She can DJ

A Quantitative Analysis of the DJ Gender Gap
in the European EDM Industry

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ABSTRACT

DJs have become indispensable in the music scene. Since DJing became an occupation, men have been dominating the electronic dance music (EDM) industry. When entering the male-dominated scene, female DJs face a gender gap and have to deal with different issues. Identifying the gender gap and the issues associated with it can help combat harmful stereotypes, change prevailing norms and promote role models. This study centers on highlighting the gender gap present in the European EDM industry, identifying the size of the gender gap and the developments over the years, exploring the reasons for the existence of the gender gap and researching the barriers female DJs face when participating in the European EDM industry. Desk research is used to outline the gender gap in the industry and to map key data of women representativeness over the years. Building on existing literature, a survey is conducted in order to explore the gender gap and barriers present in the EDM industry. Both men's and women's perspective are taken into account to build broader consensus around gender equality. The results show that technology is the main barrier for female DJs, as women are considered to be less technically competent than men and, therefore, have to prove themselves more in order to fight prevailing stereotypes. Furthermore, female DJs face barriers related to self-promotion and self-representation. This is because they are often sexualized according to heterosexual standards. As a result, women pay more attention to their appearance than men. There is a contradiction: when a woman dresses too sexy, others may think that she only got a gig because she is pretty, which relates to the gender expectation that she may be less technical than a male DJ. However, she needs to look pretty in other to get gigs. A significant number of female DJs believe that they sometimes get a gig based on their appearance or gender. This contradiction means that female DJs have to find a balance in the way they dress and behave.

KEYWORDS: EDM industry, DJ, gender gap, barriers, Europe

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Preface

In May 2020, a male friend and I decided to livestream a DJ set to give positive energy to people in the first lockdown during the COVID-19 pandemic in the Netherlands. I remember, when I started playing, that my friend got a text from a male acquaintance in which he doubted whether I was competent enough to perform, since I was a 'woman' after all.

Of course, I was a little offended, and this text got me thinking about the gender expectations and stereotypes in the EDM industry. I was so intrigued by this topic, that I decided to write about this issue in my thesis of the master programme Media & Creative Industries at Erasmus University Rotterdam. I am delighted that I can integrate my love for music into academic education, since I am DJing and producing music in my spare time. Furthermore, I am very happy to be the president of the DJ Committee at my student association.

I hope that through this research I can make a positive contribution to the existing knowledge about the DJ gender gap in the European EDM industry and perhaps provide new insights.

I would like to thank my family and friends for their interest and encouragement. My special thanks for the guidance during the writing of my thesis goes to Dr. Marlen Komorowski. In addition, I would like to thank everyone who contributed to this research, especially the DJs from across Europe who took the time to complete the survey. A special thanks goes to DAM, Kami Casimir, ICB, Chris Luno, CENATOR, @ngeldust, RSS Disco / Falk, Sømatic Theory, CAIN, NOT U, Broken Code //, Benn-x, Clonico. Pan Papason, Mr Bad Monkey, Allysson Luis, No, 100th Monkey, Computer Numerical Control, Peter Goebel, Rory Lynam, Indecent, Noise, Sev Dah, Adjust (BE), Flyp Fermentor, Svarog, Doris Bae, Janasty, Lady Bex, Dj Ignite, Jo Ella, RSS Disco / Natalie, LUCYLOVE, Lady Lite, Guida, DJOWSIE, Miss Dix, Lady Krii, Kendis, Somniac One, Adlet, Eva Swan, Noemi Black, Guenter Råler and S Ruston. Without your cooperation I would not have been able to conduct this analysis.

I hope you enjoy your reading just as much as I like this topic.

Lisanne Storm

Rotterdam, June 24, 2021

1. Introduction

In 2020, only twelve women or female DJ duos made it to the DJ Mag Top 100 – the most popular music poll in the world. Among these female DJs were the Australian duo NERVO (place 20), the Belgian MATTN (place 42), and the Russian Nina Kraviz (place 66). The DJ Mag Top 100[1] is considered to be the global indicator of the success of DJs in electronic dance music (EDM) (Powell, 2019). In recent years, however, less than 10% of the list was made up of women. To give a short overview: in 2011, zero women were part of the Top 100; in 2015, the number of female DJs increased to three; and in 2019, still only eight women were listed. None of the women were in the top 10. The increasing number of female DJs in the poll indicates that things are moving in the right direction in terms of gender distribution in the EDM scene. However, the numbers still show that the situation is far from equal.

The gender distribution in the EDM industry is part of the larger debate about women's position and representation in society. Since the sexual harassment accusation by Hollywood actress Alyssa Milano against former movie producer Harvey Weinstein in 2017, the ensuing #MeToo movement has opened the discussion about sex discrimination in the workplace (Wexler et al., 2019). #MeToo is rooted in the film industry, but it very quickly became part of creative and cultural industries as well as various other industries (Vecco et al., 2019). As a result, the women's empowerment movement opened up a broader public conversation about issues, inequalities and obstacles women face in their daily lives, both personal and professional (Langone, 2018; Vecco et al., 2019).

Accordingly, the progress, actions and changes in creative industries can be a beginning point for other industries (Vecco et al., 2019). Stakeholders and political actors can learn from the resulting public consciousness about gender-based hierarchies in society as a whole (Menzel, 2021; Vecco et al., 2019). The increasing attention given to the gender system in creative industries allows better evaluations to be made of the situation of women in these sectors, and tangible actions can be taken because of broader consciousness of issues, data gathering, data availability on the topic, and the willingness of stakeholders to take action (Vecco et al., 2019). Therefore, lessons can be learned from recent activities and data in the creative sectors in order to move forward in both these sectors and in others.

[1] Every year, the British magazine *DJ Magazine* – a magazine dedicated to electronic dance music – brings out the DJ Mag top 100 (www.djmag.com).

Even though much progress has been made, there are still many problems in creative industries like the EDM industry in Europe. From the moment a woman takes part in music business, for example as a DJ, she enters a male-dominated culture and faces a gender gap, which can be defined as "differences between men and women in terms of intellectual, social, cultural or economic attitudes" (Harris, 2017, para. 2). The gender gap in the EDM industry needs to be tackled and the image of female artists needs to be promoted in order to improve the situation of female DJs. Representativeness of women in the DJ industry is relevant for the ongoing discussion about women's role in the music industry, since representativeness of women in public facing creative industries with stars has a large-scale impact also reaching audiences. DJs are becoming more prominent as they are moving away from the niche market. European DJs in top positions include Tiësto, Martin Garrix and David Guetta. However, as outlined in the beginning, there are few female DJs who have become popular enough to serve as a role model for girls who also want to become DJs. Music has the powerful ability to promote acceptance, equality, diversity and social inclusion (European Commission, 2020). It presents perspectives and visions of the world, and it has a great influence in changing existing beliefs and perceptions of reality. Looking at the issues women face in the EDM industry can help combat harmful stereotypes, change prevailing norms, and promote the role models necessary for inclusive and equal societies. Therefore, the DJ gender gap needs to be identified in order to be tackled to give women the opportunity to be treated equally.

This is a relatively new research topic. Studies by Farrugia (2012) and Gavanas and Reitsamer (2013) were the first to thoroughly examine topics related to female DJs in the EDM industry in thirty years of scientific research about EDM (Gadir, 2016). The first steps were taken to emphasize the lack of women's visibility in literature on this topic. Both Farrugia (2012) and Gavanas and Reitsamer (2013) argue that gender is central to the performing identities of female DJs. Later research by Gadir (2016) and Gavanas and Reitsamer (2016) add to this by revealing different aspects of the gendering of DJs in EDM culture, finding that the industry is full of problematic attitudes towards gender. The existing scientific research about female DJs mainly uses qualitative methods to show that prejudice against female DJs is commonplace in EDM scenes. For example, the study by Gavanas and Reitsamer (2016) takes a qualitative approach and is based on 75 interviews with DJs in four European capitals. Moreover, Gadir (2016) looks into gender-related prejudices in the DJ industry by drawing on 70 interviews conducted with clubbers, DJs and producers. Even though this data gives a first glimpse of the experience of the gender gap in the EDM

industry, there is generally limited scientific quantitative research and data available on the gender gap in Europe. A key finding of Vecco et al. (2019) is that there is a lack of systematic data on the gender gap in the cultural and creative industries per sector across Europe. This present study, therefore, contributes to the expansion of this recent and still under-explored field of research. In contrast to existing literature, this research examines the extent of the gender gap and investigates to what extent there is an actual difference between the barriers female DJs and male DJ face. It adds a new perspective by gathering more robust, in-depth, quantitative and representative data for the EDM industry in Europe.

It is not sufficient to simply look at the gender imbalance of DJs without analyzing what this fact means to the European EDM industry as a whole. Therefore, this research takes an organizational management perspective. This study highlights the gender gap female DJs face in the European EDM industry, identifies the size of the gap, explores the reasons for the existence of the gender gap and investigates what barriers women DJs are dealing with in the European EDM industry today. Desk research is used to outline the gender gap in the industry and to map key data of women representativeness over the years. Thereafter, a survey is conducted, building on the framework of Gavanas and Reitsamer (2016), in order to explore the DJ gender gap and barriers present in the EDM industry from the point of view of both men and women to build broader consensus around gender equality. The results of this research provide an overview of the current situation in the European EDM industry.

In 2016, Gavanas and Reitsamer (2016) researched the careers of female DJs in the EDM scene. Their study pointed out that female DJs experience dilemmas and contradictions with respect to technology, sex and gender, sexual identity, self-promotion and self-representation. This present research is inspired by relevant research on DJs. It tests and builds on the framework provided by Gavanas and Reitsamer (2016) in order to assess the extent of the DJ gender gap in Europe and to evaluate how it influences female DJs. Therefore, the following research question is formulated:

To what extent does the DJ gender gap exist in the European EDM industry today, and what barriers do female DJs face?

In order to identify the developments of the extent of the DJ gender gap, the following sub-question is derived:

How has the gender gap changed over the years?

This research starts with an overview of current academic literature on the DJ gender

gap in the EDM industry. Thereafter, the theoretical framework is presented in which gender dynamics in society and specifically the EDM industry are examined and the barriers female DJs face are highlighted. The methodological approach is presented after this, in which the use of desk research and surveys and the research process are explained. Then, the findings related to the extent of the DJ gender gap and the issues faced by female DJs are extensively presented. The conclusion summarizes the findings and presents a discussion about the current situation of the gender gap in the European EDM industry. Finally, future research in the field and the limitations of this research are outlined.

2. Theoretical Framework

This chapter starts by investigating existing literature in the field of the DJ gender gap in the EDM industry. After that, sociological concepts and gender dynamics present in society at large are examined. Then focus turns specifically to the creative industries with a discussion of other research on the gender gap. Subsequently, DJs and the EDM industry are described in relation to the gender gap. This chapter concludes with an analysis of the framework by Gavanas and Reitsamer (2016), which is supplemented based on the existing literature on the DJ gender gap. In this last subchapter, the contradiction and dilemmas experienced by women in the DJ industry regarding the gender gap itself, technology, self-promotion and self-representation, and sexual identity are examined.

2.1. Existing Literature in the Field

As DJing is a relatively new occupation, so far, it has not been the subject of much academic research. The main studies on DJs in the EDM industry were conducted by Farrugia (2012), Gadir (2016), and Gavanas and Reitsamer (2013, 2016). In her book, Farrugia (2012) explores the way in which certain historical, discursive, and social practices in EDM contain dominant ideas about gender, technology and power, while other practices go against these discourses. She examines how women negotiate their place within the existing power dynamics present in the male-dominated EDM environments in the context of interdisciplinary cultural studies and feminism studies. Important issues include politics of identity and representation, the bonds formed by women in the scene and the role female DJs and producers play in the EDM industry. A limitation of her study is that it only looks at prevailing power relations from a female perspective.

In line with Farrugia (2012), Gavanas and Reitsamer (2013) also argue that gender is central to the performing identities of female DJs. They examined the reasons for the underrepresentation of female DJs and analyzed what the gender imbalance meant for DJ culture as a whole by conducting interviews. Furthermore, they analyzed the representation of women in the EDM culture in relation to specific gender characteristics. Gavanas and Reitsamer (2013) found that in doing this, female DJs experience different contradictions and dilemmas regarding sex and gender, technology, sexual identity, self-promotion and self-representation.

Gadir (2016) add to this by revealing different aspects of the gendering of DJs in EDM culture, finding that the industry is full of problematic attitudes towards gender. She examined

the gendered dynamics of DJ performances and EDM environments, as well as the resulting gender politics. She criticizes ideologies that say that EDM scenes consist of non-discriminatory and non-patriarchal gender relations. Conversely, she argues that troubling gender discrimination is present in EDM environments.

According to Gavanas and Reitsamer (2016), gender discrimination is indeed present in EDM environments. Their study in 2016 (Gavanas & Reitsamer, 2016) is an extension of their research in 2013 (Gavanas & Reitsamer, 2013). They argue that the dilemmas and contradictions are still present, but add a new perspective by exploring gender dynamics in local EDM scenes in Western cities in the context of neoliberal working conditions, competitive individualism and post-feminism. They found that in order to move forward in the industry, female DJs take the roles of entrepreneurs and perform strategies regarding self-promotion and networking and try to challenge associations of technological competence with men. The interviews conducted only took place in four European capitals, and thus might not provide a generalizable claim for the European EDM industry as a whole.

All of the previous research is dedicated to examining experiences of male and female DJs in the EDM industry, and how DJs deal with the gender gap. A limitation of the literature is that they do not examine to what extent the gender gap is actually present according to both male and female DJs. This research is inspired by this literature and the adds a new perspective on the current issue by examining to what extent the gender gap exists and to what extent there is an actual difference between the barriers female DJs and male DJ face. Men's and women's averages and percentages of statements about issues found by existing literature – mainly related to the gender gap itself, technology, self-promotion and self-representation and sexual identity – are constantly compared to each other in order to find out whether there is an actual gender gap in the EDM industry. The percentages and averages are supplemented with quotes by the respondents in order to compare the characteristics and experiences of men and women and to examine relationships between characteristics. The quantitative method allows to generalize the findings to DJs in the European EDM industry.

This present research is, just as the previous literature, not concerned with the content and portrayal of female DJs in the music industry. Instead, it focuses on the overall position of women in EDM. By looking from an organizational management perspective, this research aims to answers questions like: What is the actual DJ gender gap? What are the barriers of women in the EDM industry? How can these barriers be overcome? The studies discussed, and specifically the research by Gavanas and Reitsamer (2016), inspire this present research.

2.2. Gender and the Gender Gap in Society at Large

Social life and societies are organized around social patterns that impact how social interaction takes place (Ridgeway, 2006). One of the most important social structures is status, which is a relative social or professional category or position a person occupies that significantly determines how she or he will be defined or treated (Lindsey, 2015). Status is simply a position in society and should not be confused with rank. It is possible for statuses to have a high-prestige, while others might have a low-prestige. Examples of statuses are pop star, amateur musician, man, and woman. Gender belongs to one of the most important ascribed statuses (Lindsey, 2015). Since there is increasing confusion about the terms sex and gender (Garofalo & Garvin, 2020), it is important to address the difference between the two. Sex refers to the differences between men and women on a biological level, whereas gender refers to the cultural, psychological, social, and behavioral expectations that are associated with being male, female or genderqueer (Ridgeway, 2011; Wienclaw, 2011). Gender can thus be considered a social construction, as it involves ways of being that are regarded as suitable for someone's sex category (Berkers & Schaap, 2018). Linked to the gender status is the concept of gender role, which is based on the gender status beliefs that describe the expected behavior and attitudes associated with being male or female (Lindsey, 2015; Ridgeway, 2006). Since childhood, these gendered behaviors and attitudes have been ingrained in men and women (Vecco et al., 2019). For instance, according to Wienclaw (2011), girls are generally taught to show expressive behavior (focused on emotion), while boys are taught to be instrumental (focused on goals). In relation to music, Gavanas and Reitsamer (2013) note that in general, girls are encouraged to sing, while boys are encouraged by their environment to learn about the technical aspects of music that come for example with DJing and producing music. Children learn these gender norms, expectations and associations through their family, as well as educational and social environments, which usually results in them adopting certain ways of thinking (Vecco et al., 2019). As they grow up, they spread and contribute to the social and cultural gender norms (Vecco et al., 2019). The way in which social relations are framed affects all aspects of life, such as how men and women are supposed to react, move and dress (Ridgeway, 2011). This also includes what music genre a man or woman should (and should not) listen to (Frith & McRobbie, 1990).

