed on increasing quality. However, one

respondent was not sure whether that was gender dependent, as this experience stemmed from procedures in the past. *"I experience differences in professional focus, yes, but I'm not sure if that is gender dependent. Before I came working here in the organisation, the purchasing department was not professionalised yet. There were no segregation of duties, the purchasers could order items, verify invoices, etcetera. That male purchasers have experiences I do not have, and that caused that they perceive cost always more important than me" –RO1.* When asking about her professional focus, she indicated that quality was more important than costs: *"I think my male colleagues would prefer a 'value for money' rate at which price prevails, whereas I would prefer quality over price" –RO1.* Likewise, another interviewee agreed on this reasoning and indicated that *"males are mainly occupied with costs"* and that *"they are really able to go through the market and search for the lowest price, without taking into account what the company can earn on the whole",* whereas she focuses on *"the big picture, in order to find the optimal balance between different focus" –RO2.* When asking for possible explanations for this gender difference, she explained that it might be a consequence of work policies in the past too: *"that is the way purchasing was experienced formerly here in the organisation: purchasing should be at the lowest price possible" –RO2.* Another respondent agreed with this point of view and stated that *"males generally tend to talk about costs reducing methods, whereas females would give a 'high-five' for extra quality, or for a better society. I think that is the biggest difference I experienced in my career" –RO5.* As a reason for this gender difference, the male respondent indicated that it had to do with the measurability and concreteness. *"That scoring-thing is something I also find important, because I think you have 'scored' if you reduced the costs with 40 per cent. If you could prove that the costs stayed the same, but you have improved sustainability, I notice that decision makers in organisations get happier from the first, as that is concrete" –RO5.* Others found it difficult to make gender differences concrete and referred to their feelings: *"My gut tells me that females are more on the societal challenges, like sustainability and the environment. And I think males will do what is dedicated to them, if he can distinct himself in that way. But I am not sure where that feeling comes from" –RO9.*

Another interviewee indicated that he noticed that the stereotype is that females mainly focus on the long-term, while males generically prefer the short-term focus, but that "*you cannot generalise that over the whole population" –RO4.* He added that differences in professional focus are person related and not gender dependent. *"In my career, I have also seen females that focussed*

on the short-term, or males that focussed on the long-term. So I think it is again really dependent on the individual itself" –RO4. Likewise, another interviewee indicated that he saw *"no reason why males would focus on different outcomes than females. Perhaps there are males that choose another approach than females, but in practice, you cannot state that over the whole population" –RO6.* Other respondents agreed with this and mentioned that differences in professional focus are not gender related. Particularly, one respondent argued that *"your professional focus should be company related. If you take Action or Lidl for example, their focus is on low prices. As a purchaser of that company, you should then of course focus on low costs" –RO4.* Other respondents confirmed these experiences and stated that *"it are differences between private and public companies and not differences between males and females. You cannot compare females that work in the private sector with males from the public sector" –RO10.* Another interviewee added that it is indeed *"something you get imposed by the management"-RO7.* She clarified her point of view by means of an example, referring to her time at an organisation: *"Looking at my time at ***, the company was taken over by an Asian group and consequently, cost reductions played a major role. And that was something you get imposed by the management. Males and females perceived it both as important to reduce costs"*. In short then, differences in professional focus are, according to these interviewees, not related to gender.

The above-mentioned results are visualised in Table 19 on the next page, at which the respondents are categorised on function and gender.

Table 19: Overview qualitative results - gender differences in professional focus

Experience of gender differences in professional focus

Buyers		**Recruiters**	
Female	*Male*	*Female*	*Male*
"Females prefer high quality"	"Females give a high-five for extra quality"		"Females are more on societal challenges"
"Females focus on the big picture"	"Females focus on the long term"		
"Males prefer low costs"	"Males tend to talk about costs"		"Males focus on the short term"
	"Professional focus in company-dependent"	"Professional focus is something you get imposed by the management"	"Professional focus is sector-dependent (private or public)"

5. Discussion

This chapter will compare the theories to the empirical results described above, in order to answer the (sub) questions of this study.

5.1 Gender differences in PSM competencies

The first sub question of this study was: *"What are the differences in PSM competencies between the genders?"*. In comparing the theories about gender differences in individuals' self-assessment and confidence level to the empirical results described above, several similarities as well as differences are found. The empirical results have shown that most gender differences in competencies had a negative mean difference, except for the first age group, indicating that males assessed themselves significantly higher than females. This higher self-assessment might be a consequence of males' tendency to overestimate their performance and abilities, as argued by Beyer (1990); Blanch-Hartigan (2011); Lenney (1977). Besides, Beyer (1990) argued that males like to underscore successful performance, also known as self-enhancing bias. This could thus also be an explanation for males' higher self-assessment. In addition, Swanson and Lease (1990) revealed that males rate themselves higher on realistic skills compared to females. The empirical results of the present study partially support this assumption. Firstly, males assessed themselves higher on category strategy management, cost reduction, entrepreneurial and technical needs specification skills, which can be described as realistic skills (Swanson & Lease, 1990). Nevertheless, males also assessed themselves significantly higher on advanced networking, cross-functional cooperation, supplier relation, tactical purchasing, creative and personnel management skills, which are the opposite of realistic skills. In other words, six skills in this study contradict to Swanson and Lease's results, whereas four skills confirm their results. Lastly, the empirical results of this study are not in line with the evidence of Jakobsson (2012), who found that males do not overestimate themselves.

Taken from the other perspective, the empirical results also indicated that females assess themselves significantly lower than males. This is in line with the study of Beyer (1990), who stated that females (1) underestimate performance as a result of their lower expectancies of success and (2) underestimate more frequently than males. Also, it confirmed the findings of Blanch-Hartigan (2011), Lenney (1977), and Jakobsson (2012), who all argued that females tend to underestimate their skills and abilities. However, the results of the present study do not support

the findings of Swanson and Lease (1990), who revealed that females rate themselves higher on social skills. Specifically, none of the skills in the survey of this study were assessed statistically significantly higher by females than by males.

The gender differences in self-assessment are in literature often related to confidence level differences between males and females. Specifically, males are argued to be more confident and to have more self-esteem (Bleidorn et al., 2016; Pallier, 2003), whereas females have less confidence (Bleidorn et al., 2016; Sarsons & Xu, 2015). This higher confidence level among males could be a potential explanation for the gender differences in PSM competencies found in this study. On the other hand, the conclusion of Bleidorn et al. (2016), at which he found that males and females show age-graded increases in self-esteem from late adolescence to middle adulthood, is only partially supported by the empirical results of the present study. Firstly, this study has shown that the self-esteem of males seems to increase from their twenties to their thirties, as males in their thirties assess themselves significantly higher, whereas they do not in their twenties. This indicates that, as a consequence of their higher self-assessment, males' self-esteem seems to increase from their twenties to their thirties and thus support the findings of Bleidorn et al. (2016). However, the number of skills at which males assess themselves higher decreases in their forties and becomes zero in their fifties, indicating that males' self-esteem decreases from their thirties to their fifties. This decrease in self-esteem is not in line with the finding of Bleidorn et al. (2016), who concluded that males' self-esteem increases by age. Secondly, their findings seem to do not apply to females, as their self-esteem does not significantly increase at all over the age groups. Putting it differently, females do not assess themselves significantly higher on any of the competencies, indicating that their self-esteem does not increase from late adolescence to middle adulthood. In conclusion then, Bleidorn et al. (2016)'s findings only seem to apply to males, and not to females.

5.2 Gender differences in importance of PSM competencies

The second sub-question of this study was: *"What are the differences in perceived importance of the competencies between the genders?"*. In comparing the theories regarding gender stereotypes to the empirical results described in chapter 4.2, various differences as well as similarities are found. As females are often stereotyped as more communal, particularly defined as being kind and social, concerned with others and sensitive to others' feelings (Ellemers, 2018; Kite et al., 2008), it was expected that they would perceive several competencies more important than males. The

first competency which was expected to be perceived more important by females is advanced networking, as building relations is concerned with being social and is thus in line with females' stereotype. This expectation is only partially supported by the quantitative results, since there is evidence that only females in the first age group perceive this competency more important for a successful performance. Specifically, the other age groups show no significant gender differences in perceived importance, indicating that females at the age between 30 and 59 do not perceive advanced networking more important than males.

Also, females were expected to perceive corporate social responsibility skills more important, since this is about being concerned with others and dedicating yourself to society. These characteristics reflect females' stereotype of being more communal (Ellemers, 2018; Kite et al., 2008). Although the results of the present study largely demonstrate positive mean differences, except for the third age group, none of those differences were significant at the 5% level. This implies that females do not perceive corporate social responsibility skills more important for a successful job performance, or in other words, do not support the prediction. The third competency that was expected to be perceived more important by females was cross-functional cooperation, as this reflects working together and thus being concerned with others. However, the results indicate that females do not significantly perceive this competency more important than males. Rather, males at the age between 30 and 39 years old perceive cross-function cooperating more important for their job compared to females of that age. This contradicts the prediction which was based on the gender stereotypes in literature.

Furthermore, females were expected to perceive supplier relation skills more important for their function than males. This prediction was again based on the prejudices individuals have about the genders, at which females are stereotyped as being more social. However, this prediction is not supported by the empirical results, as males in the third age group perceive this competency more important instead of females. Similarly, the second and fourth age groups also show a negative mean difference, yet they were not significant. On the contrary, the first age group revealed a positive mean difference, however, this difference was also not significant at the 5% level. In short then, the results of the present study do not support the expectation of females perceiving supplier relation skills more important than males.