Often, such shared, descriptive gender beliefs are thought of as stereotypes (Ridgeway, 2006). Research from across different sectors demonstrates that there is a difference in typical attitudes associated with men and women. Vecco et al. (2019) have examined reports and studies and conducted interviews with experts in Europe. Their research points out that

women are typically considered to be communicative, organized and coordinated, avoiding conflict, less risk taking, and having a higher emotional intelligence. Hesmondhalgh and Baker (2011) have looked into the underrepresentation of women in the creative industries, which is, according to them, sustained by stereotypes. Their research was carried out in England in 2006 and 2007, and includes interviews with 63 managers and workers across the industries of television, music recording and magazine publishing. They confirm a few of these female attributes, namely that women are stereotypically seen as more caring and better organized or superior listeners and communicators than men. Of course, all these qualities do not hold true for all female individuals; plenty of women deviate from these gender roles. However, if these stereotypes prevail in European countries, it does have an effect on women's jobs. Vecco et al. (2019) also found that men in turn are viewed as having the opposite attributes. For example, men have the image of being more autonomous as workers, more often looking for action, taking more risks, and less likely to avoid conflict. A study by Willemsen (2002) about gender typing of successful managers in the Netherlands uses a survey to examine stereotypes. The characteristics typically associated with men are in line with the findings of Vecco et al. (2019), for instance rational and focused on goals. Once again, it should be highlighted that these characteristics are associated with the male gender in general, and will not hold true for each individual man.

These prevailing stereotypes are harmful to the access and professional growth of women in the cultural and creative industries (Vecco et al., 2019) and thus may also influence the access and growth of female DJs. Vecco et al. (2019) show that, on average, there are more men in lead positions and decision-making and executive roles in creative industries in Europe. The widespread assumptions about gender stereotypes are the basis for regarding gender as a system of differences and inequality (Ridgeway, 2006). These assumptions place gender as a so-called "status inequality" in society.

Status inequalities are based on cultural presumptions of people in certain social categories compared with others (Ridgeway, 2006). Gender inequality can be defined as a system of social practices in which men and women are judged differently, as there is a hierarchy between the genders in valued resources, power, and status (Ridgeway, 2011; Ridgeway & Smith-Lovin, 1999). Therefore, gender is fundamentally a status inequality (Ridgeway, 2011). Gender inequality often results in horizontal and/or vertical sex segregation in jobs (Berkers & Schaap, 2018). When gendered beliefs like stereotypes are entrenched in assumptions about competence, one is regarded as unequal simply because one is a man or woman, and not judged on one's organizational position in society as an

individual (Ridgeway, 2011). Therefore, when a woman occupies a certain social position, DJ for example, she might be regarded as not totally equal to a man in that exact same position. This is called vertical sex segregation (Anker, 1997). Horizontal sex segregation can be described as the distribution of men and women across jobs, which overlaps with common stereotyped characteristics (Anker, 1997). For example, fewer women are working as DJs because it is generally thought that women in masculine environments (like the EDM industry) are less competent than their male colleagues, due to gender status beliefs (Ridgeway, 2011; Yoder, 1991). Berkers and Schaap (2018) point out that female musicians are stereotyped as less proficient at a variety of popular musical tasks, such as playing musical instruments. Carson et al. (2004) add to this with their finding that women are considered less skillful at playing certain instruments. This is a relevant finding for this present research because a DJ setup could also be considered an instrument.

Stereotypes and gender inequality are closely linked to the concept of the gender gap. The gender gap is variously defined, but can be described as "the difference between women and men as reflected in social, political, intellectual, cultural, or economic attainments or attitudes" (Harris, 2017, para. 2). Gender gaps can be identified in different creative industries, which will be examined in the following subchapter.

2.3. Gender Gaps in Creative Industries

Many research on gender in the context of the creative industries focuses on the representation of women in the media (e.g. Davies, 2001; Railton & Watson, 2005; Wallis, 2011; Way & McKerrell, 2017). A lot of studies have taken theoretical approaches from feminist studies and discourse analysis to analyze texts, images, discourses, and other forms of communication (Rodriguez et al., 2021). However, this present research takes an other view by looking from a management perspective.

Management in creative industries in relation to gender has been studied previously (Broadbridge & Simpson, 2011). Creative sectors and specifically the audiovisual sectors film and television have received more attention in the wider public debate, but also in research. In 2016, the #MeToo movement was started by American civil rights activist Tarana Burke in order to deal with sexual violence and to provide a framework to end it (Langone, 2018). Since the sexual harassment accusation by Hollywood actress Alyssa Milano against former movie producer Harvey Weinstein in 2017, the ensuing #MeToo movement has opened the discussion about sex discrimination in the workplace (Wexler et al., 2019). In response to the

#MeToo movement, the charity Time's Up was founded in 2018 by more than 300 women in Hollywood to raise money to support victims of sexual harassment (*Our Story*, 2021; Rodino-Colocino, 2018). The women's empowerment movements #MeToo and Time's Up are rooted in the film industry, but very quickly became part of the wider audiovisual sector (Vecco et al., 2019). Consequently, creative and cultural industries as well as various other industries received more attention in the wider public debate in this regard. As #MeToo went viral, the public blamed and shamed powerful men "from a range of sectors, including the film, music, literary, media, sports, fashion, and food industries … for their predatory, abusive behaviour" (Cobb & Horeck, 2018, p. 489). As a result, the women's empowerment movements #MeToo and Time's Up opened up a broader public conversation about issues and inequalities women face in terms of salaries, labor conditions, funding, and career paths and increased awareness of the obstacles women face in their daily lives, both personal and professional (Langone, 2018; Vecco et al., 2019).

Gender inequality is closely linked to the concept of the gender gap. In various creative industries, women experience discrimination based on their gender, other personal attributes and identities (European Commission, 2021). For example, in visual arts, the contemporary art market seems to be mainly male. The National Museum of Women in the Arts has found that only 3% to 5% of major permanent collections in the US and Europe are made by female artists (Bocart et al., 2021). Furthermore, there is a huge gender pay gap. University of Technology researcher Marco Navone states, based on a study of 60,000 artists across 45 countries, that even when the paintings above $1 million are left out of the analysis, there is still a gender pay gap of 28% ("Women in the Art Industry," 2020). Another creative industry in which gender gaps are present is the performing arts. A report produced by the French Haut Conseil à l'Egalité (2018) about gender inequality in France shows that even though women make up the majority of art students, they are less active, less highly paid, less programmed, and have fewer responsibilities than men.

Even though the gender gaps in other creative industries provide insights into the current situation of gender distributions in Europe, these results might not be applicable to the DJ sector. Although DJing can be considered a performing art, one crucial aspect of DJing is the technological skills it requires, which is not a key feature in the previously discussed creative industries. This is in line with research by Mathew et al. (2016), who argue that 'music' and 'technology' are often thought of as masculine, which can be considered a stereotype. In the following subchapters, the relation between masculinity and technology is discussed more thoroughly. However, like in other domains, from the moment a woman takes

part in the music business, for example as a DJ, she enters a male-dominated culture and faces a gender gap. Women musicians are still often victims of sexism, gender stereotypes and sexual harassment (European Commission, 2021). Furthermore, in Europe, female artists are paid much less than men, earning on average 30% less than their male colleagues (Women in Music, 2019). The gender gap in the music scene is also visible in terms of participation. According to Women in Music (2019), less than 20% of the registered composers and songwriters in Europe are women. Several recent news articles pay attention to the underrepresentation of specifically female DJs. For example, in 2017, Yücel (2017) investigated the dance festival scene in the Netherlands and found that, on average, less than 10% of the programming consisted of women. This is in line with the findings by DjaneMag (2019), who found that in 2018, only 7% of the lineups of 20 top festivals held around the world consisted of female DJs. This is finding was not dependent on country or music style. So, female DJs are underrepresented in leadership and other decision-making positions (European Commission, 2021). Only small steps have been taken to give more women opportunities in the music industry and more access to creation and production resources (European Commission, 2021; Menzel, 2021).

2.4. EDM and DJing as an Occupation

EDM evolved in the 1980s, but it was not until the 1990s that DJs became superstars (Anderson, 2009; Gavanas & Reitsamer, 2013). The term EDM refers to many different electronical musical genres (KPMG Special Services, 2002). EDM is “all music produced electronically for people to dance to” (Armada Music, 2020, The Definition of EDM section, para. 1). This means that digital technologies, such as synthesizers, samplers and computers, are used instead of recording analog instruments. Most well-known DJs are also producers. A producer is an artist who creates music behind the computer (Worthington, 2014). A DJ, or disc jockey, is the person who mixes together music from other artists. This is mostly what you would hear at a club, venue, festival or on the radio (Worthington, 2014).

In the European EDM industry, a DJ gender gap is visible. One obvious difference can be seen in terms of participation, as the majority of successful DJs are male. Gavanas and Reitsamer (2013) note that despite a growing trend in the number of female DJs, men still dominate musical genres and take the top positions on DJ lists. In fact, men have been dominating the EDM industry ever since DJing became an occupation (Farrugia, 2012). Given that the DJ scene is male dominated, the European EDM industry contains different

gender gaps. Therefore, participating in the EDM industry involves different underlying barriers for women, as outlined by Gavanas and Reitsamer (2016).

2.5. The Barriers Female DJs Face in the EDM Industry

Gavanas and Reitsamer (2016) explored the gender dynamics in EDM industries in four European capitals. One of their key findings is that women in the DJ industry experience contradictions and dilemmas regarding the gender gap itself, technology, self-promotion and self-representation, and sexual identity. These issues are taken as starting point and elaborated further in this section.

2.5.1. The DJ Gender Gap

In their research, Gavanas and Reitsamer (2016) conclude that sex and gender are barriers for women who want to make it in the DJ industry. However, sex and gender are not specifically discussed as a separate topic, but are indirectly integrated into the research. Therefore, this present research expands the view on these barriers by relating them to the gender gap specifically and by analyzing different ways in which there is a gender gap present. The existing gender gap can be considered a barrier in itself, namely, through the existing gaps, it is in itself more difficult for women to enter successfully the DJ scene.
The difference between sex and gender is extensively discussed in the beginning of this chapter. Women experience issues in becoming part of the DJ scene, as the male sex and male gender are the standard. This is linked to the gender gap, which refers to the differences between male and female DJs in social, intellectual, cultural, or economic attainments or attitudes (Harris, 2017). In these attainments and attitudes, differences can be noticed in terms of participation, payment, access, rights, and advantages (European Commission et al., 1998), which make the gender gap more observable. These aspects can be explained as follows: participation refers to the number of DJs taking part in the DJ scene; payment is the amount of money a DJ gets per hour or performance; access is about the ability to book performances; rights concern the moral power to have or do something, so the normative rules about what is allowed according to a social system; and advantages consist of multiple aspects, of which advantages concerning technology and self-promotion are discussed in the following subchapters. Relating to rights, a consequence of prejudices might be the gender status belief that female artists lack the competencies necessary to become successful DJs, as discussed by Puwar (2004). Therefore, men might be considered to have more moral power to be a DJ.

Reitsamer (2011) explored the reasons for the underrepresentation of female DJs in the EDM industry with a focus on the genres techno and drum-'n-bass. She discovered that the attributes necessary to access DJ performance and to become a successful DJ – namely perseverance, the need for recognition, assertiveness, tenacity, and drive for success – are generally ascribed to male DJs, which relates to stereotyping (Gavanas & Reitsamer, 2016; Reitsamer, 2011). This might be an explanation for the image that male DJs are "better" DJs within the field, which prevails according to Reitsamer (2011). Thus, it is assumed that:

H1: There is a relationship between gender and attributes necessary in getting DJ performances and becoming a successful DJ

Relating to advantages, according to Reitsamer (2011), the under-representation of female artists in the DJ scene can be traced back to the fact that female DJs are often excluded from informal scene networks, which makes it harder to book performances. Therefore, an advantage for male DJs is being included in informal scene networks as they have more access to DJ gigs. Moreover, Reitsamer (2011) states that women DJs receive less recognition for their DJ performances than male DJs do, which is a disadvantage for women and an advantage for men. An advantage for women in the male-dominated industry is that it is easier to stand out and get noticed in a scene with a lot of competition (Gavanas & Reitsamer, 2016). This present research aims to examine to which extent these aspects of the gender gap form barriers for DJs in the EDM industry. According to previous research, a prominent barrier faced by female DJs is related to the general view of technological competence.

2.5.2. Technological Competence

Gavanas and Reitsamer (2013) and Farrugia (2012) assume in their study that the history of all music genres has been shaped by the relationship between technology and masculinity. Bayton (1997) explains the relationship between technology and masculinity by discussing the history of technological music instruments. She points out that in the 1960s the electric guitar became popular among and significantly contributed to the image of the male rock star, while at that time many girls were inspired by female popstars, such as Joni Mitchell, to play the acoustic guitar and sing. According to Bayton (1997) and Gavanas and Reitsamer (2013), the idea of playing the electric guitar did not fit the female gender, as the electric guitar itself, the technical skills involved and the poses made with the guitar – for example, Jimi Hendrix using the electric guitar as an extension of his penis – were all associated with masculinity. These findings can be related to gender roles; for boys and men,

technical mastery, like playing the electric guitar or producing music, means enhancing their masculinity, while for girls doing the same activities means breaking the gender code.

These studies argue that technology is an issue for women in the music industry, as they are breaking with gender norms when they participate in technology-oriented sectors scenes. This present research aims to determine whether this is also an issue for one specific section of the music sector, namely DJs in the EDM industry, in which working with machines and digital music technologies plays a crucial role. Gavanas and Reitsamer (2016) argue that the relationship between technology and masculinity is an important gatekeeper in the EDM industry, as it has a negative effect on women who desire to become a DJ or music producer. This assumption can be questioned, since the computer itself – which is often used in producing and DJing – is not specifically related to one gender or related to male-dominated environments. However, technology is not only about technical objects themselves; technology is also about discourses and social relations. According to Wajcman (2004), technology can be described as a "part of the social fabric that holds society together; it is never merely technical or social. Rather technology is always a socio-material product – a seamless web or network combining artefacts, people, organizations, cultural meanings and knowledge" (p. 106). Cockburn and Ormrod (1993) argue that technology has become an important part of masculinity, and vice versa, masculinity has become central to the definition of technology. This is also visible in the prevailing notions around certain connected products. For example, as previously mentioned, Gavanas and Reitsamer (2013) point out, in general, girls are encouraged by their environment to play the piano and sing, rather than to learn about the technical aspects that come with DJing and producing music. Technology is not inherently masculine, but technology and masculinity are considered to go hand in hand as a consequence of socially constructed narratives and practices. The relationship between technology and masculinity can be considered a stereotype related to gender norms.

Women are to a certain extent situated outside technology (Farrugia, 2004), which might be a barrier for women in the EDM scene, as technological mastery has become central to DJing. Gavanas and Reitsamer (2016) found that competence in digital music technologies is – next to self-promotional strategies – considered to be a highly important requirement to becoming a successful DJ. Therefore, the symbolic association between masculinity and technology might make it more difficult for women to participate in the DJ scene. For them, it is very difficult to change existing gender roles and gain the required knowledge, equipment and exposure (Farrugia, 2004). When a woman enters the male-dominated DJ industry, she breaks with the gender norms and consequently risks prejudice, as she does not meet

prevailing gender expectations. Since women are not considered to be the norm in technology, the capacities of female DJs might be called into question. Puwar (2004) states that there is a prevailing doubt about whether women have the competencies a person needs in order to be a good DJ. This is confirmed by Gadir (2016), who argues that expected gender roles are present which influence the idea that female DJs are less capable of being both technical and musical. This stereotype is embedded in the DJ gender gap in the EDM industry, as it creates differences between men and women in terms of intellectual attitudes. Positioning this in the context of this research, the following is expected due to prevailing gender stereotypes:

H2: Female DJs face more barriers regarding DJ technology than male DJs.

Reitsamer (2011) discovered that female DJs receive less recognition for their DJ performances than male DJs do. In order to fight under-expectations and doubt, women DJs constantly have to prove themselves (Gavanas & Reitsamer, 2016). In this process, self-representation might play an important role, but proves to be very complicated and full of hidden problems as well, as is explored in the following section.

2.5.3. Self-promotion and Self-representation

In addition to matters related to technology, Gavanas and Reitsamer (2016) find that women in the DJ scene face issues regarding self-promotion and self-representation. Self-representation Mäkinen (2012, p. 16) states that "promoting the self . . . refers to processes in which different forms of marketing and branding are combined with 'advancing the self' in one way or another". As a DJ, self-marketing is important in order to get performances. Therefore, self-promotion is considered to be essential for a successful career. However, female artists face multiple difficulties in promoting themselves. First, women who brag about their own achievements violate the gender norm of modesty (Rudman, 1998). This is negatively regarded and may result in women being discriminated against in hiring and payments (Rudman & Glick, 1999; Smith & Huntoon, 2014). Furthermore, in popular music culture, there is an overwhelming emphasis on the visual appearance of women and femininity (Levande, 2008). Being sexy is central to this (Gadir, 2016; Jackson & Vares, 2015). Buszek (2006) argues that sexualized representations of women have historically been used to limit the growth and opportunities of women. The truth is probably a bit more nuanced. Dimen (1984), for example, explains the contradiction in feminism: Women should have sexual freedom, but should let go of traditional erotic attributes. Nevertheless, a general trend in contemporary popular music can be detected; women are often sexualized according

to heterosexual standards (Scharff, 2015). Sexualizing women has become a leading technique in, among others, advertising and television (Gill, 2007). In these images, the boundaries between pornography and other visually mediated genres are blurring. This is what Gill (2007) calls 'porno chic'.