On the other hand, males are in literature often stereotyped as more agentic (Ellemers, 2018). Agentic traits are for instance competitiveness, decisiveness, aggressiveness and forcefulness (Rudman & Glick, 2001). According to this stereotype, two competencies are expected to be perceived more important by males, which are cost reduction and negotiation skills. Cost reduction skills are predicted in this way since males' aggressiveness and decisiveness might be necessary to cut organisation's costs. The results have indicated that this only applies for the second and third age groups, as the other age groups show no significant mean differences compared to females. In other words, cost reduction skills are perceived more important to males at the age between 30 and 49 years old, only partially supporting the prediction.

Moreover, Nouguès et al. (2019) revealed that negotiating is considered as a masculine attribute. Therefore, it was expected that males would perceive the negotiation skills more important than females. However, the empirical results do not support this. Although most mean differences were negative, except for age group 1, none of the mean differences were significant, indicating that males do not perceive negotiation skills more important for a successful role performance than females.

5.3 Gender differences in professional focus

The third sub-question of this study was: *"What are the differences in professional focus between the genders?"*. In comparing the aforementioned survey results to the theories about the gender stereotypes, it turned out that it varied per age group. From the descriptive stereotypes in literature, it was expected that males would more intensively focus on reducing costs, as that is rational, reasoned, logical and measurable and thus in line with males' agentic characteristics. However, the empirical results have demonstrated that this is not the case for respondents at the age between 20 and 39 years old, and between 50 and 59 years old. In other words, only males at the age between 40 and 49 years old, i.e. representatives of age group 3, are more intensively focused on reducing costs compared to females. Although age groups 2 and 4 both demonstrated negative mean differences (i.e. males are more intensively focused on this subject), the differences were not large enough to make inference. On the contrary, age group 1 indicated a positive mean difference (i.e. females are more intensively focused on cost reductions), which is contradictory to their stereotype. Nevertheless, this difference was not significant at the 5% level.

Secondly, the characteristics of males' stereotype caused the expectation that they would more intensively focus on gaining competitive advantages, since that is assertive and an appropriate way to express their forcefulness. The empirical results have shown that this holds for age groups 3 and 4, as their mean differences were negative and statistically significant. Although the mean differences for age groups 1 and 2 were both negative, they were not statistically significant. This indicates that the stereotype of males being assertive and competitive is inapplicable to respondents at the age between 20 and 39 years old. In other words, the gender stereotype is only partly applicable to the PSM professionals in the survey.

Then, due to females' stereotype of being more communal, it was expected that they would more intensively focus on sustainability. This is in accordance with their characteristics of being considerate and concerned with others (and the environment) (Heilman, 2012). However, the empirical results have demonstrated that females do not significantly focus more intensively on sustainability compared to males. In fact, half of the age groups showed a negative mean difference (males are more intensively focused on increasing sustainability), whereas the other half demonstrated a positive mean difference (females are more intensively focused on increasing sustainability). This proves that the focus of being sustainable is not necessarily typical of females. In turn, it is not in line with the stereotype of females being more communal.

Furthermore, as a result of females' descriptive stereotypes, they would arguably focus more intensively on increasing supplier's satisfaction. In fact, this again denotes their concern for others and ambition to keep others satisfied. Apparently, according to the empirical results, it is inapplicable to all age groups. In particular, only the first age group showed a positive mean difference, yet it was not statistically significant. This indicates that the empirical results do not support the assertion of females being significantly more intensively focussed on increasing supplier's satisfaction.

5.4 Experience of the purchasing professional

The last question of this study was: *"How are these gender differences experienced among purchasing professionals?"*. In comparing the qualitative results as described above (see: chapter 4.2) to the literature, several similarities as well as differences are found. Firstly, various male interviewees mentioned the importance of a gender diverse team, as females can bring things differently and in a positive way. Furthermore, others argued that a good balance between males

and females can contribute to a positive ambiance. These advantages are in line with the advantages of gender diversity as mentioned by Green et al. (2002) and Nouguès et al. (2019) and hence also apply to the purchasing profession.

During the interviews, respondents were also asked to give possible explanations for females' underrepresentation in senior working positions. Whereas some opinions of the interviewees were in line with the theories described in chapter 2.3, others contradicted these theories. First of all, the stereotypes of females being more communal and males being more agentic (Ellemers, 2018; Heilman & Parks-Stamm, 2007b) are confirmed by various interviewees. Specifically, they indicated for instance that males like to engage in competitive environments and are more direct, which are both characteristics of being agentic (Rudman & Glick, 2001). On the other hand, females were described as liking to achieve things together, being at the consensus, people-oriented and relation-oriented, which are all typical for females' stereotype (Ellemers, 2018; Kite et al., 2008). In addition, interviewees also indicated that these prejudices might disadvantage females in climbing the organisational ladder and thus can be a possible explanation for females' underrepresentation. Secondly, most interviewees revealed that the glass-ceiling as a barrier of females in moving up does not exist. Specifically, female interviewees had not experienced a glass ceiling during their career, and males indicated that the glass ceiling should not be an explanation for females' underrepresentation, as it is largely looking like a self-fulfilling prophecy. This indicates that, according to the present study, the glass-ceiling concept is not considered as a possible explanation for females' underrepresentation in the purchasing profession. Thirdly, the social role theory was only partly mentioned as a potential reason for the underrepresentation of females during the interviews. In particular, the first aspect of the social role theory, i.e. the sexual division of labour, was mentioned several times, while the second aspect of gender hierarchy was not mentioned at all. This sexual division of labour reflects the typical roles males and females have in society, at which females are more likely to be homemakers and take care of the children, whereas males are more likely to have full-time roles (Bird & Codding, 2015). This typical role of females to take care of the children was assumed by several interviewees to be "normal", implying that it might be a possible explanation for the diminish number of females in the purchasing profession.

However, the opt-out revolution was mentioned most often during the interviews. Female as well as male respondents indicated that the choice to take care of the children and thus stay home is a decision that limits females' career opportunities, which is indeed what the opt-out revolution is about (Jones, 2012; Kossek et al., 2017). As a consequence of this choice, most females start working part-time, which in turn negatively affects their opportunities to climb the organisational ladder. Accordingly, some interviewees pointed out that the results of the present study should be interpreted carefully, as it might be differences in type of employment instead of gender differences. In addition, the fact that some interviewees indicated that the problem of being underrepresented is at females themselves, can be traced back to the opt-out revolution too.

Furthermore, the pushed-out revolution was also described in chapter 2.3 as a possible reason for females' underrepresentation. This concept argues that females experience three observable impediments in their personal development, that is career preferences, gender bias and work-family experiences (Kossek et al., 2017). With regards to females' career preferences, one interviewee argued that she could imagine that females have different interests concerning their work environment. Specifically, she stated that females wonder if they are able to work in a male-dominated team. Then, regarding work-family experiences, one respondent indicated that he could imagine that females feel responsible for family care the most, as males mostly work fulltime. However, he also indicated that he was willing to give his wife the opportunity to develop a career and that they talked about that possibility, yet she did not have to. This argument reflects the work-family experience of the pushed-out revolution (Kossek et al., 2017).

On the contrary, the lower risk appetite and the lower confidence level among females was not mentioned by any of the interviewees. This indicates that these subjects might not be a potential explanation for the lower self-assessment of females and their low representation in higher working positions. Lastly, the PSM-specific impediments of Lawrence et al. (2018) were partly supported by the interviewees. While none of the respondents mentioned the high level of travel as an impediment, one respondent referred to the aggressive ethos of purchasing. Specifically, he stated that purchasers from the past tended to use their power to choose suppliers by letting them walk by the office. According to him, this aggressive ethos is something females do not like. In conclusion, only one PSM-specific impediment mentioned by Lawrence et al. (2018) seems to be applicable to the purchasing profession, according to the interviewees.

6. Conclusion

This study examined how males and females differ in the purchasing profession with regard to their competencies and professional focus, and how these gender differences are experienced among PSM professionals. The following two central research questions were formulated:

CRQ1: *How do males and females differ in the purchasing and supply management profession with regard to their competencies and professional focus?*

CRQ2: *How are these gender differences experienced among purchasing professionals?*

The first central research question (CRQ1) was answered using a quantitative approach, whereas the second central research question was measured by conducting semi-structured interviews.

The results revealed that gender differences in competencies and professional focus varied by age group. First of all, the second and third (30-39 and 40-49 years old resp.) age groups demonstrate various significant gender differences in competencies. Particularly, males assess themselves significantly higher on advanced networking, category strategy management, cost reduction, cross-functional cooperation, supplier relation management and tactical purchasing process skills as well as creative, entrepreneurial, and personnel management skills. Secondly, regarding the perceived importance of the PSM competencies, statistically significant gender differences are found for respondents in the third age group. Males in that age group perceive (1) category strategy management skills, (2) cost reduction skills, (3) entrepreneurial skills, (4) personnel management skills, (5) supplier relations skills, (6) tactical purchasing process skills, and (7) technical needs specification skills statistically significantly more important for a successful role performance than females of that age. On the other hand, females in the first age group (20-29 years old) perceive advanced networking skills statistically significantly more important than males of that age. Thirdly, with regards to professionals' focus, statistically significant gender differences are found for the third and fourth (40-49 and 50-59 years old resp.) age groups. Specifically, males of those ages are both more intensively focussed on achieving a long-term competitive advantage than females. Besides, males in the third age group are also more intensively focused on achieving cost reductions and improving the supply delivery process.