Gavanas and Reitsamer (2016) identify three different types of representation of female musicians. First of all, often, a feminine aesthetic of women's music is promoted. For example, by focusing on emotion and sensuality (Mcclary, 1991). Second, music journalists are likely to compare the work of female musicians to other female artists, only because they share the female gender. As a consequence, women DJs are not judged as individuals, but as representors of the competencies of women in general (Puwar, 2004). Lastly, in the promotion of female DJs, more attention is paid to the appearance of the woman than to her musical skills and work. Thus, it can be concluded that the hyper-sexualization of female musicians is ingrained in promotion. This might lead to the idea that female DJs are more marketable than male DJs, as they could be promoted in a sexual way (Farrugia, 2012). As a consequence, it may be harder for female DJs to shift the audience's attention from her appearance to her music, making it more difficult to build a career solely on her music. Therefore, it is expected that:

H3: Female DJs face more barriers in self-promotion and self-representation than Male DJs.

2.5.4. Sexual Identity

Remarkably, it is not until their conclusion that Gavanas and Reitsamer (2016) mention that sexual identity may be a barrier for female DJs. Therefore, this present research tries to build on this finding, fill this gap and, consequently, contribute to existing data. In this present research, sexual identity is conceptualized as "the way one views him- or herself as a male or female. This inner conviction of identification usually mirrors one's outward physical appearance and the typically sex-linked role one develops and prefers or society attempts to impose" (Diamond, 2002, p. 323). Sexual identity, gender and gender roles of a person are related to one's sexual orientation. Sexual orientation refers to the sex a person prefers in an erotic, loving, and/or affectionate relationship (Diamond, 2002). Most often, the terms heterosexual, homosexual and bisexual are used. In the article by Gavanas and Reitsamer (2016), it is not clear how one's sexual identity may be a barrier in the DJ scene, apart from women being sexualized in promotion according to heterosexual standards. Therefore, this present research examines this issue more thoroughly.

3. Methodology

This methodological chapter contains a justification for the choice of a quantitative research method, a description of the research design, a discussion of the sample, and explains the measurements used in order to answer the research question 'to what extent does the DJ gender gap exist in the European EDM industry today, and what barriers do female DJs face?' and the sub-question 'how has the gender gap changed over the years?'.

3.1. Research Design

This paper takes a multi-level approach. The first step is to outline the gender gap in the industry and to map key data of women's representativeness. This is done by using desk research. The analysis will take place on a macro level, because interactions and social structures across nations and large-scale patterns are studied (DeCarlo, 2018). The second step is building on the first step and investigates the situation of women on a micro-level, gathering more in-depth data and examining the smallest levels of interaction (DeCarlo, 2018). Hereby, a survey is used as research method and utilized building on the framework by Gavanas and Reitsamer (2016).

As mentioned, the DJ gender gap in the EDM scene is a relatively new research topic. The existing research mainly used a qualitative approach. For example, Reitsamer (2011) showed three practices which cause the under-representation of female DJs in the EDM industry by doing twelve interviews with Viennese DJs. This relatively limited sample of interviewees cannot provide a generalizable claim about the reasons for the gender gap in the DJ scene. Moreover, Gadir (2016) looked into gender related prejudices in the DJ industry. His research is qualitative as it draws on 70 interviews conducted with clubbers, DJs and producers. This paper examines the DJ gender gap within the framework of Gavanas and Reitsamer (2016) and builds on their findings. The study by Gavanas and Reitsamer (2016) was also qualitative since their study was based on 75 interviews with DJs in local EDM scenes in Berlin, London, Vienna and Stockholm, conducted between 2005 and 2011. Furthermore, they analyzed discussions on an Internet forum for female DJs between 2009 and 2011. The data for their research was conducted ten years ago, while the gender dynamics in the DJ industry might have changed in the past decade due to the topical conversations about gender. Moreover, local EDM scenes in only four European countries are researched. Building on the research of Gavanas and Reitsamer (2016), this research attempts to fill the research gaps in the gender research of the EDM industry, by examining the whole European

EDM industry. This study adds a new perspective in the existing literature in terms of methodology by using a quantitative research method. This study has an inductive and deductive research process, which allowed extending the existing research. The aim was to go beyond the existing research framework and identify additional barriers women face in the DJ scene. Moreover, some barriers described in the existing research might not be as present in the contemporary EDM industry. The aim of this present study is to extent the research of Gavanas and Reitsamer (2016) by gathering more robust, in-depth, quantitative and representative data for the current EDM industry in the whole of Europe. The research methods, choices, and process will be explained further in the next subsections.

3.2. Desk Research

3.2.1. Choice of Method

In order to find the extent of the gender gap and its developments over the years, the first step in this study is a descriptive statistical analysis based on quantitative desk research. Descriptive statistics are the numerical processes or graphical methods used to organize and describe the characteristics of a certain sample (Fisher & Marshall, 2009). The desk research was useful in mapping and statistically analyzing publicly available data of DJs on line-ups of festivals over the past ten years. Several recent news articles are devoted to the underrepresentation of female DJs and use a similar approach in creating an analysis of the distribution of male and female artists. For example, Goedegebuure (2019) analyzed the line-ups of 32 dance festivals in Amsterdam; Yücel (2017) investigated the dance festival scene in the Netherlands by collecting publicly available data of electronic acts at festivals; and DjaneMag (2019) used desk research in examining the average ratio of female to male DJs in the lineups of festivals around the world. This present academic research adds to the existing non-academic data in the field by analyzing the representativeness of women in the DJ sector in not only one year, but over the past ten years in Europe to examine trends and developments in the DJ gender gap.

3.2.2. Sampling

This analysis focuses on festivals. Examining popular music polls as the DJ Mag Top 100 does not create a full picture of the current EDM industry. As there is a public discussion about the representativeness of women in the audiovisual sector, the outcomes of polls can be influenced by the ongoing debate. Analyzing data about festivals, on the other hand, can be regarded as more objective. In this research, Europe’s top ten festivals from 2010 to 2019

were analyzed. Festivals were selected, since around 80% of a DJ's income consists of money earned from performances, and the rest of royalties earned by producing their own songs (Careers in Music, 2020; Lamé, 2018). Due to incomplete line-ups as a consequence of the COVID-19 outbreak in Europe in 2020, the timeframe from 2010 to 2019 was chosen to examine.

The aim of the analysis of festivals is to assess the gender distribution among DJs performing at the mainstage of European EDM festivals. For analysis, the top ten was chosen of the ultimate top 100 electronic music festivals by Electronic Festivals (2019) from 2019. Electronic Festivals (2019) analyzed thousands of festivals in order to come up with the top 100 electronic lineups from around the globe. The list represents events with the best acts from the year before. The score of a festival was calculated by adding up points of DJs who played at that particular festival in 2018. The score of each DJ act was based on the number of festival bookings in the three years before. As a result, the top 100 EDM festivals was created. For this present research, the ten first European festivals with a mainly EDM program from the list were included for examination. Once a festival was selected, only DJ acts performing on the festival's mainstage were taken into consideration.

3.2.3. Sample and Procedure

During this research, a total of ten festivals were taken into consideration. The analyzed festivals are:

- Amsterdam Dance Event[2], the Netherlands;
- Tomorrowland, Belgium;
- Creamfields, United Kingdom;
- Parookaville, Germany;
- Mysteryland, the Netherlands;
- Airbeat One, Germany;
- Defqon1, the Netherlands;
- World Club Dome, Germany;
- Awakenings Festival, the Netherlands;
- Decibel Outdoor Festival, the Netherlands;

[2] Since Amsterdam Dance Event is a five-day festival taking place in a wide variety of locations in Amsterdam, the most important event is chosen to include in the analysis, which is called Amsterdam Music Festival (AMF).

In Table 1, an overview of the analyzed number of festival editions is shown. Seven to ten festivals per year were analyzed, with in total 80 to 245 DJ acts per year. In total, 1549 acts were included in the analysis. The average of DJ acts performing on a festival's mainstage was 17, with a minimum of five acts and a maximum of 65 acts.

Table 1. Number of festivals by year

Year	**Number of Festival Editions**		**Number of DJ Acts**	
	N	Percentage	N	Percentage
2010	7	7.9	80	5.2
2011	7	7.9	81	5.2
2012	7	7.9	88	5.7
2013	9	10.1	123	7.9
2014	9	10.1	149	9.6
2015	10	11.2	161	10.4
2016	10	11.2	186	12.0
2017	10	11.2	212	13.7
2018	10	11.2	224	14.5
2019	10	11.2	245	15.8
Total	89	100	1549	100

For each festival, the following data was collected:

- Name of festival;
- Country;
- Year;
- Amount of male DJ act in the mainstage's line-up;
- Amount of female DJ acts in the mainstage's line-up;
- Amount of mixed DJ acts in the mainstage's line-up;
- Amount of unidentified DJ acts in the mainstage's line-up;

In this analysis, male refers to a person who uses the pronouns he/him, female refers to a person who uses the pronouns she/her, mixed refers to a DJ act with two or more genders, and unidentified DJ acts means that it was not possible to identify a person's pronouns or gender identity. In order to assign a category to a DJ act, data was collected by looking for publicly available biographical data on websites, social media and articles about the DJ. DJ duos or acts consisting of multiple DJs were categorized as follows: Armin van Buuren (male) back-to-back DJ-set with Hardwell (male) was categorized as 1 male act. Johanna Mercker

(female) & Efdé (male) was categorized as 1 mixed act. Rebecca (female) & Fiona (female) was categorized as 1 female act. Out of the lists created about the gender proportions, statistical analysis was conducted and presented in tables and graphs. Findings are based on mean (averages) of women's representativeness.

3.3. Survey

3.3.1. Choice of Method

The second step was to utilize a survey to the find the extent of the DJ gender gap, and the barriers female DJs face. This research intended to demonstrate a relationship between gender and barriers in the EDM industry. Based on available research about the issues female DJs experience, hypotheses were created. Therefore, in order to conduct this research, a quantitative method was used. More specifically, an online survey was set up building on the framework by Gavanas and Reitsamer (2016). A survey is "a systematic way of asking a set of separate questions" (Swanborn, 2009, p. 113) and is effective in collecting information on large populations (Nardi, 2018). Surveys are particularly useful for gathering factual data, like people's genders or incomes (Matthews & Ross, 2010), which are important variables of the research question. Furthermore, surveys are frequently used to "gather people's opinions, ideas, attitudes, knowledge and experiences" (Matthews & Ross, 2010, p. 204). This research intended to find out about the ideas, attitudes and experiences of DJs in the EDM industry. Indeed, it asked participants questions about their experiences with and views on (technical) competences, self-promotion and issues related to the gender gap in itself. The purpose of this research was to compare the characteristics and experiences of different groups of people, namely men and women, and to examine relationships between different characteristics (Matthews & Ross, 2010). In addition, online surveys are a suitable tool to use in this research, as it allows to generalize the findings of the DJ sample to a broader population (Matthews & Ross, 2010).

Another strength of online surveys is their global reach (Evans & Mathur, 2005). A large sample is easy to obtain because messages can simply be e-mailed to respondents, as global databases of DJs are available. When the largest part of society has Internet access and knowledge, the essential limitation of using online surveys disappears, which is the lack of representativeness (Scholl et al., 2002). Since the questionnaire was aimed at a European population made up of DJs, who use the Internet for promotion and developing name recognition, the use of Internet was a valued instrument to easily acquire information on a

large DJ community. As the online survey could not be conducted in all European languages, the choice was made to distribute the questionnaire in English and Dutch. Many Europeans speak English, and the survey was distributed to the researcher's personal networks in the Netherlands.

In the survey, the answering instructions had to be clear. If questions are not clear, some participants may be annoyed and therefore not fill out the whole survey (Tabor & Rayand, 2003). The clarity of questions was ensured by pre-testing to make sure there was no ambiguity or difficulty in the completion of the survey (Punch, 2003), before sending the survey out to the whole sample population.

3.3.2. Sampling

The population of interest were DJs with a European nationality. The present study adopted a purposive sampling method in which male and female DJs living in Europe were recruited. Purposive sampling is a non-probability sampling method and involves identifying and selecting individuals that are especially knowledgeable about, or experienced with, the examined research topic (Creswell & Plano Clark, 2017). The participants of the survey had to meet the following criteria. First of all, the participants were expected to have a European nationality. Another requirement is that the participants had been working as a DJ. Contact with participants was established via online contact details such as email addresses and social media accounts. DJs were mainly reached via email addresses of DJs registered on the site www.partyflock.nl. Partyflock is a Dutch virtual community for people interested in EDM. Both beginning and advanced DJs from all over the world can create a profile on the website. Information as performances, likes on social media and their music can be added to their profile. Furthermore, e-mail addresses and social media contact details of DJs can be found here. This database is chosen to contact DJs, because of the clear information of both beginning and advanced DJs, and the clear options to search for relevant participants. The survey was sent to all European DJs with an email address on Partyflock. Following the rule of thumb for sample sizes, to measure group differences (e.g. *t*-tests), 30 respondents per group should lead to 80% power (the probability of rejecting a false null hypothesis), around 50 respondents are needed to measure relationships (e.g. correlations and regression), and at least 20 respondents are necessary to perform chi-square tests (VanVoorhis & Morgan, 2007). Assuming that survey response rate is between 5% and 10%, at least 650 DJs should be approached. In total, 1723 emails were sent to DJs from 51 different European countries.

Furthermore, the survey was posted on the researcher's private Facebook page, in order to establish contact with DJs via personal networks.

3.3.3. Sample and Procedure

A total of 79 responses were recorded. After data cleaning, $N = 76$ were included in the analyses. The ages of the participants who completed this survey ranged from 18 years old to 65 years old. The average age was 31.81 years old ($SD = 8.85$). The male participants accounted for 63.2% of the responses, 34.2% of the participants were female, and 2.6% of the participants indicated their gender as 'non-binary / third gender'. Due to the international nature of the approached groups, the sample obtained a total of 21 different nationalities. The participants came from the Netherlands (31.6%), Belgium (14.5%), Great Britain (9.2%) and Italy (7.9%). The last 36.8% were coming from a variety of European countries. All participants shared how many years they have been a DJ. This ranged from 1 year to 21 years or more. On average, participants had been a DJ for 9.80 years ($SD = 5.98$). The genre participants played most often were techno (31.6%), house (25.0%) and hardcore (9.2%). The other 34.2% consisted of a variety of genres. Most respondents had a gig about several times a year (31.6%), followed by about once a week (26.3%) and about once a month (26.3%). In total, 43.3% of the participants' bookings consisted of clubs, 15.4% of festivals, and 14.4% of their bookings were private events, like corporate events and house parties. An overview of the survey respondents' demographic details can be found in Table 2.

Table 2. Summary of survey respondents' basic statistics

Information	**Description**	**Data size**	**Percentage**
Gender	Male	48	63.2
	Female	26	34.2
	Non-binary / Third-gender	2	2.6
Age	18-28	30	39.5
	29-38	29	38.2
	39-48	14	18.4
	49-58	1	1.3
	59 or older	1	1.3
Nationality	Austrian	1	1.3
	Belgian	11	14.5
	Bosnian	1	1.3
	British	7	9.2
	Bulgarian	1	1.3
	Czech	2	2.6
	Dutch	24	31.6

	French	2	2.6
	German	4	5.3
	Greek	1	1.3
	Irish	2	2.6
	Italian	6	7.9
	Latvian	2	2.6
	Lithuanian	1	1.3
	Polish	3	3.9
	Portuguese	2	2.6
	Romanian	1	1.3
	Spanish	2	2.6
	Swedish	1	1.3
	Swiss	1	1.3
	Ukrainian	1	1.3
Total years' DJing experience	1-5	27	35.5
	6-10	18	23.7
	11-15	18	23.7
	16-20	6	7.9
	21 or more	7	9.2
Genre played most often	Breakbeat	3	3.9
	Disco	1	1.3
	Drum and Bass	2	2.6
	Dubstep	2	2.6
	Grime	1	1.3
	Hardcore	7	9.2
	Hardstyle	1	1.3
	House	19	25.0
	Jungle	3	3.9
	Urban	1	1.3
	Techno	24	31.6
	Trance	2	2.6
	Other	10	13.2
Amount of performances	About several times a week	9	11.8
	About once a week	20	26.3
	About once a month	20	26.3
	About several times a year	24	31.6
	About once a year	3	3.9
Events booked for mostly (average)	Bar	-	8.8
	Club	-	43.3
	Festival	-	15.4
	Private events	-	14.4
	Rave	-	12.6

Other	-	5.5

The survey was programmed and administered online in May 2021, using the platform *Qualtrics*. Initially, a pre-test involving three DJs was done. Based on the comments of the participants of the pre-test, the unclear questions were adjusted. The questionnaire started by inviting the participants to fill out the survey, by stating that they make an important contribution to research on the DJ gender gap in the European EDM industry. Respondents were secured all data were kept completely confidential and anonymous, and were saved securely. They were informed that collected data was used for research purposes only and is deleted after the research. They could only fill out the survey if they agreed with the terms and conditions and participated voluntary. This condition was a means to avoid any ethical issue regarding confidentiality. The first part of the survey asked the participants a number of demographic questions and questions about their DJ career. The second part focused on questions about technology like DJ equipment, performances, and competences in DJing. Thereafter, the survey included measures about self-promotion as a DJ. The survey concluded by asking questions about the comparison of male and female DJs. All sections existed from both close-ended questions and open-ended questions, where participants could share their views and experiences on the topic. In total, the survey contained 29 questions (see Appendix A for the survey questions). For all statistical data analyses, the software program SPSS Statistics was used.

3.4. Operationalization

The central concepts in the research questions are ‘gender gap’ and ‘barriers female DJs face’, which conceptualization is analyzed in depth in the theoretical framework. Since there is no research done in the DJ scene using surveys, these concepts were measured by creating questions based on the framework by Gavanas and Reitsamer (2016) and additional literature.

Demographics. The first section gathered socio-demographic data such as age, gender, sexual orientation and nationality. In order to get an idea of the participant’s integration in de DJ scene, the question was asked for how long they had been a DJ. As a measure of their DJ performances, participants were asked to fill out in the genre(s) they played, the events they were booked for mostly, the amount of gigs they have normally (before COVID-19), and how much they ask for a performance per hour. If DJs gave a range of how much they asked per

hour, the average was taken into account. If a respondent did not share a number, the answer was left out of the analysis.

The DJ gender gap. In order to measure differences between different genders according to the definition of the gender gap by the European Commission (1998) and Harris (2017), six items were comprised (e.g., "I feel included in informal DJ scene networks", and "Men have more advantages in DJing than women") using a 5-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). The section concluded by asking four open-ended questions regarding the DJ gender gap. In open-ended questions participants were asked to share their thoughts upon difficulties in getting performances, to share examples of difference in treatment between male and female DJs, and their ideas upon advantages and disadvantages of being a male DJ or female DJ in the scene.

Attributes necessary to become a successful DJ. To measure to what extent attributes necessary to become a successful DJ were associated with the male gender, questions were asked about attributes and to what gender they typically belong. The gender characteristics necessary in becoming a successful DJ comprised five items (i.e. "perseverance", "need for recognition", "assertiveness", "tenacity", and "drive for success") outlined in the article by Reitsamer (2011) and Gavanas & Reitsamer (2016), on a 3-point dichotomous scale (i.e. "male", "female", "both"). Furthermore, in the open-ended question, perceptions on the perceived or actual differences between men and women regarding the competences they have in DJing could be shared.

Sexual identity. Sexual identity was measured by asking for the respondent's gender and sexual orientation. The participants could choose from 'male', 'female' or 'non-binary / third gender'. Regarding sexual orientation, respondents were asked to fill out "heterosexual", "homosexual", "bisexual", "prefer not to say", or "other". These questions were part of the demographics section.

Technical competencies. To measure technical competencies of DJs, total of six items were included in the survey. The capabilities (e.g. "When I am DJing, I know how the equipment works", and "I have been encouraged by my environment to learn about the technical aspects of DJing") were analyzed by using a 5-point Likert scale on which participants had to answer to what extent they agreed with the statements (1 = "strongly disagree" to 5 = "strongly agree").

Personal self-promotion and self-representation. The scale to measure self-promotion and self-representation included seven items that investigated self-promotion by asking about their promotion habits. This was done by using a 5-point Likert scale that asked respondents

to what extent they agreed with statements (1 = “strongly disagree” to 5 = “strongly agree”). Examples of statements include “In promotion, I pay attention to my visual appearance” and “I think self-promotion is important”.

General self-promotion of women. The general self-promotion of women was assessed using a 3-item sub-scale (e.g. “In general self-promotion of DJs, women are sexualized according to heterosexual standards”). This was done using a 5-point Likert scale (1 = “strongly disagree” to 5 = “strongly agree”). The block ended with an open-ended question, where thoughts upon noticeably about the self-promotion of male and female DJs could be shared.

3.5. Validity and Reliability of the Research

It is important to note that it is difficult to representing the truth, as the truth can be interpreted differently. Nevertheless, It is important to consider the validity and reliability of the survey. Validity refers to questions measuring what they are supposed to measure (Sarstedt et al., 2018). Some variables measured were rather complex or consisted out of different dimensions taken from existing literature. Therefore, it is difficult to affirm complete validity of responses. To the researcher’s knowledge, no surveys had been used in order to study the DJ gender gap. Thus, for the survey, questions and scales were created based on the theoretical framework to measure concepts like the view on technical competences and the use of self-promotion. Therefore, it is also difficult to meet reliability. Reliability relates to the consistency of results (Sarstedt et al., 2018). The statements are relate to the same concept, bit do not all measure the concept in the same way. Rather, the statements measure to what extent a respondents agrees or disagrees with a statement on a certain topic. For example, the technical competence of a DJ is not measured in itself (so, how good the respondent is at using technology), but the different questions measure the view on gender in relation to technical competence in the EDM industry.

4. Results

This chapter presents the descriptive statistics and results of the tests that were conducted to test the various hypotheses previously formulated. Independent t-tests and chi-square tests were conducted to compare experiences and views between men and women and to test and improve the framework proposed by Gavanas and Reitsamer (2016). In the current study it is hypothesized that female DJs in the European EDM industry face barriers regarding the gender gap itself, technology, self-promotion and self-representation, and sexual identity.

4.1. The DJ Gender Gap

The DJ gender gap refers to the differences between male and female DJs in social, intellectual, cultural, or economic attainments or attitudes (Harris, 2017), in which specifically differences can be noticed in terms of participation, payment, access, rights, and advantages (European Commission et al., 1998). Also, differences between sexual identities in social, intellectual, cultural, or economic attainments or attitudes are examined. Table 3 shows the means (*M*s) and standard deviations (*SD*s) for statements about participation, rights, advantages and access, and Figure 1 shows the mean of the statements of men and women combined. The answers (in percentage) of male and female respondents per question can be found in Appendix B and Appendix C. This data is discussed in the following subchapters.

Table 3. Ms and SDs for statements about participation, rights, advantages and access

Statements	**Male**		**Female**	
	M	*SD*	*M*	*SD*
There are more male DJs than female DJs.	4.54	0.65	4.73	0.45
I find it difficult to get a gig (during "normal" times, so, before COVID-19).	3.13	1.10	2.69	1.12
I feel included in informal DJ scene networks.	3.31	1.19	3.50	0.95
Men have more rights in DJing than women.	1.81	1.12	2.50	1.30
Men have more advantages in DJing than women.	2.21	1.27	2.77	1.31
I receive recognition for my DJ performances.	4.13	0.70	4.19	0.57

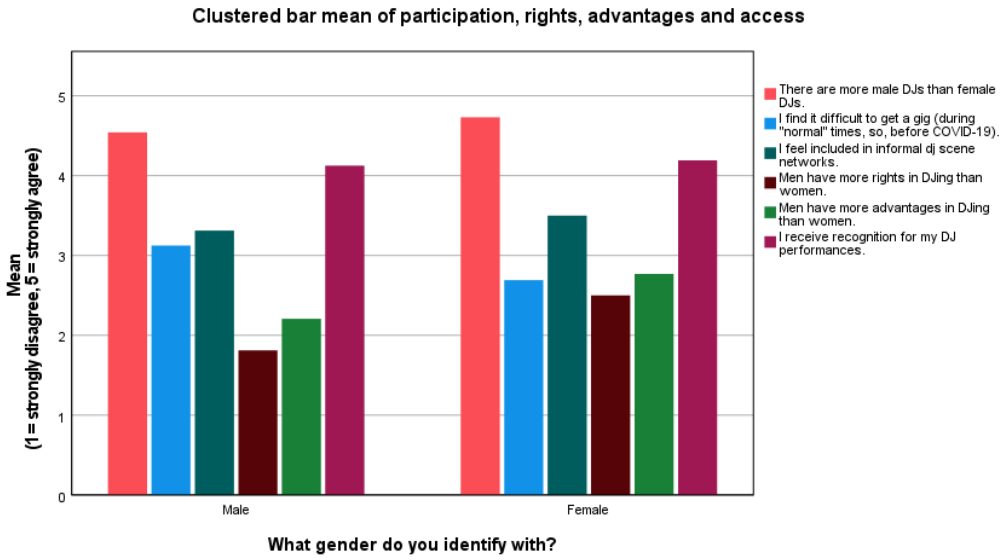

Figure 1. Clustered bar mean of participation, rights, advantages, and access (men and women)

4.1.1. Participation in the EDM Industry

In the survey, both men (62.5%) and women (73.1%) strongly agreed that there are more men in the European EDM industry than women. Table 2 and Figure 1 show that the average of male respondents was 4.54 (*SD* = 0.65) and the average of female respondents was 4.73 (*SD* = 0.45). This relates to the gender gap in terms of participation. A male DJ shared his experiences in the open-ended question of the survey: “For instance, as crazy as it sounds, I've never DJ'd at an event where a woman was playing as well”. The fact that there are more male DJs than female DJs is also visible in the distribution of the gender of respondents: the male participants accounted for 63.2% of the responses and 34.2% of the participants were female (2.6% of the participants indicated their gender as ‘non-binary / third gender’). The historical analyses show how the gender gap in the European EDM industry has changed over the years.

4.1.1.1. DJ Gender Proportions of Festival Mainstage Acts Over Time

The historical analysis assesses the gender of DJs performing on the mainstages of Europe’s ten most influential EDM festivals from 2010 to 2019. As shown in Figure 2, the average of EDM lineups taken from festivals that took place in the period from 2010 to 2019, a significant majority of DJ acts were male, namely 94.6%. In comparison, only 3.9% of the acts on the mainstage of festivals were female, 1.4% were mixed, and 0.1% were unidentified – meaning that the gender could not be classified. The number of women is lower than previous analyses of festivals in the Netherlands and in the world: Yücel (2017) has shown

that in 2017, women make up less than 10% of the line-ups of EDM festivals in the Netherlands. DjaneMag (2019) found that in 2018, 7% of the lineups of 20 top festivals held around the world consisted of female DJs. The current historical analysis found that the mainstage lineups of the ten most influential European EDM festivals consisted of less than 5% on average in the period from 2010 to 2019. This means that female DJs are still drastically underrepresented in the European EDM industry.

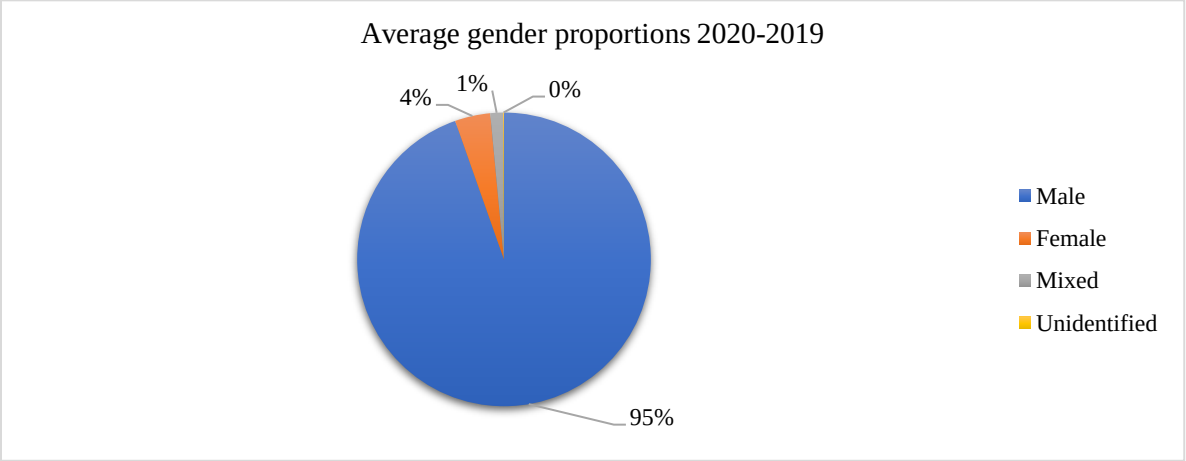

Figure 2. Average gender balance of DJs performing on festivals' mainstages, 2010-2019

Figures 3 and 4, and Table 4 show that there is little variance in the gender balance of DJs performing on the festivals' mainstage. The lowest percentage of female acts was 1.6% in 2016 and the highest percent was 6.9% in 2019. The trendline in Figure 3 shows that from 2010 to 2019, there was almost no increase in the number of female DJs performing on the mainstage. The percentage of male acts varied from 91.0% to 96.8%, and the mixed acts from 0.0% to 3.1%. Reasons for the numerical disbalance are mainly historical, having their origins in a male-dominated industry (Farrugia, 2012), and its influence on attitudes to the gender expectations, especially those related to technical competence, which will be discussed in more detail later in the results chapter.

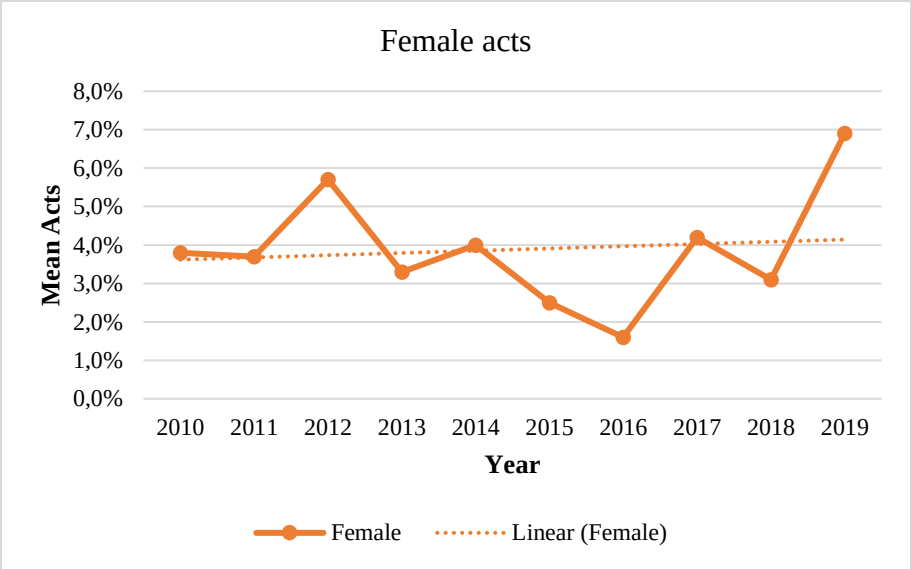

Figure 3. Average of female acts performing on festivals' mainstage, 2010-2019

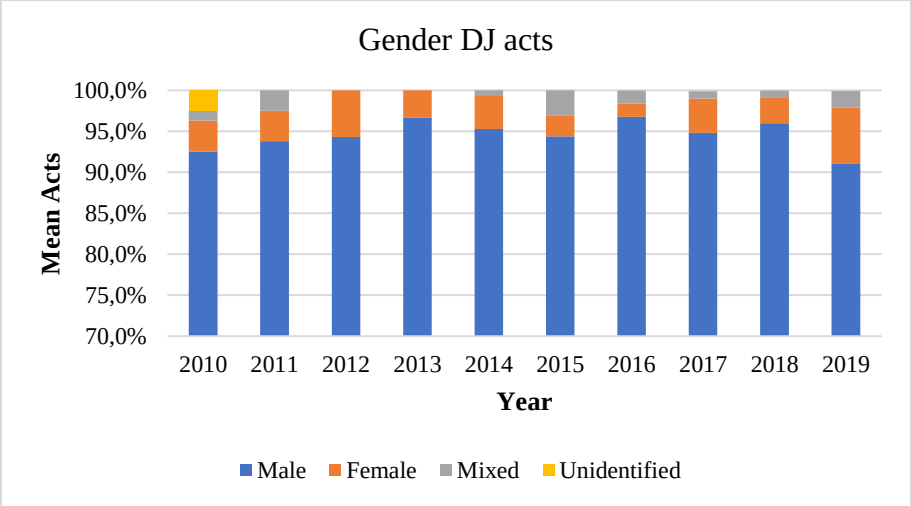

Figure 4. Gender balance of DJs performing on festivals' mainstages per year, 2010-2019

Table 4. Gender balance of DJs performing on festivals' mainstages per year in %, 2010-2019

Year	Number of Acts	Male Mean	Female Mean	Mixed Mean	Unidentified Mean
	N	%	%	%	%
2010	80	92.5	3.8	1.3	2.5
2011	81	93.8	3.7	2.5	0.0
2012	88	94.3	5.7	0.0	0.0
2013	123	96.7	3.3	0.0	0.0
2014	149	95.3	4.0	0.7	0.0
2015	161	94.4	2.5	3.1	0.0
2016	186	96.8	1.6	1.6	0.0
2017	212	94.8	4.2	0.9	0.0

2018	224	96.0	3.1	0.9	0.0
2019	245	91.0	6.9	2.0	0.0
Total Mean	155	94.6	3.9	1.4	0.1

The results show that as only 3.9% of the DJs performing on festivals' mainstage is female, there are few female DJs who can serve as a role model. The presence of good role models is important in order to change negative gender expectations and to remove barriers female DJs face, which will be analyzed in the following sections.