Regarding the experiences of PSM professionals on gender differences, opinions are divided. When asking for gender differences in general, most interviewees indicated that they did

not experience differences between males and females in their daily life or organisation. The female buyers and recruiters indicated for instance that it might be differences between individuals concerning their character, personal interests or years of experience. The male buyers and recruiters on the other hand mentioned that it might be differences between individuals' capabilities and type of employment.

Additionally, with regards to purchasing professionals' experience on gender differences in competencies, divergent views came forward. Some buyers and recruiters had specific examples of competency differences, whereas others argued that differences between individuals cannot be allocated to gender. Two female buyers described themselves for instance as being more structured and pünktlich than males. A male buyer partially agreed on this and stated that females are often less chaotic. Also, females were by both female buyers as well as male recruiters described as being more relation-oriented, whereas males were described as being more task-oriented. However, others (both female and male buyers) found it difficult to allocate differences in competencies to gender and state that differences between individuals raise from the stereotypes in society. A male recruiter added that potential differences in competencies should be nuanced.

Moreover, regarding professional focus, diverse opinions are given. First of all, four female respondents indicated that males seem to be more intensively focussed on reducing costs, whereas they described themselves as being focussed on achieving higher quality. A male buyer assented on this and stated that females would give a high-five for extra quality, whereas he tended to talk about costs. On the other hand, a female recruiter stated that your professional focus is something you get imposed by the management. A male buyer and recruiter indicated indeed that your professional focus in dependent on other factors, such as the company your working for or the sector you are working in.

7. Limitations and future research

This chapter will discuss the limitations of the study by referring to its internal validity, external validity and reliability. Moreover, recommendations for future research are given.

7.1 Limitations

As in nearly all researches, this study is limited for several reasons. This paragraph will discuss the limitations of the present study with regards to its internal validity, external validity and reliability.

7.1.1 Internal validity

First of all, the internal validity of the present study can be questioned due to the endeavour of the interviewees to give "right" or socially desired answers. During the interviews, it became clear that most respondents had thought carefully on beforehand about what they should say, probably because they were afraid to say things "wrong". This was also evident from the fact that they tried to nuance their answers continuously. Moreover, since the interviewees should give their opinions regarding gender differences to me, a female, I noted that they were extra careful because they did not want to offend females. As a result, the experiences of purchasing regarding gender differences might not be complete, negatively affecting the internal validity of this research. However, this incompleteness was carefully thought of on beforehand by developing an interview protocol at which anonymity was ensured.

Secondly, the internal validity can be challenged due to researcher's bias. In particular, I as a researcher had my own particular values and beliefs about the topic. For instance, at the beginning I did not respond to answers that were within my expectations, whereas I asked more concrete questions if interviewees gave answers that were beyond my expectations. However, this improved after the first two interviews, since I recognised this problem during transcribing the interviews. Here, it turned out that there were not always underlying motivations for professionals' opinions, as I did not ask for it. In the subsequent interviews, I tried to ask for these underlying motivations.

Thirdly, it can be questioned whether it are differences between females and males. During the interviews, it turned out that not all professionals did experience real gender differences, though it might also be differences between full-timers and part-timers. As a result, conclusions are based on differences between the genders, while it actually also could be differences between

full-timers and part-timers. Yet, this information was not available in the questionnaire which made a comparison between full-timers and part-timers not possible.

However, choosing a mixed-method approach for this study was a thoughtful choice, as this method is argued to heighten the trustworthiness and dependability of the data and their interpretation (Zohrabi, 2013). Additionally, this triangulation strengthens the internal validity, as the interviewees confirmed several findings from the questionnaire. Besides, the interviews supplemented to the survey questions, by providing in depth information about possible causes for gender differences.

7.1.2 External validity

First of all, by using both quantitative and qualitative methods, the representativeness of the sample was ensured. Specifically, the questionnaire was filled out by purchasing professionals from various countries in Europe, resulting in a diverse group with various viewpoints. Afterwards, interviews were held among Dutch purchasing professionals, working both in the private and public sector, having different genders and different years of experience. As a result, there is a lot of differentiation in the sample used for this study, positively contributing to the external validity.

Nevertheless, it can be questioned whether the findings of this study can be generalised to other professions. This might be difficult as other professions might not be as male-dominated as the purchasing profession seemed to be, resulting in other gender differences and experiences of professionals. Putting it differently, gender differences that apply in the purchasing profession might not apply to other professions, such as HRM and marketing.

7.1.3 Reliability

The reliability of the first segment of this research, which was the quantitative analysis, was ensured by Cronbach's Alpha. In particular, Cronbach's Alpha was .862 for the competency items measure, .797 for the importance levels, and .825 for the professional focus. Since these values are all above the threshold of .700 (Cronbach, 1950), it can be stated that the quantitative results are reliable.

Secondly, through explicitly explaining the different phases of this research and its methodology, reliability increased. Particularly, the design of this study is clearly described in chapter 3, at which also information concerning the respondents can be found. Additionally, the

methods of data analysis are clearly described there. In this way, the study can be quite easily replicated by others.

Furthermore, the reliability of the second segment of this research, which was the qualitative data collection and analysis, is assured by presenting the interview protocol and questions in the appendices. However, the transcripts of the interviews are not displayed in the appendix because of respondents' privacy that was ensured in the interview protocol.

Nevertheless, the reliability of this thesis can also be challenged, since the qualitative results are based on the opinions of ten respondents. These opinions might change over time due to several circumstances. In addition, other respondents might have shared other experiences, which negatively influences the reliability of this research. Besides, it can be argued that ten respondents is not enough to draw conclusions on. However, due to time restrictions, it was not possible to include much more respondents for the interviews. Also, on the other hand, the sample on which quantitative conclusions were drawn, was quite big (n=474).

7.2 Contributions and future research

The findings of this thesis contribute to the existing literature in several ways. Although gender differences in general are widely studied, such as differences in preferences, salaries and traits, gender differences in the purchasing profession are not much studied. In particular, a search in Google Scholar with the terms "gender differences" AND "supply chain management" have resulted in 383.000 search results, whereas only the term "gender differences" resulted in more than 3.5 million search results. In other words, approximately 10 per cent of the searches have focussed on the purchasing profession. In investigating the search results that appeared by using the terms "gender differences" AND "supply chain management" in Google Scholar, only three of them seemed to have investigated the gender differences in the purchasing profession as is done in this study (Brauner, Runge, Groten, Schuh, & Ziefle, 2013; Park & Krishnan, 2005; Swift & Gruben, 2000). In particular, these three studies focussed on (1) the gender-performance relationship within the supply chain, (2) gender differences in managing supply chains, such as supplier selection techniques, and (3) gender differences in weighting of supplier selection criteria. However, none of these studies investigated gender differences in purchasing professionals' competencies or professional focus. Besides, this study has shown firstly evidence that in an early

stage of the career no statistically significant differences in competencies and professional focus appear between the genders.

Besides these theoretical contributions, managers could also learn from the results of the present study. As mentioned before, more females will enter the purchasing profession in the future as a result of the increasing importance of gender diversity in organisations and the majority (60 per cent) of female students in PSM. However, these females will probably opt themselves out at one point, in order to take care of their children. The results revealed that males and females at the age between 20 and 29 years old do not differ significantly in their competencies and focus, and thus are equally competent and focused at the start of their career. This seems to change after their twenty-ninth year of life, since females and males then start to show statistically significant gender differences. This might indicate that females opt themselves out at the beginning of their thirties. For managers and organisations, it is recommended to recognise this opt-out concept and to facilitate these females in order to retain them, since this opt-out sample contains very talented females. In short, organisations should cherish and encourage them to make family-work situations better possible. For instance, special arrangements for females with children could be introduced, so that these talented females will not completely leave the organisation and managers could still benefit from them.

Furthermore, this research made some practical contributions. As it can be obtained from the results which competencies males or females are better at, the purchasing department could be organised more effectively. Organisations might for instance split up their purchasing activities and let females do where they are good at, as well as letting males do what they are good at. In this way, a "best of both worlds" situation is created. Besides, organisations might recognise the added value of diversity in purchasing, as gender diversity is argued to contribute to firm performance. A gender diverse purchasing team is also part of that, implying that it can contribute to firm performance too.

Additionally, further research can be done in competency and professional focus differences between full-timers and part-timers, instead of between the genders. In this way, it can be tested whether the expectations of some interviewees match reality. Also, there might be a relationship between individuals' type of employment and their gender. In particular, the differences found in this study might not apply to females or males, they could also apply to part-

timers or full-timers. Therefore, it is recommended to analyse the strength of the relationship between gender and type of employment in future research. Moreover, further research could be done to determine whether gender differences in PSM for the private sector differ from the public sector, since several respondents indicated that you could not compare those two easily. Finally, in similar studies, researchers should take respondents' work experience into account, as there might be a relation between professionals' work experience and competency levels.

References

Adler, R. D. (2001). Women in the executive suite correlate to high profits. *Harvard Business Review, 79*(3), 30-32.

Babbie, E. R. (2015). *The practice of social research*: Nelson Education.

Ballou, R. H. (2007). The evolution and future of logistics and supply chain management. *European business review, 19*(4), 332-348.

Bals, L., Schulze, H., Kelly, S., & Stek, K. (2019). Purchasing and supply management (PSM) competencies: Current and future requirements. *Journal of purchasing and supply management, 25*(5), 1-15.

Bandalos, D. L., & Finney, S. J. (2018). Factor analysis: Exploratory and confirmatory. In *The reviewer's guide to quantitative methods in the social sciences* (pp. 98-122): Routledge.

Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The quarterly journal of economics, 116*(1), 261-292.

Barreto, M. E., Ryan, M. K., & Schmitt, M. T. (2009). *The glass ceiling in the 21st century: Understanding barriers to gender equality*: American Psychological Association.

Bartlett, M. S. (1950). Tests of significance in factor analysis. *British Journal of statistical psychology, 3*(2), 77-85.

Belkin, L. (2003). The opt-out revolution. *New York.*

Beyer, S. (1990). Gender differences in the accuracy of self-evaluations of performance. *Journal of personality and social psychology, 59*(5), 960.

Bird, R. B., & Codding, B. F. (2015). The sexual division of labor. In *Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource* (pp. 1-16): John Wiley and Sons.

Blanch-Hartigan, D. (2011). Medical students' self-assessment of performance: results from three meta-analyses. *Patient education and counseling, 84*(1), 3-9.

Bleidorn, W., Arslan, R. C., Denissen, J. J., Rentfrow, P. J., Gebauer, J. E., Potter, J., & Gosling, S. D. (2016). Age and gender differences in self-esteem—A cross-cultural window. *Journal of personality and social psychology, 111*(3), 396.

Brauner, P., Runge, S., Groten, M., Schuh, G., & Ziefle, M. (2013). *Human factors in supply chain management.* Paper presented at the International Conference on Human Interface and the Management of Information.

Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999). Gender differences in risk taking: a meta-analysis. *Psychological bulletin, 125*(3), 367.

Carr, A. S., Leong, G. K., & Sheu, C. (2000). A study of purchasing practices in Taiwan. *International journal of operations & production management*.

Carter, Simkins, & Simpson. (2003). Corporate governance, board diversity, and firm value. *Financial review, 38*(1), 33-53.

Carter, P. L. (1998). The Future of Purchasing and Supply Chain: A Five-and Ten-Year Forecast. *Center for Advanced Purchasing Studies*.

Charness, G., & Gneezy, U. (2012). Strong evidence for gender differences in risk taking. *Journal of Economic Behavior & Organization, 83*(1), 50-58.

Chen, G., Crossland, C., & Huang, S. (2016). Female board representation and corporate acquisition intensity. *Strategic Management Journal, 37*(2), 303-313.

Cotter, D. A., Hermsen, J. M., Ovadia, S., & Vanneman, R. (2001). The glass ceiling effect. *Social forces, 80*(2), 655-681.

Cronbach, L. J. (1950). Further evidence on response sets and test design. *Educational and psychological measurement, 10*(1), 3-31.
Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic literature, 47*(2), 448-474.
Eagly, A. H., & Mladinic, A. (1989). Gender stereotypes and attitudes toward women and men. *Personality and Social Psychology Bulletin, 15*(4), 543-558.
Eagly, A. H., & Wood, W. (2016). Social role theory of sex differences. *The Wiley Blackwell encyclopedia of gender and sexuality studies*, 1-3.
Eagly, A. H., Wood, W., & Diekman, A. B. (2000). Social role theory of sex differences and similarities: A current appraisal. In *The developmental social psychology of gender* (Vol. 12, pp. 174): Psychology Press.
Ellemers, N. (2018). Gender stereotypes. *Annual review of psychology, 69*, 275-298.
Figlio, D., Karbownik, K., Roth, J., & Wasserman, M. (2019). Family disadvantage and the gender gap in behavioral and educational outcomes. *American Economic Journal: Applied Economics, 11*(3), 338-381.
Foerstl, K., Schleper, M. C., & Henke, M. (2017). Purchasing and supply management: From efficiency to effectiveness in an integrated supply chain. *Journal of purchasing and supply management, 23*(4).
Friedl, A., Pondorfer, A., & Schmidt, U. (2019). Gender differences in social risk taking. *Journal of Economic Psychology*, 102182.
Gadde, L.-E., & Wynstra, F. (2017). Purchasing and supply management: on strategic roles and supplier interfaces. In (pp. 67-86): Emerald Publishing Bingley.
Galbreath, J. (2018). Is board gender diversity linked to financial performance? The mediating mechanism of CSR. *Business & Society, 57*(5), 863-889.
Gill, N. S. (2018). *Relationship between diversity on the board of directors' and firm financial performance.* Escola de Economia de São Paulo, Sao Paulo.
Giunipero, L. C., & Pearcy, D. H. (2000). World-class purchasing skills: an empirical investigation. *Journal of Supply Chain Management, 36*(3), 4-13.
Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory: strategies for qualitative research. *New York, Adline de Gruyter*.
Glass, C., & Cook, A. (2016). Leading at the top: Understanding women's challenges above the glass ceiling. *The Leadership Quarterly, 27*(1), 51-63.
Green, K. A., López, M., Wysocki, A., & Kepner, K. (2002). Diversity in the workplace: Benefits, challenges, and the required managerial tools. *University of Florida, 1*(4), 1-3.
Habib, M. (2011). Supply Chain Management (SCM): Theory and Evolution. In M. Habib (Ed.), *Supply chain management-applications and simulations* (pp. 1-14): Intech.
Hargittai, E., & Shafer, S. (2006). Differences in actual and perceived online skills: The role of gender. *Social Science Quarterly, 87*(2), 432-448.
Heilman, M. E. (2012). Gender stereotypes and workplace bias. *Research in organizational Behavior, 32*, 113-135.
Heilman, M. E., & Caleo, S. (2018). Gender discrimination in the workplace. In A. J. Colella & K. E. B. (Eds.), *The Oxford handbook of workplace discrimination* (pp. 73-88). Oxford: Oxford University Press.
Heilman, M. E., & Parks-Stamm, E. J. (2007a). Gender stereotypes in the workplace: Obstacles to women's career progress. In *Social psychology of gender* (pp. 47-77): Emerald Group Publishing Limited.

Heilman, M. E., & Parks-Stamm, E. J. (2007b). Gender stereotypes in the workplace: Obstacles to women's career progress. In *Social Psychology of Gender* (Vol. 24, pp. 47-77). Bingley: Emerald Group Publishing Limited.

Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of financial Economics, 108*(3), 822-839.

Hunt, V., Layton, D., & Prince, S. (2015). *Diversity matters*. Retrieved from New York:

Jacob, B. A. (2002). Where the boys aren't: Non-cognitive skills, returns to school and the gender gap in higher education. *Economics of Education review, 21*(6), 589-598.

Jacobs, J. A. (1996). Gender inequality and higher education. *Annual review of sociology, 22*(1), 153-185.

Jakobsson, N. (2012). Gender and confidence: are women underconfident? *Applied Economics Letters, 19*(11), 1057-1059.

Johnson, & Powell. (1994). Decision making, risk and gender: Are managers different? *British Journal of Management, 5*(2), 123-138.

Jones, B. D. (2012). *Women who opt out: The debate over working mothers and work-family balance*. New York: NYU Press.

Kaiser, H. F. (1970). A second generation little jiffy. *Psychometrika, 35*(4), 401-415.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31-36.

Kalev, A., & Deutsch, G. (2018). Gender inequality and workplace organizations: understanding reproduction and change. In *Handbook of the sociology of gender* (pp. 257-269). Cham: Springer.

Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of advanced nursing, 72*(12), 2954-2965.

Kelle, U. (2006). Combining qualitative and quantitative methods in research practice: purposes and advantages. *Qualitative research in psychology, 3*(4), 293-311.

Kendall, J. (1999). Axial coding and the grounded theory controversy. *Western journal of nursing research, 21*(6), 743-757.

Kite, M. E., Deaux, K., & Haines, E. L. (2008). Gender stereotypes. *Psychology of women: A handbook of issues and theories, 2*, 205-236.

Kossek, E. E., Su, R., & Wu, L. (2017). "Opting out" or "pushed out"? Integrating perspectives on women's career equality for gender inclusion and interventions. *Journal of Management, 43*(1), 228-254.

Kraljić, P. (1983). Purchasing must become supply management. *Harvard Business Review, 61*(5), 109-117.

Krause, D. R., Pagell, M., & Curkovic, S. (2001). Toward a measure of competitive priorities for purchasing. *Journal of operations management, 19*(4), 497-512.

Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of personality and social psychology, 77*(6), 1121.

Lauring, J., & Villeseche, F. (2019). The performance of gender diverse teams: What is the relation between diversity attitudes and degree of diversity? *European Management Review, 16*(2), 243-254.