It is striking that the results from the survey showed that 15.98% of the male DJs' bookings and 15.15% of female DJs' bookings consisted of festivals. Even though an almost equal percentage of their gigs consisted of festival performances, the results of the festival analysis show that, on average, 94.6% the DJs performing on the mainstage are male and 3.9% are female, which is very out of proportion. It can be concluded that there is a noticeable gender gap in terms of participation.

4.1.2. Payment of DJs in the EDM Industry

This subchapter explores whether there is a gender pay gap in the European EDM industry. The average fee per hour of men, including VAT and equipment, was found to be significantly higher than the fee of women. Male DJs ask, on average, €413,15 per hour, ranging from €0 to €2500. Female DJs ask, on average, €262,80 per hour, varying from €0 to €850. This means that, on average, a female DJ earns 36.4% less than a male DJ. Previous research has also found that European female artists are paid much less than men, earning on average 30% less than their male colleagues (Women in Music, 2019). This is confirmed by a female respondent who shared in the survey: "I can see that women DJs may get paid less, since they often don't have the headline slots". A possible explanation for the pay gap is indeed the fact that less women are headliners, which is in line with the findings of the festival analysis. This means that a DJ gender gap in terms of payment is present in the EDM industry.

4.1.3. Access to the EDM Industry

This section examines whether female DJs face more barriers regarding access than male DJs. The statements "I find it difficult to get a gig (during "normal" times, so, before COVID-19)" and "I feel included in informal DJ scene networks" are used to measure access,

as they relate to the ability to get performances. Male respondents had more difficulty getting a gig (*M* = 3.13) than female respondents (*M* = 2.69) (Table 3). Most male participants (35.4%) neither agreed nor disagreed with the first statement, whereas most female participants (46.2%) somewhat disagreed. Furthermore, women felt almost as much included in DJ scene networks (*M* = 3.50) as men (*M* = 3.31). Of the female participants, most somewhat agreed with feeling included (57.7%), and an almost equal percentage of men also somewhat agreed (54.2%). This finding contradicts the results of Reitsamer (2011). She argued that the under-representation of female artists in the DJ scene can be traced back to the fact that female DJs are often excluded from informal scene networks, which makes it harder to book performances. However, the survey results show that women felt even a bit more included in DJ scene networks and had less difficulty in getting a DJ performance than their male colleagues. According to these results, the gender gap in terms of access is almost non-existent, as female DJs face no more barriers regarding access than male DJs. It is noteworthy that experiences shared in the open-ended questions of the survey are in contrast to these results. A male DJ wrote: “I guess many male DJs rely on a certain kind of "bro-network" type of scene, which probably works to their advantage to get bookings”. A female respondent adds on this by sharing: “As a man, you are faster one of the guys, which means you create a band faster and get booked more often”. These DJs explain that male DJs have the ability to connect more quickly with peers, because they are of the same gender. Thus, this may be an advantage of being a male DJ. However, it has little impact on the bookings and sense of belonging of female DJs.

4.1.4. Rights in the EDM Industry

This section examines whether female DJs face more barriers regarding rights than male DJs. The extent to which respondents agree with the statement “Men have more rights in DJing than women” gives an indication of the perceptions of DJs in the EDM industry. Men agreed to a lesser extent (*M* = 1.81) than women (*M* = 2.50) (Table 3). Most male participants (58.3%) responded “strongly disagree”, whereas most female participants responded either “strongly disagree” (26.9%), “somewhat disagree” (26.9%), or “neither agree nor disagree” (26.9%). Thus, men believed that they do not have more rights in DJing than women, while women did. The prevailing gender norms have an influence on how men and women are supposed to behave (Ridgeway, 2011) and thus on what is allowed in the EDM industry as men or women. Women participating in a male-dominated industry break with gender norms, and may leave to the idea that female DJs experience men having more rights. Since,

according to Reitsamer (2011), attributes necessary to become a successful DJ are generally ascribed to men, they might be considered as having more rights.

Chi-square tests were conducted to test whether women and men are generally thought to have different attributes necessary in accessing DJ performances and becoming a successful DJ. The frequencies cross tabulated in Table 5 shows how many male, female and non-binary or third gender participants ascribed the attributes 'perseverance', 'the need for recognition', 'assertiveness', 'tenacity', and 'drive for success' to men, women, or both. A chi-square test of independence showed that there was no significant association between gender and the attribute perseverance, χ^2 (4, N = 76) = 7.60, p > .05. This contradicts the first hypothesis. Although statistically insignificant, the response to this question indicated that few males (4.2%) considered perseverance as an attribute of women. Conversely, the results indicated that more females (19.2%) felt that perseverance is a typical female attribute. Therefore, more women felt perseverance is a female characteristic than men. In total, 17.1% of the participants ascribed perseverance to men, 10.5% believed it was a typical attribute of the female gender, and 72.4% thought perseverance was an attribute of both genders.

Another chi-square test of independence showed that there was no significant association between gender and the attribute need for recognition, χ^2 (4, N = 76) = 2.51, p > .05. Men were somewhat less likely to ascribe the attribute to women (14.6%), than female respondents (23.1%). In the survey, 19.7% of the respondents thought need for recognition was a typical male attribute, 17.1% ascribed need for recognition to women, and 63.2% associated the attribute with both genders.

A chi-square test of independence was also applied to test the significance between gender and the attribute tenacity. The results show no significant relationship, χ^2 (4, N = 76) = 2.93, p > .05. Just as many respondents ascribed this attribute to women as ascribed it to men, but most ascribed it to both: 15.8% to men, 14.5% to women, and 69.7% ascribed tenacity to both.

Table 5. Gender attributes according to participants (crosstabulation)

			What gender do you identify with?			
			Male	**Female**	**Non-binary / third gender**	**Total**
Perseverance	Men	N	9	4	0	13
		%	18.8%	15.4%	0.0%	17.1%
	Women	N	2	5	1	8
		%	4.2%	19.2%	50.0%	10.5%
	Both	N	37	17	1	55

		%	77.1%	65.4%	50.0%	72.4%
Need for recognition	Men	N	9	6	0	15
		%	18.8%	23.1%	0.0%	19.7%
	Women	N	7	6	0	13
		%	14.6%	23.1%	0.0%	17.1%
	Both	N	32	14	2	48
		%	66.7%	53.8%	100.0%	63.2%
Tenacity	Men	N	9	3	0	12
		%	18.8%	11.5%	0.0%	15.8%
	Women	N	6	4	1	11
		%	12.5%	15.4%	50.0%	14.5%
	Both	N	33	19	1	53
		%	68.8%	73.1%	50.0%	69.7%
Assertiveness	Men	N	16	9	1	26
		%	33.3%	34.6%	50.0%	34.2%
	Women	N	2	3	1	6
		%	4.2%	11.5%	50.0%	7.9%
	Both	N	30	14	0	44
		%	62.5%	53.8%	0.0%	57.9%
Drive for success	Men	N	10	6	1	17
		%	20.8%	23.1%	50.0%	22.4%
	Women	N	2	0	0	2
		%	4.2%	0.0%	0.0%	2.6%
	Both	N	36	20	1	57
		%	75.0%	76.9%	50.0%	75.0%

In addition, a chi-square test of independence was used to determine whether gender and the attribute assertiveness were likely to be related. It showed that there was no significant relationship, χ^2 (4, N = 76) = 7.34, $p > .05$. Although the association between the variables was not significant, assertiveness was ascribed to the female gender by a relatively a low percentage of participants: 7.9%, among which 4.2% was male and 11.5% was female. Respectively, 34.2% of the respondents thought of assertiveness as a typical male attribute, including 33.3% male participants, and 34.6% female participants; 57.9% considered assertiveness to be an attribute of both men and women.

Lastly, a chi-square test of independence showed that there was no significant association between gender and the attribute drive for success, χ^2 (4, N = 76) = 2.09, $p > .05$. Of the male participants, 4.2% ascribed drive for success to women, while none of the female participants did; 23.1% of the female participants considered it a male attribute. In total,

22.4% thought drive for success was a typical male attribute, 2.6% ascribed it to women, and 75.0% of the participants associate the attribute with both genders.

In summary, gender of the respondent did not really affect to what gender the respondent ascribed perseverance, the need for recognition, assertiveness, tenacity, and drive for success with gender, although men were somewhat less likely than women to attribute perseverance, need for recognition and assertiveness to women. Generally, the participants did not ascribe any of five attributes to either men or women specifically, but to both genders. Therefore, the first hypothesis is rejected. This is in contrast to the findings of Reitsamer (2011), as the results do not indicate that the attributes necessary to book DJ performances and to become a successful DJ are generally ascribed to male DJs. A male DJ duo wrote in the open-ended question of the survey: "It all depends on the passion of the artist (m/f). In our eyes, any artist (m/f) can be successful as long as there is enough drive and passion involved". A male DJ adds to this by saying: "There are no differences between how different genders mix. It purely comes down to effort and perseverance if you want to succeed". Thus, the attributes are generally ascribed to both genders. However, although the last quote indicates that the male DJ perceives no differences in mixing between men and women, in general there is still the prevailing idea that women are technically less competent than men, as previously argued.

The higher number of attributes ascribed to both genders could, to a certain extent, be explained by the fact that it is socially desirable to ascribe a positive attribute to both genders, instead of choosing one. However, it could also indicate that views on typical gendered attributes, also referred to as stereotypes, are changing. This would mean that attributes necessary for getting DJ performances and becoming a successful DJ are becoming less prominent barriers for female DJs in the EDM industry.

4.1.5. Advantages in the EDM Industry

As advantages consist of multiple aspects, it is difficult to map all advantages and disadvantages of being a male or female DJ in one section. This subchapter discusses advantages that have been mentioned by the respondents in the open-ended questions of the survey that are not related to technology, attributes and self-promotion and self-representation, as these subjects will be discussed in detail in the rest of the results chapter. The extent to which respondents agree with the statement "Men have more advantages in DJing than women" gives an indication of DJs' experiences. Male DJs agreed to a lesser extent with the statement (M = 2.21) than female DJs (M = 2.77) (Table 3). Most male

participants (41.7%) responded “strongly disagree”, while most female participants responded “neither agree nor disagree” (34.6%). Thus, women were more likely than men to find that men had more advantages in DJing than women. Respondents were asked to share disadvantages of being a women in the DJ scene in the open-ended question of the survey. Most respondents shared issues concerning the need to prove themselves, sexual harassment, not being considered good enough, and too much emphasis on appearance. These barriers are discussed further in the next chapters. The respondents were also asked to write down advantages of being a female DJ. A comment that was made often was that a woman has less competition as the EDM industry is male-dominated. This is illustrated by a quotation from a male DJ, who looks at it from a male perspective: “A disadvantage of being a man is that you do not stand out as there are thousands of people who look like you and do the same”. Previous research has also found that an advantage for women in a male-dominated industry is that it is easier to get noticed in a scene with a lot of competition (Gavanas & Reitsamer, 2016).

Furthermore, the participants had to respond to the statement “I receive recognition for my DJ performances”. The average of the female participants (M = 4.19) was almost equal to the average of male participants (M = 4.13) (Table 3), which means that both genders experience receiving a lot of recognition for their gigs. Most of the female respondents somewhat agreed with receiving recognition (65.4%), as did male respondents (56.3%). This contradicts the finding by Reitsamer (2011) that states that women DJs receive less recognition for their DJ performances than male DJs do. Thus, female DJs face no more barriers regarding recognition than male DJs. Advantages concerning technology, attributes and self-promotion and self-representation are examined in the next subchapters.

4.1.6. Sexual Identity

This section examines whether sexual identity can be considered part of the gender gap female DJs face in the EDM industry, and if there are differences in social, intellectual, cultural, or economic attainments or attitudes. As shown in the methodology, the amount of homosexual and pansexual DJs is too small to draw valid conclusions. Therefore, only heterosexual and bisexual DJs are included in the analysis. Remarkably, 89.6% of the male respondents was heterosexual and 2.1% was bisexual, whereas 69.2% of the female DJs was heterosexual, and 23.1% was bisexual. Independent *t*-tests were conducted to test whether there is a difference in sexual orientation of DJs and experiences regarding the DJ gender gap, technical competence, and self-promotion and self-representation. In Table 6, *M*s, *SD*s and *t*-

values are presented. First, bisexual DJs have a significantly higher score for feeling that other people consider them to be good DJs (M = 4.50, SD = 0.54) than heterosexual DJs (M = 3.97, SD = 0.66), $t(67) = -2.19$, $p < .05$. Furthermore, an independent t-test showed that bisexual participants have significantly higher scores for believing they have gotten a gig because of their appearance (M = 3.25, SD = 1.49) compared to heterosexual participants (M = 2.10, SD = 1.23), $t(67) = -2.42$, $p < .05$. Lastly, there is a significant relationship between sexual orientation and believing you have gotten a gig because of your gender. An independent t-test showed that bisexual DJs experience this more (M = 3.63, SD = 1.77) than heterosexual DJs (M = 2.15, SD = 1.34), $t(67) = -2.83$, $p < .01$. Given that 75.0% of the bisexual respondents was female, it is very likely that these higher scores can be explained by their gender, as discussed in the following chapters.

Table 6. Ms and SDs for statements about technical competence, self-promotion and self-representation

	Heterosexual		**Bisexual**		
	M	*SD*	*M*	*SD*	*t*-test
I feel like other people consider me a good DJ.	3.97	0.66	4.50	0.54	-2.19*
Sometimes, I feel like I get a gig because of my appearance.	2.10	1.23	3.25	1.49	-2.42*
Sometimes, I feel like I get a gig because of my gender.	2.15	1.34	3.63	1.77	-2.83**

Note: significance levels: * $p < .05$ ** $p < .01$ *** $p < .001$

No other significant associations were found between the sexual orientation of DJs and the DJ gender gap in terms of participation, payment, access, rights, and advantages, technical competence, and self-promotion and self-representation. It can be concluded that based on this small sample, sexual identity is not part of the DJ gender gap female DJs face in the EDM industry. Gavanas and Reitsamer (2016) do not specifically explain issues female DJs face regarding sexual identity, but do mention that sexual identity is a barrier for female DJs. The findings of this present research oppose this claim. It is very likely that the relationships found are mainly related to the fact that the vast majority of bisexual respondents was female, thus, being it very likely that they have to deal with barriers because of their gender rather than their sexual identity. Barriers related to gender are extensively discussed in the following chapters, starting with technology.

4.2. Technical Competence

This section examines whether female DJs face more barriers regarding DJ technology than male DJs. Independent *t*-tests were conducted to analyze if male and female DJs differ concerning their experiences with the technical competences of DJing. In Table 7, *M*s, *SD*s and *t*-values are presented. The answers (in percentage) of male and female respondents per question can be found in Appendix B and Appendix C. First, women have a significantly higher score for having people doubt whether they know how the DJ equipment works (M = 2.58, SD = 1.42) than men (M = 1.75, SD = 1.14), $t(72) = -2.73$, $p < .01$. This confirms the second hypothesis, as 58.3% of the male respondents strongly disagreed with the statement "when I am DJing, people doubt whether I know how the equipment works", compared to 26.9% of the female respondents. Conversely, 15.4% of the women strongly agreed with the statement, while only 6.3% of the men strongly agreed. This indicates that technology is still associated with men. As a result, the capacities of female DJs are called into question. This is in line with earlier research that found that expected gender roles influence the idea that women are less capable of being technically skilled (Gadir, 2016; Puwar, 2004). This finding is confirmed by the experiences that DJs shared in the open-ended question in the survey. A female DJ wrote: "As a female-identifying DJ, there is often '"this guy"' next to the booth, who knows how to do things better, explaining the equipment and so on when I DJ solo". This participant shares that she often experiences men assuming that she does not know how the equipment works, as they feel the need to explain it to her. This despite the finding that men and women DJs are equally knowledgeable about how the equipment works (male M = 4.63, female M = 4.63). The prevailing gender expectation that women are technically less competent is emphasized by this quotation from a male DJ: "I've seen many examples of female DJs either having poor or non-existent DJ skills. Sometimes men also lack these skills, but the majority of times have been women". The male DJ considers most female DJs to be less technically competent, which confirms the perceived difference between men and women's technical competence and the prevailing stereotypes in the European EDM industry.

Table 7. Ms and SDs for statements about technical competence

Technical Competences	**Male**		**Female**		
	M	*SD*	*M*	*SD*	*t*-test
When I am DJing, I know how the equipment works.	4.63	0.73	4.63	0.76	ns

I have been encouraged by my environment to learn about the technical aspects of DJing.	3.42	1.24	3.46	1.21	ns
When I am DJing, people doubt whether I know how the equipment works.	1.75	1.14	2.58	1.42	-2.73**
Knowing about technology is an essential precondition for becoming a successful DJ.	3.65	1.23	3.85	1.19	ns
I often feel like I have to prove myself as a DJ.	3.44	1.20	4.15	1.01	-2.59*
I feel like other people consider me a good DJ.	3.90	0.66	4.31	0.55	-2.71**

Note: significance levels: * $p < .05$ ** $p < .01$ *** $p < .001$.

Second, an independent *t*-test showed that women have a significantly higher score for feeling they have to prove themselves ($M = 4.15$, $SD = 1.01$) than men ($M = 3.44$, $SD = 1.20$), $t(72) = -2.59$, $p < .05$. This is in line with the second hypothesis. In fact, 46.2% of the female participants answered that they strongly agree with the statement "I often feel like I have to prove myself as a DJ", while only 18.8% of the men strongly agreed. The higher score for women could, to a certain extent, be explained by the fact that female DJs constantly have to prove themselves in order to combat low expectations and doubt, as was found in previous research (Gavanas & Reitsamer, 2016). As the stereotype that technology is related to men is still present, women need to prove that they are not inferior to their male colleagues. A female DJ shared her experiences with being judged by male colleagues in the open-ended question of the survey: "I did have a few male DJ friends who criticized my work as a DJ, but I just didn't care what they thought and I still follow my dream". Even though she receives critique from men, she fights for her existence as a DJ and tries to claim her place in the EDM industry. Why women feel like they have to prove themselves becomes clear by the quotation from a female respondent: "Men are generally considered more technology-savvy and are thought to have more knowledge about the technical sides of DJing, while women have to prove themselves, and are often looked down upon by male music industry representatives. I've often heard comments like 'you only got this gig because you look pretty'. Also on social media female DJs receive more negative feedback and judgement regarding their technical

skills. It is generally more difficult for women to enter the electronic music scene because of that, because they think we are not good enough or don't have enough technical skills". For this female respondent, technology is a barrier in the EDM industry, as she is mainly judged on her physical appearance and not taken seriously as a DJ. Vecco et al. (2019) already found that prevailing stereotypes are harmful to the access and professional growth of women in the cultural and creative sectors, and these results show that this is also true for women in the European EDM industry. As male and female respondents both thought that knowing about technology is an essential precondition for becoming a successful DJ (male $M = 3.65$, female $M = 3.85$), being considered less technically competent holds one back in becoming a successful DJ. Thus, female European DJs feel like they have to prove themselves more than their male colleagues due to the prevailing gender expectations and stereotypes in this male-dominant sector.

Third, in contrast to the prevailing negative female stereotypes, an independent *t*-test was performed and showed that women have a significantly higher score for feeling that other people consider them to be good DJs ($M = 4.31$, $SD = 0.55$) compared to men ($M = 3.90$, $SD = 0.66$), $t(72) = -2.71$, $p < .01$. This contradicts the second hypothesis. In the survey, 14.6% of the male respondents strongly agreed with the statement "I feel like other people consider me a good DJ", which is much lower than the female respondents, of whom 34.6% strongly agreed. None of the female participants responded "strongly disagree" or "somewhat disagree", and only 2.1% of the men responded "somewhat disagree". This result goes against the idea that as a consequence of negative stereotypes, such as being technically less capable, women are also less likely than men to be considered "good" DJs. This contradicts the image that male DJs are "better" DJs than women, as was suggested by Reitsamer (2011) and Puwar (2004), and the expected gender roles that influence the idea that women are less capable of being musical (Gadir, 2016). A male DJ explains in the open-ended question in the survey that he feels like women are being judged less critically: "I feel like female DJs are being judged less critically at raves and private parties. I saw a girl who didn't play great, but everyone said she did well. It is possible that they were her friends who said that, but I think that many of those people think it is a good thing that there is a woman behind the decks". This quote also indicates indirect gender expectations: namely, the male DJ, and possibly the people in his environment, automatically lower their standards when a woman plays. However, it could also be that people would like to see more female DJs and therefore do not really care how "good" she is. Another explanation for the higher score is the fact that women are less prominent in the EDM industry and therefore they receive more compliments when

they are playing, as they differ from the norm. A female DJ wrote that she often receives compliments: “Men often looked down on me, but afterwards they came to have a chat and give me a compliment about my performance”. Furthermore, the idea that men are regarded as “better” DJs than women is related to the finding by Reitsamer (2011) that attributes necessary to get DJ performances and to become a successful DJ are generally ascribed to male DJs. The next subchapter shows that there is no significant relationship between gender and the attributes thought of as necessary and may also influence the view on the general competences of female DJs.

No other significant associations were found between gender and technical competences. However, an interesting observation is that both male DJs and female DJs agreed that they had been encouraged by their environments to learn about the technical aspects of DJing (male $M = 3.42$, female $M = 3.46$). This is not in accordance with previous research. Gavanas and Reitsamer (2013) found that, in general, boys are more likely than girls to be encouraged to learn about the technical aspects of DJing and producing music. These results show that people are starting to encourage women more and times are changing.

4.4. Self-promotion and Self-representation

This subchapter explores whether female DJs face more barriers in self-promotion and self-representation than male DJs. In Table 8, *M*s, *SD*s and *t*-values are presented. The answers (in percentage) of male and female respondents per question can be found in Appendix B and Appendix C. First, an independent *t*-test showed that women have a significantly higher score for considering themselves as good promoters ($M = 3.38$, $SD = 1.10$) than men ($M = 2.56$, $SD = 1.09$), $t(72) = -3.09$, $p < .01$. This is not a barrier for women in itself, as women consider themselves better promoters than men; 3.8% of the female participants strongly disagreed that they are good at promoting themselves and 19.2% strongly agreed. Conversely, 16.7% of the men strongly disagreed that they are good promoters and 4.2% strongly agreed. In the open-ended question in the survey, a female respondent shared that according to her, “women always want to look good and mainly use social media to promote themselves”. Another female DJ adds on this: “Men tend to not do as much - the doors are already held open for them at every step of the way. Women have to self-promote because they’re less likely to get picked up by labels and media, writers, and reviews”. The fact that women pay a lot of attention to their appearance both in general and in their self-representation and need to spend a lot of time on self-promotion, might lead to judging themselves as good promoters.

However, the fact that women see themselves as good promoters does not reveal if women face any contradictions with regard to promotion. Rudman and Glick (1999), Smith and Huntoon (2014) and Rudman (1998) argued that women who self-promote violate the gender norm of modesty and are negatively regarded. A quotation by a female respondent is in line with the researchers' argument: "Men don't mind promoting themselves because it's sometimes really necessary for them to do so. Most of the female DJs who do a lot of self-promotion are in my experience a different 'kind' of DJ, if you may call it that". She compares the self-promotion of men and women and indicates that it is logical for men to self-promote, as this adheres to the male gender norm, whereas women who use self-promotion strategies violate the gender norm and are consequently considered a different kind of DJ than what is normal.

Table 8. Ms and SDs for statements about self-promotion and self-representation

Self-Promotion	**Male**		**Female**		
	M	*SD*	*M*	*SD*	*t*-test
I think self-promotion is important.	4.13	0.84	4.38	0.80	ns
I need a lot of time for my self-promotion.	3.31	1.27	3.62	1.13	ns
I am very good in promoting myself.	2.56	1.09	3.38	1.10	-3.09**
Self-promotion is an essential precondition for becoming a successful DJ.	3.63	1.21	3.88	0.91	ns
In promotion, I pay attention to my visual appearance.	3.21	1.32	4.19	0.85	-3.89***
Sometimes, I feel like I get a gig because of my appearance.	1.73	1.14	3.08	1.16	-4.81***
Sometimes, I feel like I get a gig because of my gender.	1.56	0.99	3.54	1.24	-7.50***

Note: significance levels: * $p < .05$ ** $p < .01$ *** $p < .001$

Second, the participants' score differences regarding paying attention to appearance in promotion according to their gender was examined via an independent *t*-test. The results show that women pay more attention to their visual appearance ($M = 4.19$, $SD = 0.85$) than men (*M*

= 3.21, *SD* = 1.32), *t*(69.73) = -3.89, *p* < .001. In total, 42.3% of the female respondents strongly agreed with the statement "In promotion, I pay attention to my visual appearance", whereas 16.7% of the men did. This is in line with the third hypothesis, as women have to pay more attention to their looks than men. As examined by Gavanas and Reitsamer (2016) and Levande (2008), in popular music culture, there is an overwhelming emphasis on the visual appearance of women rather than on their musical skills, which is also the case in the European EDM industry specifically. For women, this is an issue, since they want to feel good about themselves by dressing nicely, but cannot dress too sexy as this might limit their growth (Buszek, 2006). This contradiction in self-representation is illustrated by a quotation from a female respondent: "In self-promotion, I always analyze my clothes and appearance so that the focus remains on the music, but that I can also feel feminine at the same time. Respectful. It's worth noting that you still have to triple check all the photos to get the right message across". Female DJs' appearance has an influence on the way they are perceived. A quotation from a male DJ also exemplifies this: "Actually, when I think of highly successful female DJs, they dress 'cool'. Trousers, T-shirts et cetera – a fairly androgenous style. I think that a woman who chooses to dress in miniskirts and revealing clothes would get less respect from the audience and industry alike". Namely, if a female DJ wears revealing clothes, it is thought that she got the gig because of her appearance and not because of her skills, as discussed in the subsection about female DJs who feel like they have to prove themselves in the EDM industry. Of course, it is good to focus on the way you present yourself as a musician, but for women there are underlying issues involved, as discussed further in the following analyses.

Third, an independent *t*-test showed that female DJs have significantly higher scores for believing they have gotten a gig because of their appearance (*M* = 3.08, *SD* = 1.16) compared to male DJs (*M* = 1.73, *SD* = 1.14), *t*(72) = -4.81, *p* < .001. Remarkably, the difference in means is very large. The male respondents mostly strongly disagreed (62.5%) with "sometimes, I feel like I get a gig because of my appearance", while the female respondents mostly somewhat agreed with the statement (34.6%). This is in line with the third hypothesis. In order to make this gap more observable, the difference is illustrated in Figure 5 and Figure 6. This result also explains that women pay more attention to their visual appearance in self-promotion than men, as they experience getting performances based on their appearance. A male DJ exemplifies: "with men I have the feeling that people look at experience and competence, while with women (who may have the same experience/competence) people tend to focus more on appearance and type of woman". An

obvious example is given by a male respondent: “A friend of mine, club owner, called me and said: ‘Please suggest me a woman DJ that plays disco music, she needs to be hot’”. Men assume they get bookings mainly based on their musical and technical competences or popularity, while women may wonder whether they are booked primarily because of their looks. This relates to prevailing gender roles, as men are associated with working and reaching goals (Wienclaw, 2011) and women are associated with being sexy (Gadir, 2016; Jackson & Vares, 2015). This issue negatively influences the careers of female DJs in the European EDM industry.

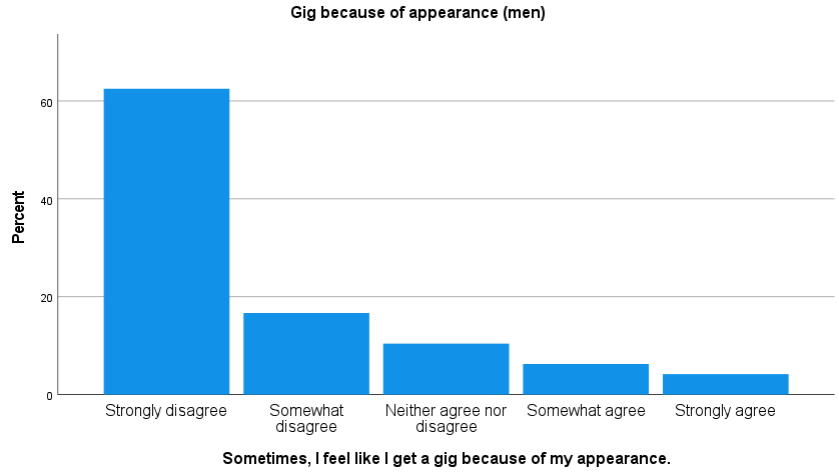

Figure 5. Getting a gig because of appearance (men)

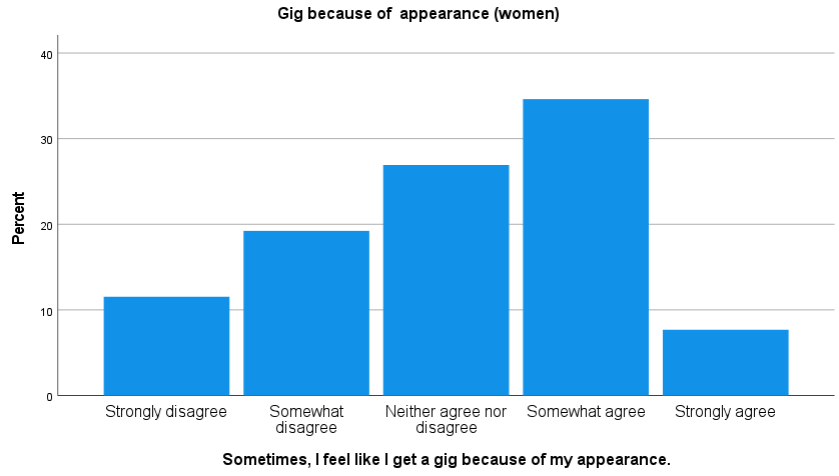

Figure 6. Getting a gig because of appearance (women)

Lastly, there is a significant relationship between gender and believing you have gotten a gig because of your gender. An independent *t*-test showed that women experience this more (M = 3.54, SD = 1.24) than men (M = 1.56, SD = 0.99), $t(72) = -7.50$, $p < .001$. Here, the difference in means is also very large. The male DJs mostly strongly disagreed (68.8%) with “sometimes, I feel like I get a gig because of my gender”, while the female

respondents mostly somewhat agreed with the statement (38.5%). This is in line with the third hypothesis. The difference in responses is illustrated in Figure 7 and Figure 8. On the one hand, this might be a barrier for women, since they might have the feeling that they have gotten a gig based primarily on their gender instead of on their DJ skills. This is exemplified by a female respondent: "When I started, I got many gigs not because I was good, but because I am a woman. At that time there were almost no female DJs, so it was somewhat a rarity. I had to work really hard to PROVE, that I am not on stage just because I am female". This experience also shows that it is very difficult to change existing gender expectations in a male-dominated industry (Farrugia, 2004). On the other hand, getting a gig because a DJ is female might be helpful in increasing women's representativeness in the European EDM industry and creating role models for other women who also desire to become DJs.

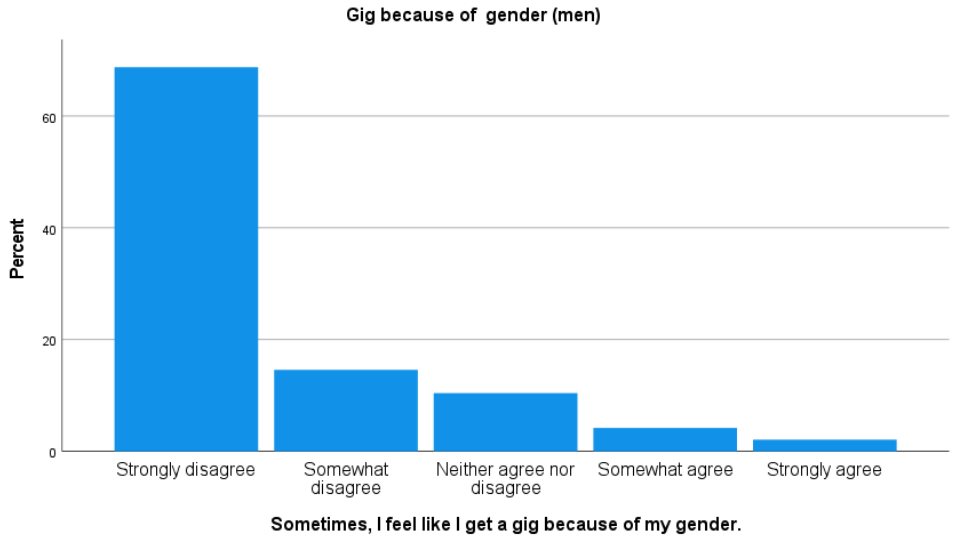

Figure 7. Getting a gig because of gender (men)

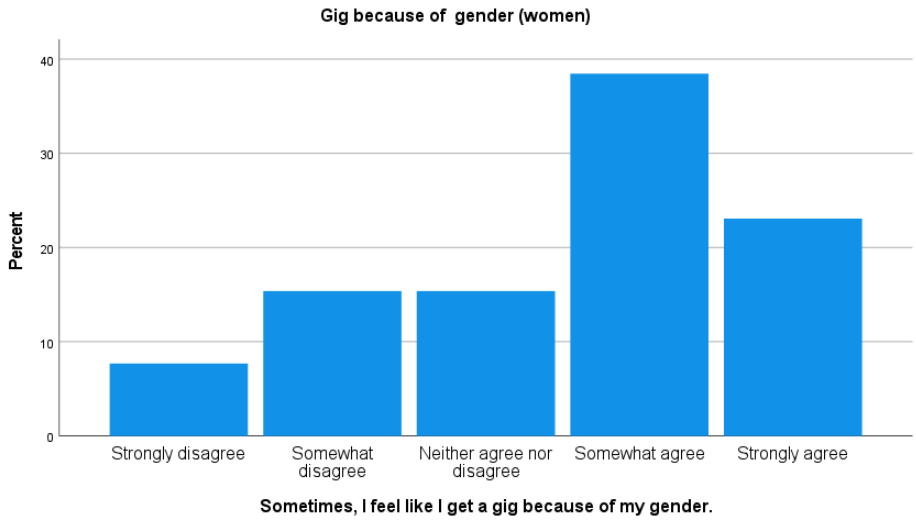

Figure 8. Getting a gig because of gender (women)

4.5. General Self-promotion of Women

This subchapter explores the views on the general self-promotion of female DJs. Table 9 presents the *M*s and *SD*s of the male and female respondents per statement. In Appendix B and Appendix C, the answers (in percentage) of male and female respondents per question can be found. In order to make the findings more visible, the answers of all respondents per statement are put in bar charts (see Figures 9, 10, and 11). In total, 51.3% of the respondents somewhat agreed with the statement "as a female DJ, you stand out more than a male DJ" (*M* = 3.71). As discussed in the subsection about the advantages of DJs, this can be in the favor of a female DJ. A female DJ explains: "As a woman, you stand out more than a man, which means that – if you are good – you can get more bookings. In return, you have to prove yourself more". Thus, being a woman in a male-dominated industry might be an advantage since you stand out more from the competition, which is in line with research by Gavanas and Reitsamer (2016). However, as a woman deviates from the norm, she has to prove that she is as good as her male colleagues.