Lawrence, J., Lonsdale, C., & Le Mesurier, N. (2018). Access denied? Exploring the causes of the low representation of women in senior executive positions within procurement. *Journal of purchasing and supply management, 24*(4), 304-313.
Le Dain, M.-A., Merminod, V., & Yager, M. (2019). Collaborative practices in new product development projects involving suppliers. *Production Planning & Control*, 1-14.
Leaders, P. (2017). *Procurement salary survey 2017*. Retrieved from London:
Lenney, E. (1977). Women's self-confidence in achievement settings. *Psychological bulletin, 84*(1), 1.
Lonkani, R. (2019). Gender differences and managerial earnings forecast bias: Are female executives less overconfident than male executives? *Emerging Markets Review, 38*, 18-34.
Lückerath-Rovers, M. (2013). Women on boards and firm performance. *Journal of Management & Governance, 17*(2), 491-509.
McLean, C. P., & Anderson, E. R. (2009). Brave men and timid women? A review of the gender differences in fear and anxiety. *Clinical psychology review, 29*(6), 496-505.
Monczka, R. M., Handfield, R. B., Giunipero, L. C., & Patterson, J. L. (2015). *Purchasing and supply chain management*. Boston: Cengage Learning.
Moreno-Gómez, J., Lafuente, E., & Vaillant, Y. (2018). Gender diversity in the board, women's leadership and business performance. *Gender in Management: An International Journal*.
Morris, E. W. (2012). *Learning the hard way: Masculinity, place, and the gender gap in education*: Rutgers University Press.
N'guessan, K. G. (2011). *Gender hierarchy and the social constructions of femininity: The imposed mask.* University of Cocody, Abidjan.
Nouguès, X., Swette, K., Djaad, L., Eblaz, M., & Hjiej, A. (2019). *Women in procurement: Gender parity is a key to better performance*. Retrieved from New York:
O'brien, J. (2019). *Category management in purchasing: a strategic approach to maximize business profitability*. London: Kogan Page Publishers.
Pallier, G. (2003). Gender differences in the self-assessment of accuracy on cognitive tasks. *Sex Roles, 48*(5-6), 265-276.
Park, D., & Krishnan, H. A. (2005). Gender differences in supply chain management practices. *International Journal of Management and Enterprise Development, 2*(1), 27-37.
Perryman, A. A., Fernando, G. D., & Tripathy, A. (2016). Do gender differences persist? An examination of gender diversity on firm performance, risk, and executive compensation. *Journal of Business Research, 69*(2), 579-586.
Phlippen, S., & Duijn, S. (2019). *Arbeidsmarkt is groter voor mannen dan voor vrouwen*. Retrieved from Amsterdam:
Porter, M. (1980). Porters' five forces. *Competitive Strategy*.
Pouwels, B., Leenders, J., & Van den Brink, M. (2019). *Bedrijvenmonitor Topvrouwen 2019 'Streefcijfers te vrijblijvend; tijd voor een quotum'*. Retrieved from
Powell, G. N. (2018). *Women and men in management*. London: Sage Publications.
Reniers, R. L., Murphy, L., Lin, A., Bartolomé, S. P., & Wood, S. J. (2016). Risk perception and risk-taking behaviour during adolescence: the influence of personality and gender. *PloS one, 11*(4).
Ridgeway, C. L. (2001). Gender, status, and leadership. *Journal of Social issues, 57*(4), 637-655.
Ross, A., & Willson, V. L. (2017). One-way anova. In *Basic and advanced statistical tests* (pp. 21-24): Brill Sense.

Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social issues, 57*(4), 743-762.
Sarsons, H., & Xu, G. (2015). Confidence men? Gender and confidence: Evidence among top economists. *Harvard University, Department of Economics, Littauer Center*, 1-26.
Sass, D. A., & Schmitt, T. A. (2010). A comparative investigation of rotation criteria within exploratory factor analysis. *Multivariate Behavioral Research, 45*(1), 73-103.
Schiele, H., Calvi, R., & Gibbert, M. (2012). Customer attractiveness, supplier satisfaction and preferred customer status: Introduction, definitions and an overarching framework. *Industrial marketing management, 41*(8), 1178-1185.
Schütz, K., Kässer, M., Blome, C., & Foerstl, K. (2019). How to achieve cost savings and strategic performance in purchasing simultaneously: A knowledge-based view. *Journal of purchasing and supply management*, 100534.
Shaw, B. A., Liang, J., & Krause, N. (2010). Age and race differences in the trajectories of self-esteem. *Psychology and Aging, 25*(1), 84.
Shorten, A., & Smith, J. (2017). Mixed methods research: expanding the evidence base. In (Vol. 20, pp. 74-75). Birmingham: Royal College of Nursing.
Subedi, D. (2016). Explanatory sequential mixed method design as the third research community of knowledge claim. *American Journal of Educational Research, 4*(7), 570-577.
Swanson, J. L., & Lease, S. H. (1990). Gender differences in self-ratings of abilities and skills. *The Career Development Quarterly, 38*(4), 347-359.
Swift, C. O., & Gruben, K. H. (2000). Gender differences in weighting of supplier selection criteria. *Journal of Managerial Issues*, 502-512.
Tan, K. C. (2001). A framework of supply chain management literature. *European Journal of Purchasing & Supply Management, 7*(1), 39-48.
Tan, K. C., Lyman, S. B., & Wisner, J. D. (2002). Supply chain management: a strategic perspective. *International journal of operations & production management, 22*(6), 614-631.
Teigen, M. (2015). Gender quotas for corporate boards in Norway. In *EUI Department of Law Research Paper*. Badia Fiesolana.
Vos, F. G. S. (2019). Preferred customer status, supplier satisfaction and their contingencies. In *Supply Management Research* (pp. 25-46): Springer.
Weber, E. U., Blais, A. R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of behavioral decision making, 15*(4), 263-290.
Wiley, C., & Monllor-Tormos, M. (2018). Board gender diversity in the STEM&F sectors: the critical mass required to drive firm performance. *Journal of Leadership & Organizational Studies, 25*(3), 290-308.
Williams, J. C., Blair-Loy, M., & Berdahl, J. L. (2013). Cultural schemas, social class, and the flexibility stigma. *Journal of Social issues, 69*(2), 209-234.
Zohrabi, M. (2013). Mixed Method Research: Instruments, Validity, Reliability and Reporting Findings. *Theory & practice in language studies, 3*(2).

Appendices

Appendix 1 – Overview European Survey on Purchasing Skills

1. What is your job title?	Open question
2. What part (%) of your time do you spend on these different roles? (21 different roles described, e.g. operative buyer, direct materials purchaser, CPO, controller, supply chain finance, etc.)	Multiple choice (0-10%, 11-20%, 21-30%, etc.)
3. What order is applicable for your current job? Arrange in the correct order: cost, quality, delivery, innovation, competitive.	5-Likert scale – more important to less important
4. Rate to what extent you are experienced and educated in the following subjects: - Planning and strategy - Organisational structure - Process organisation - Human resource & leadership - Controlling - Personal skills	5-Likert scale – no competence to training others in this skill
5. Rate to what extent the following subjects are important for your current job: - Planning and strategy - Organisational structure - Process organisation - Human resource & leadership - Controlling - Personal skills	5-Likert scale – not important to very important
6. What is your professional focus? Statements concerning: - Cost reductions - Quality - Sustainability - Delivery of supplies - Innovation - Long-term competitive advantage - Supplier satisfaction	5-Likert scale – strongly disagree to strongly agree
7. How are things organised in your organisation? Grade to what extent you agree on the following statements: In my organisation…..	5-Likert scale – strongly disagree to strongly agree
8. Grade to what extent you agree on these statements that belong to your organisation, e.g. purchasing plays an important role in new product development in cross-functional teams and continuous improvement efforts	5-Likert scale – strongly disagree to strongly agree
9. Personal and employer information, e.g. what is your nationality?	Open questions

Appendix 2 – Interview guide

Introduction to the topic	
The aim of my study is to gain more insights in gender differences in PSM In order to gain more insights into these differences, this interview is conducted. Thus, I would like to know how you experience gender differences in PSM.	
Personal information	
Personal	What is your age? What is the highest education level you have completed? (PhD, MSc, BSc, etc.) How many years of experience do you have in the purchasing profession?
Job specific	What industry is your organisation working in? What is your function in the organisation? - Since when are you working in this function? - How many years have you been working for this particular firm? - How many employees are working at your purchasing department? - How is the gender division in your purchasing department?
Experiences gender differences in PSM	
Experiences gender differences in general	Do you experience gender differences in general? If yes: What kind of differences? - Which demonstrates this? - What are, according to you, reasons for the low representation of females in higher working positions? - Do you think gender stereotypes disadvantage females? - Which demonstrates this? - Do you think that the "glass ceiling" disadvantages females in their personal career development? Which demonstrates this?
Experiences gender differences in competencies	How do you experience differences between you and your female/male colleagues regarding PSM competencies? - Do you feel that you are less competent in certain competencies than your male/female colleagues? - What are examples of these competencies? - Which demonstrates this? - Do you feel that you are more competent in certain competencies than your male/female colleagues? - What are examples?

	- Which demonstrates this? - How do you experience buying from females? And from males? (Are there differences in communication for example and what are the differences in general?)
Experiences gender differences in perceived importance of competencies	How do you experience differences in perceived importance of competencies for a successful role performance? - What are competencies that you find more important than your female/male colleagues? - Which demonstrates this? - What are competencies that you find less important than your female/male colleagues? - Which demonstrates this?
Experiences gender differences in professional focus	Examples professional focus: cost reductions, quality improvements, sustainability, supply delivery process, innovation, competitive advantage and supplier satisfaction. Do you see differences in any of those professional tasks? Has this to do with differences in competencies? If you may choose one of these foci as most important, which one would you choose? And which one is least important? How do you experience differences in professional focus among your male/female colleagues? Can you give some examples?
Adjustments	Is there something you would like to add?