Table 9. Ms and SDs for statements about general self-promotion of women

Self-Promotion	**Male**		**Female**	
	M	*SD*	*M*	*SD*
As a female DJ, you stand out more than a male DJ.	3.65	1.04	3.81	1.02
In general self-promotion of DJs, there is an emphasis on the visual appearance of women.	3.56	1.11	3.58	1.03
In general self-promotion of DJs, women are sexualized according to heterosexual standards.	3.38	1.10	3.65	1.09

Further, to the statement "in general self-promotion of DJs, there is an emphasis on the visual appearance of women", both 31.6% of the participants responded "neither agree nor disagree" and 31.6% answered "somewhat agree" (*M* = 3.58). Lastly, 38.2% of the participants somewhat agreed with the statement "in general self-promotion of DJs, women are sexualized according to heterosexual standards" (*M* = 3.51). This means that there is a common view that the appearance of women in the EDM industry plays an important role in promotion. The findings show that, in line with research by Gill (2007), Levande (2008), and

Scharff (2015) on popular music culture, a general trend in the European EDM industry can be detected, in which there is an overwhelming emphasis on women's appearance whereby women are often sexualized according to heterosexual standards. In the open-ended question of the survey, a female DJ also shared her experience with the sexualization of women: "There is a tendency for female DJs' promotions to be sexualized and based on visual appearance; a lot of men get attracted to female DJs only because of that. So many times I have heard comments from guys: 'oh wow you're a DJ? That's sexy!', which I think is very offensive". The female DJ experiences being associated with a stereotypical attribute of women – namely, being sexy – as offensive because the focus is on her appearance and her occupation is being sexualized. The sexualization of female DJs in promotion was also mentioned by a male participant: "Everyone does self-promotion. The main difference is that sometimes the agency or club owner sexualizes the promotion of female DJs even if they are super skilled and they don't need this kind of promotion". This relates to the idea that female DJs are more marketable than male DJs, as they could be promoted in a sexual way (Farrugia, 2012). However, as discussed earlier, if a woman dresses sexy, her musical and technical competence is often questioned.

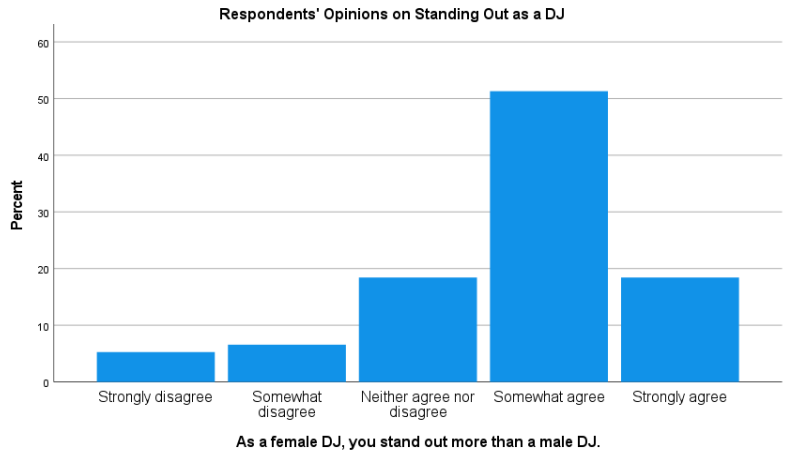

Figure 9. Respondents' opinions on standing out as a DJ

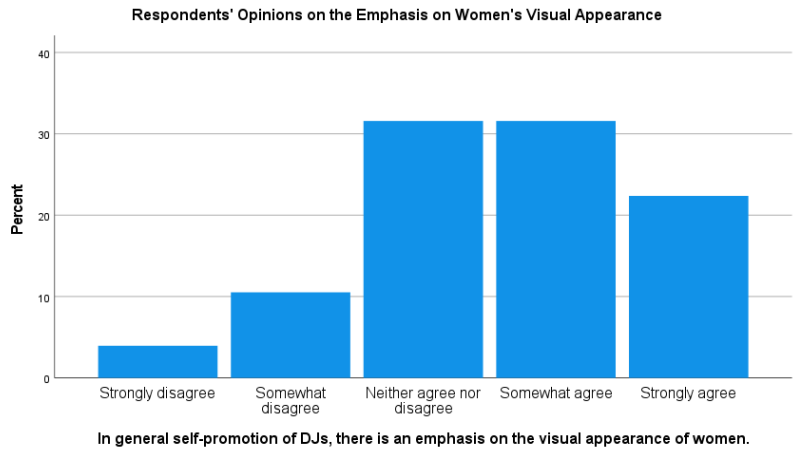

Figure 10. Respondents' opinions on the emphasis on women's visual appearance

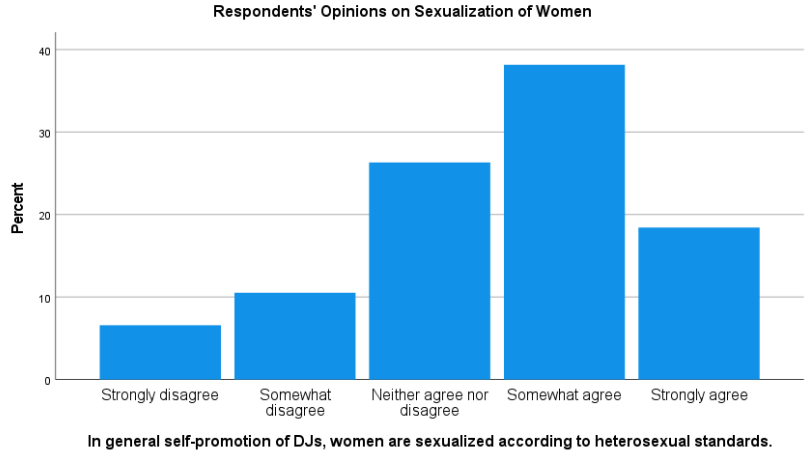

Figure 11. Respondents' Opinions on Sexualization of Women

5. Conclusion

DJs have become indispensable in the music scene. Since DJing became an occupation, men have been dominating the EDM industry (Farrugia, 2012). When entering the male-dominated scene, female DJs face a gender gap and deal with different issues. Identifying the gender gap and the issues associated with it can help combat harmful stereotypes, change prevailing norms and promote role models. Besides a more inclusive and equal EDM industry, this can lead to more equality in society at large as public awareness on gender-based hierarchies will be raised. Since the DJ gender gap is a relatively new research topic, there is generally limited scientific research and data available on the issues of female DJs. Therefore, this research aimed to find an answer to the research question:

To what extent does the DJ gender gap exist in the European EDM industry today, and what barriers do female DJs face?

Furthermore, this study aimed to answer the sub-question:

How has the gender gap changed over the years?

The following hypotheses were formulated:

H1: There is a relationship between gender and attributes necessary in getting DJ performances and becoming a successful DJ.

H2: Female DJs face more barriers regarding DJ technology than male DJs.

H3: Female DJs face more barriers in self-promotion and self-representation than male DJs.

In order to find an answer, desk research was used and a survey was conducted. The results provide an overview of the current situation and extends and structures existing perspectives on female struggles and gender inequalities.

The gender gap exists in different ways. First, the DJ gender gap can be considered a barrier in itself, as for women, it is more difficult to enter successfully the DJ scene. In 'the DJ gender gap', the gender gap in terms of participation, payment, access, rights, and advantages was discussed. In terms of participation, this research has clearly demonstrated that male DJs are predominant in the European industry; the male participants accounted for 63.2% of the survey responses and the female participants for 34.2%. Moreover, on average, 94.6% the DJs performing on the mainstage of European EDM festivals were male and 3.9% are female in the period from 2010 to 2019. There was almost no increase in the number of

female DJs performing on the mainstage over time. This is how the gender gap changed over the years. The fact that less women are headliners can be a possible explanation for the gender pay gap; On average, a female DJ earns 36.4% less than a male DJ. This is almost equal to European female artists who earn on average 30% less than their male colleagues (Women in Music, 2019). Although less women are headliners, female DJs face no more barriers regarding getting performances compared to men. Also, they feel included in DJ networks, which contradicts the results of Reitsamer (2011). These findings show that the gender gap in terms of access is almost non-existent. However, men have the ability to connect with peers faster, because they are from the same gender. As being male and having certain attributes is the norm, female DJs have to deal with prevailing gender expectations, which may be an explanation for the fact that women believe that men have more rights in DJing than women, while men did not. Attributes necessary for getting DJ performances and becoming a successful DJ were generally ascribed to both genders, which was in contrast to existing literature (Gavanas & Reitsamer, 2016; Reitsamer, 2011). Thus, these attributes cannot be considered a barrier for women in the European EDM industry, although men were somewhat less likely than women to attribute perseverance, need for recognition and assertiveness to women. So, the hypothesis is rejected. Even though female DJs face different barriers when entering the European EDM industry, they also have an advantage. As being one of the few women, it is easier to get noticed in a scene with a lot of competition and thus might have more chance to get a booking, which was also argued by Gavanas and Reitsamer (2016). This can be connected to the finding that women found it slightly easier to get a performance than men.

Sexual identity in relation to the gender gap was investigated based on the finding that Gavanas and Reitsamer (2016) do mention sexual identity as a barrier for female DJs without explaining it explicitly. The amount of homosexual and pansexual DJs is too small to draw valid conclusions, so only heterosexual and bisexual DJs were included in the analysis. It is very likely that the relationships found between sexual orientation and experiences with technical competence and self-promotion are mainly related to the fact that the vast majority of bisexual respondents was female, thus, being it very likely that they face barriers because of their gender rather than their sexual identity.

Furthermore, female DJs face barriers related to self-promotion and self-representation in the European EDM industry, so the third hypothesis is accepted. This is because a lot of attention is paid to their visual appearance and they are often sexualized according to heterosexual standards. As a result, women pay more attention to how they look in

promotions than men. There is a contradiction: when a woman dresses too sexy, others may think that she only got a gig because she is pretty. This indirectly relates to the gender expectation that she may be less technical than a male DJ. However, she needs to look pretty in other to get gigs. In fact, a significant number of women DJs believe that they sometimes get a gig based on their appearance or gender. This contradiction means that female DJs have to find a balance in the way they dress: she cannot be too attractive, as this leads to others doubting her technical skills, but also not too unattractive because then she will get fewer bookings.

It can be concluded that technology is the main barrier female DJs face in the EDM industry, as women are considered to be less technically competent than men. So, the second hypothesis is accepted. This in in line with earlier research that found that expected gender roles influence the idea that women are less capable of being technically skilled (Gadir, 2016; Puwar, 2004). This gender expectation confirms that there are prevailing stereotypes in the EDM industry. Due to stereotypes, the idea prevails that women lack technical skills, which relates to the assumption that they only get gigs because of their looks or gender. As a consequence, it may be harder for female DJs to shift the audience's attention from her appearance to her music, making it more difficult to build a career solely on her music. This is harmful to the access and professional growth of female DJs. In order to change these stereotypes and fight for a place in this male-dominated industry, women have to prove they are as competent as male DJs. As long as women lack representation and there are few female role-models in the EDM industry, the prevailing stereotypes will continue to exist. Only when there are more female DJs in the industry, demonstrating their technical skills, will DJ equipment be regarded as gender-neutral. Then, women may no longer be regarded as less technically competent than men.

All in all, the DJ gender gap can be considered a barrier in itself and exists in terms of participation, payment, and advantages, but in a lesser degree in terms of access, rights and sexual identity. Furthermore, female DJs face more barriers regarding technology and in self-promotion and self-representation than male DJs, which makes it harder for them to participate in the European EDM industry .

In the process of gender equality in EDM environments, booking agents, promoters, venue managers and programmers play an important role. It is important to that these stakeholders take concrete actions to reduce the gender gap. To change the prevailing gender expectations of female DJs, the standard must be broken by putting strategies into practice. Practical ideas include the encouragement of gender-conscious recruitment policies, contracts

that insist upon equal opportunity, and promotion that does not include oversexualization of female DJs. Of course, appearance will always be important, as long as women are not sexualized according to heterosexual standards. This will allow her to also put focus on her music and technical skills.

Not only in the EDM industry, but also in other sectors where technology plays an important role, it may difficult to succeed as a woman, as one's technical skills are more likely to be doubted. By creating public awareness gender inequality in public facing creative industries with stars, like the EDM industry, existing beliefs and perceptions of reality may be changed, creating inclusive and equal societies.

This present research adds to the existing qualitative studies that mainly explored experiences of DJs regarding barriers and prejudices. Both Farrugia (2012) and Gavanas and Reitsamer (2013) argue that gender is central to the performing identities of female DJs. Later research by Gadir (2016) and Gavanas and Reitsamer (2016) add to this by revealing different aspects of the gendering of DJs in EDM culture, finding that the industry is full of problematic attitudes towards gender. This research was inspired by this literature and the added a new perspective on the current issue by examining to what extent the gender gap exists and to what extent there is an actual difference between the barriers female DJs and male DJ face. Men's and women's averages and percentages of statements about the DJ gender gap itself, technology, self-promotion and self-representation and sexual identity were constantly compared to each other in order to find out whether there was an actual gender gap in the EDM industry. The percentages and averages were supplemented with quotes by the respondents in order to compare the characteristics and experiences of men and women and to examine relationships between characteristics. The quantitative method allowed to generalize the findings to DJs in the European EDM industry.

This study has several more limitations. First, this research only distinguishes between male and female. Nowadays, there are not only two categories within gender, but multiple. Even though the survey included an option 'non-binary / third gender', a participant might feel disrespected by leaving out their gender. Future research should, therefore, take into account other categories of gender. Second, the analysis only focuses on DJs, while most famous DJs are mainly producers and have become successful through their music. One of the male respondents send an email in which he explained that he experiences that the importance of DJs and the importance of music producers vary per music genre. In his opinion, the gender ratio is most likely to become more equal in genres where music producers are less valued than DJs. In this present research, no distinction is made between different music

genres. Thus, more in-depth research on DJs, producers and different music genres could give a more complete image of the gender gap across genres in the EDM industry. Third, to the researcher's knowledge, no survey had been created to measure certain dimensions of the DJ gender gap in the EDM industry before. Therefore, questions and scales were made based on existing literature. However, creating reliable scales to measure one concept of the DJ gender gap was very difficult. A quantitative study could further improve the survey by testing it until a high reliability is met. Finally, it is important to note that this study is small-scaled. As a result, this relatively limited sample of DJs cannot provide a generalizable claim about male and female DJs' perception on the gender gap in the European EDM industry. Although the amount of respondents is not enough to control for gender, they do provide a preliminary insight on the extent of the gender gap and the barriers different genders face. Future research is needed to examine this topic more deeply.

All in all, this research has broadened and to structured the current literature on the DJ gender gap in the EDM industry by discussing findings that can guide future academic and debate and contribute to progress in gender equality issues.

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Appendix A

DJs in the electronic dance music industry

SECTION 1

Q1.1
Welcome to this survey about **DJs and the DJ gender gap in the electronic dance music industry**. Thank you for participating!

Today, there is still a huge gender gap in the DJ scene. This study aims to research this essential topic. By completing this survey, you are making an important contribution which can change the situation in the future.

In total, filling out the survey should take approximately **5-10 minutes**. Keep in mind that there are no right or wrong answers, since those are your personal experiences. Please be assured that your responses will be kept completely **confidential and anonymous**. The collected data will be used for research purposes only. The data will be saved securely and deleted after the research.

If you want your (stage)name to be added in the word of thanks of the research, feel free to fill in your (stage)name at the end of the survey.

If you have any questions or comments about the study, you can always send an e-mail to mediastudieserasmusuniversity@hotmail.com.

Thank you again for your participation!

With kind regards,
Lisanne Storm

Master Student Media Studies, Erasmus University Rotterdam

Q1.2 Extra information about the survey

Q1.3 I understand that my participation in this study is voluntary and anonymous. My answers will be used for research purposes only.