Appendix 3 - Interview protocol

Interview protocol for the execution of qualitative research

Date ……

This interview focusses on investigating experiences in gender differences among purchasing professionals. During the first phase of my study, I analysed an existing dataset. In order to get a deeper understanding of the experiences of purchasing professionals, this interview is conducted.

During the interview, I would like to hear your experiences. How do you experience gender differences in your profession? Do you for example see differences in your manner of working compared to other colleagues? Do you complement each other in decision making processes? By means of your experiences, insights and critical view, I hope to gain more insight into this topic.

The interview should approximately last 30 to 45 minutes and would, of course with your permission, be recorded. These records will be used to transcribe the interview and will be confidential and not traceable to you or your firm. This transcript will then for approval be sent to you. Afterwards, the record will be deleted and the transcript will be documented and controlled by me. When I completed this research for the university, the transcript will also be deleted.

The results of this study will be presented in general. This means that only I as a student knows who my respondents were. The outcomes of the interviews will thus be anonymised.

I would like to thank you in advance for your valuable insights and critical view on this topic. If you agree with the protocol above, I would like to receive your sign.

…… ……..

Tess Bijl
Research student
MSc. Business Administration
University of Twente

Appendix 4 – Results Mann Whitney U-test for gender differences in educational level

Test Statistics - age group 1[a]

	My highest completed educational level is:
Mann-Whitney U	240,000
Wilcoxon W	870,000
Z	-,936
Asymp. Sig. (2-tailed)	,350

a. Grouping Variable: My gender is:

Test Statistics - age group 2[a]

	My highest completed educational level is:
Mann-Whitney U	1261,000
Wilcoxon W	4582,000
Z	-,250
Asymp. Sig. (2-tailed)	,803

a. Grouping Variable: My gender is:

Test Statistics - age group 3[a]

	My highest completed educational level is:
Mann-Whitney U	2269,500
Wilcoxon W	9529,500
Z	-,047
Asymp. Sig. (2-tailed)	,963

a. Grouping Variable: My gender is:

Test Statistics - age group 4[a]

	My highest completed educational level is:
Mann-Whitney U	1924,500
Wilcoxon W	2519,500
Z	-,391
Asymp. Sig. (2-tailed)	,696

a. Grouping Variable: My gender is:

Appendix 5 – Factor analyses

ADVANCED NETWORKING SKILLS
Ability to Resolve Conflicts - Being able to avoid and resolve conflicts
Ability to Solve Problems
Building Relations - Networking and relations management
Capacity to Advice - Having consultancy skills
Power of Persuasion - Having influential skills
ANALYTICAL SKILLS
Portfolio Analysis Support - Analysing the purchasing portfolio, describing a classification of purchases, and supporting the portfolio management
Set key performance indicators (KPI's) - Defining key performance indicators / objectives / targets and implementing them
Statistical Analyses - Applying statistical analyses methods
AUTOMATION SKILLS
Automation - Working on the automation of purchasing processes
Procurement IT Systems / e-procurement applications - Having knowledge on the working of a computerized designed e-procurement system
CATEGORY STRATEGY MANAGEMENT SKILLS
Category Strategy Development - Development of the sourcing strategy for a category or family of purchasing goods, including strategic analysis and category classification/portfolio management (e.g. Kraljic)
Innovation implementation - Implementing suppliers innovations in the own organization
Make or Buy Decisions - Choosing between manufacturing a product in-house or purchasing it from an external supplier
Pooling Planning & Organising - to bundle the entire demands of the organisation(s). Pooling requires careful planning, demand identification and the application of organisational solutions (lead buyer concept, centralisation, purchasing councils)
CORPORATE SOCIAL RESPONSIBILITY SKILLS
Corporate Social Responsibility - A business model that requires active compliance with the spirit of the law, ethical standards and national or international norms
Sustainability - Sustainable purchasing: considering environmental, social, ethical and economic issues in the management of the organization's external resources
COST REDUCTION SKILLS
Cost Reduction Techniques - Act of cutting costs to improve profitability (e.g. by analysis and statistics)
Making cost analyses - E.g. the calculation of the total costs of ownership or other cost calculations
Purchasing knowledge - Knowledge on purchasing in an organisation, e.g. Systems, organisational agility and best practice knowledge
Solicit Offers (RfQ / RfP / RfI) - Request for Quotation (RfQ) / Proposal (RfP) / Information (RfI) - Inviting suppliers to submit a bid, which meets the requirements as laid down in the request
CREATIVE SKILLS
Creativity - Being creative in professional life
Holistic Thinking – Ability to think and act holistically

Inventiveness - Being imaginativeness
CROSS-FUNCTIONAL COOPERATION SKILLS
Cooperating with the departments Logistics and Storage - Knowing basics about Logistics and Storage and knowing how to establish/maintain the relationships
Cooperating with the department Marketing Management - Knowing basics about Marketing Management (or Public Relations) and knowing how to establish/maintain the relationships
Cooperating with the department Production/Operations - Knowing basics about Production/Operations and knowing how to establish/maintain the relationships
Cooperating with the department Quality Management - Knowing basics about Quality Management and knowing how to establish/maintain the relationships
ENTREPRENEURIAL SKILLS
Salesmanship Skills - Having the drive to sell and establish trust with a customer
Cross-cultural Awareness - The ability to become aware of cultural values, beliefs and perceptions of the own and other one's cultures
Entrepreneurial Personal Development - The ability to develop continuously the own soft skills, qualities and traits (e.g. persuasiveness, creativeness, entrepreneurial, adaptability)
Customer orientation - Being focused on the internal customer or internal user group
FORECASTING SKILLS
Forecasting of the demand - Planning of annual demands, based on the sales forecast and experience as input for annual negotiations
Supply Chain Analysis and Planning - Analysis and planning not only of the immediate supply market, but consideration of the entire supply chain
NEGOTIATION SKILLS
Negotiation the specific terms - Negotiating considers all commercial and legal terms that need to be settled in a satisfactory way with the supplier – pre-study outcome
Contract Management - Monitoring and enforcing the contracts after they have been signed
Claims Management - Claims management is dealing with opportunistic suppliers who tend to increase their margin with extra work apart from the contract. The negotiated price is obviously too low and the suppliers' margin comes from subsequent extra charges
PERSONNEL MANAGEMENT SKILLS
Leadership / managing personnel - Managing employees in teams
Managing change processes - The ability to lead a team or group successfully through a change process
Working together with the department Human Resources Management - Knowing basics about Human Resources Management and knowing how to establish/maintain the relationships
Purchasing Roles and Job Profiles - Defining and designing different roles and job profiles of purchasers
SUPPLIER RELATIONS SKILLS
Strategic Business Partner - The process of becoming a preferred strategic business partner with your supplier
Supplier Evaluation - Process of measuring and monitoring the performance of current suppliers
Supplier Relationship Management - The ongoing management of the suppliers after contracting / strategically planning for, and managing, all interactions with suppliers
TACTICAL PURCHASING PROCESS SKILLS

Add value to the organisation - Knowledge on the added value of purchasing to the organisation and the importance of purchasing to the organisation
Communication Skills - Having the skills to listen and to communicate in a non-verbal and verbal way
Optimisation of Purchasing Processes - Purchasing Process Improvement
Position of Purchasing in Organisation - Knowledge on how to ensure that purchasing plays an adequate role in the organisation
Process Management - The design of processes and the updating as well as reading and understanding processes
Stakeholder Relationship Management - Being focused on all internal and external stakeholders
Team Ability Skills - Having the ability cooperating with others in a team
TECHNICAL NEEDS SPECIFICATION SKILLS
Technology Planning - Internal scan. This requires knowledge on the technological requirements of its own company
Developing specifications for supplies - Specifying the requirements and needs for supplies

Appendix 6 – Results one-way ANOVA and LSD for gender differences in self-assessed competencies

ANOVA				
		df	*F*	*Sig.*
Advanced networking skills	Between Groups	7	7,493	**,000**
	Within Groups	466		
	Total	473		
Analytical skills	Between Groups	7	2,320	**,025**
	Within Groups	466		
	Total	473		
Automation skills	Between Groups	7	1,899	,068
	Within Groups	466		
	Total	473		
Category Strategy Management skills	Between Groups	7	6,415	**,000**
	Within Groups	466		
	Total	473		
Corporate Social Responsibility skills	Between Groups	7	5,023	**,000**
	Within Groups	466		
	Total	473		
Cost reduction skills	Between Groups	7	5,165	**,000**
	Within Groups	466		
	Total	473		
Creative skills	Between Groups	7	4,539	**,000**
	Within Groups	466		
	Total	473		
Cross-functional cooperation skills	Between Groups	7	3,750	**,001**
	Within Groups	466		
	Total	473		
Entrepreneurial skills	Between Groups	7	5,240	**,000**
	Within Groups	466		
	Total	473		
Forecasting skills	Between Groups	7	1,976	,057
	Within Groups	466		
	Total	473		
Negotiation skills	Between Groups	7	7,620	**,000**
	Within Groups	466		
	Total	473		
Personnel management skills	Between Groups	7	10,814	**,000**
	Within Groups	466		

	Total	473		
Supplier relations skills	Between Groups	7	6,698	**,000**
	Within Groups	466		
	Total	473		
Tactical purchasing process skills	Between Groups	7	9,284	**,000**
	Within Groups	466		
	Total	473		
Technical needs specification skills	Between Groups	7	4,702	**,000**
	Within Groups	466		
	Total	473		

Multiple comparisons – Post-Hoc LSD				
	Age group (F)	*Age group (M)*	*Mean difference (F-M)*	*Sig.*
Advanced networking skills	2	2	-,40212*	,004
Category Strategy Management skills	2	2	-,39701*	,011
Cost reduction skills	2	2	-,38696*	,016
	3	3	-,39298*	,006
Creative skills	3	3	-,27446*	,045
Cross-functional cooperation skills	2	2	-,36005*	,022
Entrepreneurial skills	3	3	-,29984*	,030
Personnel management skills	3	3	-,37215*	,014
Supplier relations skills	2	2	-,37491*	,020
Tactical purchasing process skills	2	2	-,24830*	,047
Technical needs specification skills	3	3	-,27612*	,038

Appendix 7 – Results one-way ANOVA and LSD for gender differences in perceived importance of the competencies

ANOVA				
		df	*F*	*Sig.*
Importance of advanced networking skills	Between Groups	7	2,465	**,017**
	Within Groups	466		
	Total	473		
Importance of analytical skills	Between Groups	7	1,114	,353
	Within Groups	466		
	Total	473		
Importance of automation skills	Between Groups	7	1,899	,068
	Within Groups	466		
	Total	473		
Importance of category strategy management skills	Between Groups	7	2,707	**,009**
	Within Groups	466		
	Total	473		
Importance of corporate social responsibility skills	Between Groups	7	3,286	**,002**
	Within Groups	466		
	Total	473		
Importance of cost reduction skills	Between Groups	7	1,377	,213
	Within Groups	466		
	Total	473		
Importance of creative skills	Between Groups	7	2,611	**,012**
	Within Groups	466		
	Total	473		
Importance of cross-functional cooperation skills	Between Groups	7	,653	,712
	Within Groups	466		
	Total	473		
Importance of entrepreneurial skills	Between Groups	7	3,583	**,001**
	Within Groups	466		
	Total	473		
Importance of forecasting skills	Between Groups	7	,809	,580
	Within Groups	466		
	Total	473		
Importance of negotiation skills	Between Groups	7	1,184	,310
	Within Groups	466		
	Total	473		
Importance of personnel management skills	Between Groups	7	7,428	**,000**
	Within Groups	466		

	Total	473		
Importance of supplier relations skills	Between Groups	7	1,740	,098
	Within Groups	466		
	Total	473		
Importance of tactical purchasing process skills	Between Groups	7	3,680	**,001**
	Within Groups	466		
	Total	473		
Importance of technical needs specification skills	Between Groups	7	2,045	**,048**
	Within Groups	466		
	Total	473		

Multiple comparisons – Post-Hoc LSD				
	Age group (F)	*Age group (M)*	*Mean difference (F-M)*	*Sig.*
Advanced networking skills	1	1	,43566*	,029
Category Strategy Management skills	3	3	-,33486*	,031
Cost reduction skills	3	3	-,34682*	,017
Entrepreneurial skills	3	3	-,50073*	,001
Personnel management skills	3	3	-,79265*	,000
Supplier relations skills	3	3	-,36090*	,008
Tactical purchasing process skills	3	3	-,49241*	,005
Technical needs specification skills	3	3	-,33943*	,030

Appendix 8 – Results one-way ANOVA and LSD for gender differences in professional focus

ANOVA				
		df	*F*	*Sig.*
Focus on achieving cost reductions	Between Groups	7	4,592	**,000**
	Within Groups	466		
	Total	473		
Focus on achieving a higher level of quality	Between Groups	7	1,731	,100
	Within Groups	466		
	Total	473		
Focus on higher sustainability	Between Groups	7	1,990	,055
	Within Groups	466		
	Total	473		
Focus on improving the supply delivery process	Between Groups	7	1,914	,066
	Within Groups	466		
	Total	473		
Focus on improving and innovating	Between Groups	7	2,958	**,005**
	Within Groups	466		
	Total	473		
Focus on achieving long-term competitive advantages	Between Groups	7	4,460	**,000**
	Within Groups	466		
	Total	473		
Focus on improving supplier satisfaction	Between Groups	7	1,412	,198
	Within Groups	466		
	Total	473		

Multiple comparisons - LSD				
	Age group (F)	*Age group (M)*	*Mean difference (F-M)*	*Sig.*
Focus on achieving cost reductions	3	3	-,36273*	,012
Focus on improving the supply delivery process	3	3	-,25336*	,031
Focus on achieving long-term competitive advantages	3	3	-,36311*	,012
	4	4	-,25773*	,048

Appendix 9 – Article NEVI Deal!

DE FEMINISERING VAN DE INKOOP: HET NIEUWE NORMAAL

Tess Bijl
Klaas Stek
Aldís G. Sigurðardóttir

Bijl, T., Stek, K., and Sigurðardóttir, A. G. (2020), "De Feminisering van de Inkoop: het Nieuwe Normaal", *NEVI Deal! (5)* article in press.

De inkoop kent weinig werkloosheid en de strijd om inkooptalent is in volle gang. In dit door mannen gedomineerde vak kampen werkgevers met een stijgend tekort aan kundig inkooppersoneel. Het ligt voor de hand dat de inkoop zich zal moeten richten op het aantrekken van vrouwelijke inkoopprofessionals én vooral op het behouden van hen, want waarom zijn er relatief weinig vrouwen te vinden in de inkoop? Kunnen werkgevers vrouwen niet interesseren voor een baan in de inkoop en zijn ze niet in staat om vrouwen aan zich binden of functioneert een man over het algemeen beter in het inkoopdomein? Dat er iets zal veranderen is helder, want op dit moment is 60 procent van de Europese inkoopstudenten een vrouw. Eén van hen is studente Tess Bijl van de Universiteit Twente. Zij studeerde af op genderverschillen in het inkoopdomein en komt tot opmerkelijke bevindingen. Er is goed nieuws, want er zijn eigenlijk helemaal geen fundamentele kwaliteitsverschillen tussen de geslachten aangetroffen. De competentieniveaus van mannen en vrouwen zijn gelijk, tenminste wanneer gekeken wordt naar twintigers. De verschillen in competenties worden pas zichtbaar bij de middengroep van dertigers en veertigers wanneer de carrières van mannen en vrouwen uiteenlopen. Het is daarom zaak om al in een vroeg stadium te anticiperen op het aantrekken en behouden van vrouwelijke inkoopprofessionals.

Weinig vrouwen in top-inkoopfuncties

Hoewel vrouwen een inhaalslag hebben gemaakt, lopen zij qua aantallen in de inkoopwereld achter op mannen. Verschillende bronnen stellen dat 25 tot 40 procent van de Europese inkoopfuncties worden ingevuld door een vrouw. Uit een enquête van het Britse inkoopnetwerk *Procurement Leaders* bleek in 2017 dat slechts 12 procent van de bedrijven een vrouwelijke Chief Purchasing Officer (CPO) heeft. In 2014 telde het Amerikaanse inkoopnetwerk *SCM World* telde 22 vrouwelijke CPO's bij de onderzochte 320 bedrijven uit de *Fortune 500*, wat neerkomt op bijna 7 procent vrouwelijke CPO's bij de grootste Amerikaanse bedrijven.

Alhoewel vrouwen, gezien hun opleiding, een rol als CPO prima zouden kunnen vervullen, blijken zij dus toch in de minderheid te zijn. Dat is opvallend, omdat 60 procent van de studenten in inkoop-gerelateerde masterstudies op dit moment vrouw is. Voor werkgevers betekent dit dat er

nog veel valt te winnen, want genderdiversiteit draagt positief bij aan de prestaties van een organisatie.

Man-vrouw stereotyperingen in de inkoopfunctie

In de literatuur worden voor de vrouwelijke minderheid verschillende redenen gegeven, zoals het *glazen plafond* en de geslacht-gerelateerde stereotyperingen. Dit glazen plafond is ook zichtbaar onder de inkopers, aangezien een derde van de Europese CPO's in het onderzoek van Nouguès et al. (2019) stelt dat vrouwen vergeleken met mannen minder kansen hebben om zich op te werken in de organisatie. Daarnaast bevestigde 45 procent van de CPO's uit datzelfde onderzoek dat interpersoonlijke, communicatieve vaardigheden "typisch" zijn voor vrouwen, terwijl het nemen van risico's "typerend" zou zijn voor mannen. Het nemen van risico's wordt in de literatuur vaak positief in verband gebracht met ondernemendheid en proactief handelen, maar kloppen deze stereotyperingen wel? Zijn mannelijke inkopers beter op dit vlak en zijn vrouwen beter in interpersoonlijke communicatie?

Gendermix is de basis van succes

Er zit een keerzijde aan een door mannen gedomineerde werkomgeving. Het mannelijke kenmerk, namelijk het nemen van risico's is niet zo positief als gedacht, concluderen Perryman, Fernando, en Tripathy (2016) in hun studie. Organisaties met meer vrouwen in de top nemen minder risico's en presteren vervolgens beter dan hun concurrenten. Vrouwen brengen andere vaardigheden met zich mee (zoals communicatieve- en luisterende vaardigheden), en de juiste mix van mannelijke en vrouwelijke eigenschappen wordt over het algemeen gezien als een succesformule. Dat geldt ook zeker voor "inkoop", want in een gemiddelde organisatie wordt zo'n 60 procent van de waarde ingekocht en het hoeft geen betoog dat de inkoopfunctie voor veel organisaties steeds van strategischer belang is. Het is daarom zaak om te beschikken over vaardige inkoopprofessionals. Alleen met een goede mix van vaardigheden en kennis kan het inkoopteam bijdragen aan het succes van een organisatie.

Groot-opgezet genderonderzoek in de inkoop

Om de vragen te beantwoorden, is er gebruik gemaakt van de grote Europese database van project PERFECT van de Universiteit Twente waarbij zo'n 600 inkopers werden geënquêteerd over hun competenties (kennis, professionele en interpersoonlijke vaardigheden en intra-personele eigenschappen). Respondenten werden hierbij gevraagd om hun eigen inkoopcompetenties te beoordelen, bijvoorbeeld met betrekking tot het maken van kostanalyses en het opstellen van een vraagprognose, maar ook op het gebied van communiceren en luisteren. Het onderzoek was erop gericht om uit te vinden welke inkoopcompetenties typerend zijn voor mannen en welke voor vrouwen. De respondenten werden opgedeeld in vier verschillende leeftijdsgroepen: 20 - 29 jaar, 30 - 39 jaar, 40 - 49 jaar en 50 - 59 jaar, waarna er een vergelijking tussen beide geslachten per leeftijdsgroep werd uitgevoerd.

Toen deze studie werd opgezet, was al duidelijk dat een man-vrouw vergelijking op basis van een online-enquête met zorg benaderd moest worden door de onderzoekers. Voor deze enquête vulden

de respondenten namelijk zelf het niveau van hun competenties in en uit de literatuur blijkt dat mannen hun competenties meestal hoger inschatten of zelfs overschatten. Vrouwen stellen zich daarentegen bescheidener op wanneer het gaat om de inschatting van het eigen kunnen, maar deze effecten leken in deze enquête mee te vallen.

Geen verschil tussen vrouwen en mannen in competenties

Opmerkelijk is dat er bij de twintigers en de vijftigers geen significante verschillen zijn gevonden tussen mannen en vrouwen. De verschillen doen zich alleen voor bij de middengroep van dertigers en veertigers. De scores van mannen tussen de 30 en 49 jaar zijn significant hoger voor wat betreft inkoopkennis-gerelateerde competenties. Ook 'scoren' deze mannen hoger op 'ondernemerschap' en 'creativiteit'. Bovendien onderscheidt deze groep mannen zich in positieve zin van de groep vrouwen door interpersoonlijke competenties, die volgens de stereotypering 'vrouwelijk' zouden zijn. Het gaat daarbij om adviesvaardigheden, het opbouwen van relaties ('netwerken'), het overtuigen van de ander en het managen van personeel.

In principe is er dus geen verschil tussen mannen en vrouwen. Aan het begin van de carrière beoordelen zij zichzelf in dezelfde mate competent, maar hoe komt het dat vrouwen tussen de 30 tot 49 jaar zichzelf minder competent achten? Is dit bijvoorbeeld omdat vrouwen vaker parttime gaan werken en zich deels terugtrekken uit de arbeidsmarkt om zich in hun gezinnen meer te richten op de zorg voor hun kinderen? Deze aspecten kunnen inderdaad een belangrijke invloed hebben op het carrièreverloop. Bovendien schatten parttimers - van beide geslachten - over het algemeen hun competenties lager in dan fulltimers.

***Opt-out*-gedrag**

In de literatuur is beschreven dat vrouwelijke professionals er vaker voor kiezen om de arbeidsmarkt (deels) te verlaten om voor de kinderen te zorgen in plaats te kiezen voor een fulltimebaan en een veeleisende carrière. Dit fenomeen wordt het *opt-out*-effect genoemd. In 2003 verscheen hierover een spraakmakend artikel in de *New York Times* door Lisa Belkin. Belkin interviewde hoogopgeleide vrouwen en constateerde het *opt-out*-effect bij het merendeel. Deze vrouwen kozen er ofwel voor om parttime te werken ofwel de arbeidsmarkt geheel te verlaten om voor de kinderen te zorgen tijdens de 'cruciale carrièreopbouwende jaren' (25-44 jaar). Als gevolg van dit verschijnsel doen vrouwen minder ervaring op in topfuncties en beoordelen zij hun competenties, als parttimers, lager dan mannen.

Het *opt-out*-effect doet zich dus voor bij vrouwen die het *glazen plafond* niet bereiken, omdat ze daarvoor al de keuze hebben gemaakt om parttime te gaan werken of om de arbeidsmarkt geheel te verlaten. Dit betekent dat er ruwweg twee redenen zijn waarom vrouwen minder vaak doordringen tot de top: het *glazen plafond* en het *opt-out*-effect. Het *glazen plafond* is inmiddels onderwerp van wetgeving. De invoering van het wettelijke streefcijfer is er op gericht om minimaal 30 procent vrouwen in de Raden van Bestuur en Commissarissen van grote vennootschappen op te nemen. Vandaar dat er tijdens dit onderzoek is gekozen om zich in het tweede deel van het onderzoek te richten op het *opt-out*-effect van vrouwen in inkoopfuncties.

De interviews met vrouwelijke inkopers waren in lijn met die van Belkin en bevestigden dat zij het moederschap met een flexibele baan combineerden om een ideale balans tussen werk en gezin te creëren. Eén van de geïnterviewde vrouwelijke inkopers was helder over haar ambities en benoemde op haar manier het *opt-out*-effect: *"Ik maakte meteen duidelijk dat ik kinderen heb en daarom niet een echte carrièretijger kan zijn. Dat is een keuze en dat wil ik ook helemaal niet. Ik vind het belangrijker om gewoon een leuke baan te hebben en ergens houdt het dan gewoon op. Voor sommige banen moet je gewoon fulltime beschikbaar zijn".*

Deze redenatie wordt veel gehoord onder vrouwelijke professionals en verwoord precies waarom vrouwen minder ervaring opdoen in hogere functies. Het ligt dus niet aan de competenties van deze vrouwen, maar aan de structuren om hen heen, zoals hun gezin en cultuur- en carrière-opvattingen.

Inspelen op *opt-out*-gedrag

De strijd om talent (m/v) is gaande en organisaties zouden *opt-out*-gedrag van vrouwen moeten herkennen om er vervolgens op in te spelen door talentvolle vrouwen flexibiliteit en carrièrekansen te geven. Op deze manier kunnen organisaties deze talentvolle vrouwen behouden, want genderdiversiteit is ook in het belang van de organisatie. Organisaties zouden vrouwen bijvoorbeeld beter kunnen faciliteren in het vinden van een perfecte balans tussen werk en gezin om het vrouwelijke potentieel ten volle te kunnen benutten. Werkgevers zouden zich ten eerste moeten realiseren dat ze vrouwelijke professionals op een andere wijze aan zich moeten binden en ten tweede dat de huidige lichting van de inkoop- en *supply chain*-studenten voor de meerderheid bestaat uit vrouwen. Deze vrouwen zullen in de nabije toekomst instromen in het inkoopvak.

Het advies aan deze lichting jonge vrouwelijke inkopers is ten eerste om een professionele ambitie niet als vanzelfsprekend opzij te zetten in de cruciale carrièreopbouwende jaren en ten tweede om uit te zoeken wat de balans tussen werk en gezin voor hen persoonlijk inhoudt, om ten derde een carrièrepad af te spreken met de werkgever. De werkgever stimuleert daarmee een ambitieus talent, waardoor de genderdiversiteit ook in de hogere regionen zal toenemen. De belangrijkste winst is dat door de toename van het aantal vrouwelijke inkoopprofessionals en CPO's er minder overbodige risico's worden genomen tijdens cruciale beslissingen, waardoor deze organisaties beter presteren in vergelijking met soortgelijke organisaties.

Referenties

Nouguès, X., Swette, K., Djaad, L., Eblaz, M., & Hjiej, A. (2019). *Women in procurement: Gender parity is a key to better performance*. Website: www.oliverwyman.com/our-expertise/insights/2019/feb/women-in-procurement.html

Perryman, A. A., Fernando, G. D., & Tripathy, A. (2016). Do gender differences persist? An examination of gender diversity on firm performance, risk, and executive compensation. *Journal of Business Research, 69*(2), 579-586.

Auteurs

Tess Bijl is afgestudeerd aan de masteropleiding Purchasing & Supply Management bij de vakgroep Technology Management & Supply van de Universiteit Twente op haar scriptie getiteld: *GENDER DIFFERENCES IN PURCHASING AND SUPPLY MANAGEMENT A mixed method research into gender differences regarding purchasing professionals' competencies and professional focus.*

Dr. Aldís G. Sigurðardóttir is assistent-professor bij de vakgroep Technology Management & Supply van de Universiteit Twente. Ze is gepromoveerd aan Reykjavik University op het thema *Tactics in B2B Negotiations in SMEs* en haar onderzoek richt zich op onderhandelingsstrategieën en strategische inkoop.

Klaas Stek is promovendus bij de vakgroep Technology Management & Supply van de Universiteit Twente op het thema *Purchasing skills leading to success* en is sinds 2016 verbonden aan de Europese projecten PERFECT (herijken van leerdoelen in het hoger inkooponderwijs), PERSIST (idem en gericht op Internet-of-Things) en PERISCOPE (idem en gericht op maatschappelijk verantwoord ondernemen).