- ○ I agree, start the survey (1)
- ○ I disagree, I do not wish to participate (2)

SECTION 2

Q2.1 What is your age?

_____

Q2.2 What gender do you identify with?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)

Q2.3 What is your nationality?

▼ Albanian (1) ... Vatican (46)

Q2.4 What is your sexual orientation?

- ○ Heterosexual (1)
- ○ Homosexual (2)
- ○ Bisexual (3)
- ○ Other, namely (4) _____
- ○ Prefer not to say (5)

Q2.5 For how many years have you been a DJ?

▼ 1 (1) ... 21 or more (21)

Q2.6 Which main genre do you play most often?

- ○ Ambient (18)
- ○ Breakbeat (14)
- ○ Chillout (25)
- ○ Disco (12)
- ○ Drum and Bass (7)
- ○ Dubstep (10)
- ○ Electro (11)
- ○ Experimental (17)
- ○ Garage (9)
- ○ Grime (20)
- ○ Hardcore (15)
- ○ Hardstyle (23)
- ○ House (5)
- ○ Juke (24)
- ○ Jungle (8)
- ○ Moombahton (22)
- ○ Techno (6)
- ○ Trance (13)
- ○ Trap (21)
- ○ Urban (26)
- ○ Other, namely (19) _____

Q2.7 If you play multiple genres, you can optionally list them here

_____

Q2.8 What kind of events are you booked for mostly? (allocate 100% in total)

_____ Club (1)
_____ Festival (2)
_____ Rave (3)
_____ Bar (4)
_____ Private events (corporate event, house party etc.) (5)
_____ Other, namely (6)

Q2.9 How often do you have a gig (during "normal" times, so, before COVID-19)?

- ○ About several times a week (1)
- ○ About once a week (2)
- ○ About once a month (3)
- ○ About several times a year (4)
- ○ About once a year (5)

Q2.10 How much do you ask for a gig per hour in € (including equipment and VAT)?

_____

SECTION 3

Q3.1 Please answer the following questions about DJ equipment and performances.

Q3.2 To what extent do you agree with the following statements?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
When I am DJing, I know how the equipment works. (1)	○	○	○	○	○
I have been encouraged by my environment to learn about the technical aspects of DJing. (2)	○	○	○	○	○
When I am DJing, people doubt whether I know how the equipment works. (3)	○	○	○	○	○
Knowing about technology is an essential precondition for becoming a successful DJ. (4)	○	○	○	○	○
I often feel like I have to prove myself as a DJ. (5)	○	○	○	○	○
I feel like other people consider me a good DJ. (9)	○	○	○	○	○

Q3.3 In general, which characteristics do you think are typical for which gender?

	Men (1)	Women (2)	Both (4)
Perseverance (1)	○	○	○
Need for recognition (13)	○	○	○
Tenacity (14)	○	○	○
Assertiveness (2)	○	○	○
Drive for success (16)	○	○	○

Q3.4 Do you think there are (perceived or actual) differences between men and women regarding the competences they have in DJing? (e.g. did you have specific experiences in this regard? Or do you have examples of being considered incompetent in DJing)

_____

SECTION 4

Q4.1 Please answer the following questions about self-promotion as a DJ. Self-promotion includes different forms of marketing and branding to advance yourself as a DJ.
Q4.2 To what extent do the following statements apply to you?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I think self-promotion is important. (1)	○	○	○	○	○
I need a lot of time for my self-promotion. (2)	○	○	○	○	○
I am very good in promoting myself. (3)	○	○	○	○	○
Self-promotion is an essential precondition for becoming a successful DJ. (4)	○	○	○	○	○
In promotion, I pay attention to my visual appearance. (5)	○	○	○	○	○
Sometimes, I feel like I get a gig because of my appearance. (6)	○	○	○	○	○
Sometimes, I feel like I get a gig because of my gender. (7)	○	○	○	○	○
As a female DJ, you stand out more than a male DJ. (8)	○	○	○	○	○
In general self-promotion of DJs, there is an emphasis on the visual appearance	○	○	○	○	○

of women. (9)					
In general self-promotion of DJs, women are sexualized according to heterosexual standards. (10)	○	○	○	○	○

Q4.3 What do you think is noticeable about the self-promotion of male and / or female DJs?

_____

SECTION 5

Q5.1 Please answer the following questions about men and women DJs.

Q5.2 To what extent do the following statements apply to you?

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I find it difficult to get a gig (during "normal" times, so, before COVID-19). (5)	○	○	○	○	○
I feel included in informal DJ scene networks. (2)	○	○	○	○	○
I receive recognition for my DJ performances. (6)	○	○	○	○	○
There are more male DJs than female DJs. (1)	○	○	○	○	○
Men have more rights in DJing than women. (3)	○	○	○	○	○
Men have more advantages in DJing than women. (4)	○	○	○	○	○

Q5.3 If you experience it being difficult to get a gig (during "normal" times, so, before COVID-19), why do you think it is?

_____

Q5.4 Do have an example of when there was a difference in the treatment between men and women DJs?

_____

Q5.5 What are advantages and disadvantages of being a male DJ?

_____

Q5.6 What are advantages and disadvantages of being a female DJ?

_____

SECTION 6

Q6.1 Do you have any other comments or questions?

_____

Q6.2 If you want your (stage)name to be added in the word of thanks, please feel free to add your (stage)name here. The results cannot be traced back to you. Your name will only be added to the word of thanks and deleted afterwards.

_____

Q6.3 If you would like to receive the results of the research afterwards, please feel free to submit your email address. Your email address will be deleted after sending the results.

_____

Appendix B

Responses of male DJs

Appendix B1

To what extent do you agree with the following statements? - When I am DJing, I know how the equipment works.

	N	%
Strongly disagree	1	2,1%
Neither agree nor disagree	1	2,1%
Somewhat agree	12	25,0%
Strongly agree	34	70,8%

Appendix B2

To what extent do you agree with the following statements? - When I am DJing, I know how the equipment works.

	N	%
Strongly disagree	1	2,1%
Neither agree nor disagree	1	2,1%
Somewhat agree	12	25,0%
Strongly agree	34	70,8%

Appendix B3

To what extent do you agree with the following statements? - When I am DJing, people doubt whether I know how the equipment works.

	N	%
Strongly disagree	28	58,3%
Somewhat disagree	11	22,9%
Neither agree nor disagree	5	10,4%
Somewhat agree	1	2,1%
Strongly agree	3	6,3%

Appendix B4

To what extent do you agree with the following statements? - Knowing about technology is an essential precondition for becoming a successful DJ.

	N	%
Strongly disagree	5	10,4%
Somewhat disagree	4	8,3%
Neither agree nor disagree	5	10,4%
Somewhat agree	23	47,9%
Strongly agree	11	22,9%

Appendix B5

To what extent do you agree with the following statements? - I often feel like I have to prove myself as a DJ.

	N	%
Strongly disagree	4	8,3%
Somewhat disagree	7	14,6%
Neither agree nor disagree	10	20,8%
Somewhat agree	18	37,5%
Strongly agree	9	18,8%

Appendix B6

To what extent do you agree with the following statements? - I feel like other people consider me a good DJ.

	N	%
Somewhat disagree	1	2,1%
Neither agree nor disagree	10	20,8%
Somewhat agree	30	62,5%
Strongly agree	7	14,6%

Appendix B7

To what extent do the following statements apply to you? - I think self-promotion is important.

	N	%
Somewhat disagree	2	4,2%
Neither agree nor disagree	8	16,7%
Somewhat agree	20	41,7%
Strongly agree	18	37,5%

Appendix B8

To what extent do the following statements apply to you? - I need a lot of time for my self-promotion.

	N	%
Strongly disagree	4	8,3%
Somewhat disagree	10	20,8%
Neither agree nor disagree	12	25,0%
Somewhat agree	11	22,9%
Strongly agree	11	22,9%

Appendix B9

To what extent do the following statements apply to you? - I am very good in promoting myself.

	N	%
Strongly disagree	8	16,7%
Somewhat disagree	17	35,4%
Neither agree nor disagree	13	27,1%
Somewhat agree	8	16,7%
Strongly agree	2	4,2%

Appendix B10

To what extent do the following statements apply to you? - Self-promotion is an essential precondition for becoming a successful DJ.

	N	%
Strongly disagree	2	4,2%
Somewhat disagree	10	20,8%
Neither agree nor disagree	5	10,4%
Somewhat agree	18	37,5%
Strongly agree	13	27,1%

Appendix B11

To what extent do the following statements apply to you? - In promotion, I pay attention to my visual appearance.

	N	%
Strongly disagree	7	14,6%
Somewhat disagree	8	16,7%
Neither agree nor disagree	9	18,8%
Somewhat agree	16	33,3%
Strongly agree	8	16,7%

Appendix B12

To what extent do the following statements apply to you? - Sometimes, I feel like I get a gig because of my appearance.

	N	%
Strongly disagree	30	62,5%
Somewhat disagree	8	16,7%
Neither agree nor disagree	5	10,4%
Somewhat agree	3	6,3%
Strongly agree	2	4,2%

Appendix B13

To what extent do the following statements apply to you? - Sometimes, I feel like I get a gig because of my gender.

	N	%
Strongly disagree	33	68,8%
Somewhat disagree	7	14,6%
Neither agree nor disagree	5	10,4%
Somewhat agree	2	4,2%
Strongly agree	1	2,1%

Appendix B14

To what extent do the following statements apply to you? - As a female DJ, you stand out more than a male DJ.

	N	%
Strongly disagree	3	6,3%
Somewhat disagree	3	6,3%
Neither agree nor disagree	10	20,8%
Somewhat agree	24	50,0%
Strongly agree	8	16,7%

Appendix B15

To what extent do the following statements apply to you? - In general self-promotion of DJs, there is an emphasis on the visual appearance of women.

	N	%
Strongly disagree	2	4,2%
Somewhat disagree	6	12,5%
Neither agree nor disagree	14	29,2%
Somewhat agree	15	31,3%
Strongly agree	11	22,9%

Appendix B16

To what extent do the following statements apply to you? - In general self-promotion of DJs, women are sexualized according to heterosexual standards.

	N	%
Strongly disagree	4	8,3%
Somewhat disagree	5	10,4%
Neither agree nor disagree	14	29,2%
Somewhat agree	19	39,6%
Strongly agree	6	12,5%

Appendix B17

To what extent do the following statements apply to you? - I find it difficult to get a gig (during "normal" times, so, before COVID-19).

	N	%
Strongly disagree	4	8,3%
Somewhat disagree	9	18,8%
Neither agree nor disagree	17	35,4%
Somewhat agree	13	27,1%
Strongly agree	5	10,4%

Appendix B18

To what extent do the following statements apply to you? - I feel included in informal DJ scene networks.

	N	%
Strongly disagree	5	10,4%
Somewhat disagree	9	18,8%
Neither agree nor disagree	4	8,3%
Somewhat agree	26	54,2%
Strongly agree	4	8,3%

Appendix B19

To what extent do the following statements apply to you? - I receive recognition for my DJ performances.

	N	%
Somewhat disagree	1	2,1%
Neither agree nor disagree	6	12,5%
Somewhat agree	27	56,3%
Strongly agree	14	29,2%

Appendix B20

To what extent do the following statements apply to you? - There are more male DJs than female DJs.

	N	%
Neither agree nor disagree	4	8,3%
Somewhat agree	14	29,2%
Strongly agree	30	62,5%

Appendix B21

To what extent do the following statements apply to you? - Men have more rights in DJing than women.

	N	%
Strongly disagree	28	58,3%
Somewhat disagree	7	14,6%
Neither agree nor disagree	8	16,7%
Somewhat agree	4	8,3%
Strongly agree	1	2,1%

Appendix B22

To what extent do the following statements apply to you? - Men have more advantages in DJing than women.

	N	%
Strongly disagree	20	41,7%
Somewhat disagree	9	18,8%
Neither agree nor disagree	11	22,9%
Somewhat agree	5	10,4%
Strongly agree	3	6,3%

Appendix C

Responses of female DJs

Appendix C1

To what extent do you agree with the following statements? - When I am DJing, I know how the equipment works.

	N	%
Somewhat disagree	1	3,8%
Neither agree nor disagree	1	3,8%
Somewhat agree	6	23,1%
Strongly agree	18	69,2%

Appendix C2

To what extent do you agree with the following statements? - I have been encouraged by my environment to learn about the technical aspects of DJing.

	N	%
Strongly disagree	2	7,7%
Somewhat disagree	4	15,4%
Neither agree nor disagree	5	19,2%
Somewhat agree	10	38,5%
Strongly agree	5	19,2%

Appendix C3

To what extent do you agree with the following statements? - When I am DJing, people doubt whether I know how the equipment works.

	N	%
Strongly disagree	7	26,9%
Somewhat disagree	8	30,8%
Neither agree nor disagree	4	15,4%
Somewhat agree	3	11,5%
Strongly agree	4	15,4%

Appendix C4

To what extent do you agree with the following statements? - Knowing about technology is an essential precondition for becoming a successful DJ.

	N	%
Strongly disagree	1	3,8%
Somewhat disagree	3	11,5%
Neither agree nor disagree	5	19,2%
Somewhat agree	7	26,9%
Strongly agree	10	38,5%

Appendix C5

To what extent do you agree with the following statements? - I often feel like I have to prove myself as a DJ.

	N	%
Somewhat disagree	3	11,5%
Neither agree nor disagree	2	7,7%
Somewhat agree	9	34,6%
Strongly agree	12	46,2%

Appendix C6

To what extent do you agree with the following statements? - I feel like other people consider me a good DJ.

	N	%
Neither agree nor disagree	1	3,8%
Somewhat agree	16	61,5%
Strongly agree	9	34,6%

Appendix C7

To what extent do the following statements apply to you? - I think self-promotion is important.

	N	%
Somewhat disagree	1	3,8%
Neither agree nor disagree	2	7,7%
Somewhat agree	9	34,6%
Strongly agree	14	53,8%

Appendix C8

To what extent do the following statements apply to you? - I need a lot of time for my self-promotion.

	N	%
Strongly disagree	1	3,8%
Somewhat disagree	4	15,4%
Neither agree nor disagree	5	19,2%
Somewhat agree	10	38,5%
Strongly agree	6	23,1%

Appendix C9

To what extent do the following statements apply to you? - I am very good in promoting myself.

	N	%
Strongly disagree	1	3,8%
Somewhat disagree	4	15,4%
Neither agree nor disagree	10	38,5%
Somewhat agree	6	23,1%
Strongly agree	5	19,2%

Appendix C10

To what extent do the following statements apply to you? - Self-promotion is an essential precondition for becoming a successful DJ.

	N	%
Strongly disagree	1	3,8%
Somewhat disagree	1	3,8%
Neither agree nor disagree	3	11,5%
Somewhat agree	16	61,5%
Strongly agree	5	19,2%

Appendix C11

To what extent do the following statements apply to you? - In promotion, I pay attention to my visual appearance.

	N	%
Somewhat disagree	1	3,8%
Neither agree nor disagree	4	15,4%
Somewhat agree	10	38,5%
Strongly agree	11	42,3%

Appendix C12

To what extent do the following statements apply to you? - Sometimes, I feel like I get a gig because of my appearance.

	N	%
Strongly disagree	3	11,5%
Somewhat disagree	5	19,2%
Neither agree nor disagree	7	26,9%
Somewhat agree	9	34,6%
Strongly agree	2	7,7%

Appendix C13

To what extent do the following statements apply to you? - Sometimes, I feel like I get a gig because of my gender.

	N	%
Strongly disagree	2	7,7%
Somewhat disagree	4	15,4%
Neither agree nor disagree	4	15,4%
Somewhat agree	10	38,5%
Strongly agree	6	23,1%

Appendix C14

To what extent do the following statements apply to you? - As a female DJ, you stand out more than a male DJ.

	N	%
Strongly disagree	1	3,8%
Somewhat disagree	2	7,7%
Neither agree nor disagree	4	15,4%
Somewhat agree	13	50,0%
Strongly agree	6	23,1%

Appendix C15

To what extent do the following statements apply to you? - In general self-promotion of DJs, there is an emphasis on the visual appearance of women.

	N	%
Strongly disagree	1	3,8%
Somewhat disagree	2	7,7%
Neither agree nor disagree	9	34,6%
Somewhat agree	9	34,6%
Strongly agree	5	19,2%

Appendix C16

To what extent do the following statements apply to you? - In general self-promotion of DJs, women are sexualized according to heterosexual standards.

	N	%
Strongly disagree	1	3,8%
Somewhat disagree	3	11,5%
Neither agree nor disagree	6	23,1%
Somewhat agree	10	38,5%
Strongly agree	6	23,1%

Appendix C17

To what extent do the following statements apply to you? - I find it difficult to get a gig (during "normal" times, so, before COVID-19).

	N	%
Strongly disagree	2	7,7%
Somewhat disagree	12	46,2%
Neither agree nor disagree	7	26,9%
Somewhat agree	2	7,7%
Strongly agree	3	11,5%

Appendix C18

To what extent do the following statements apply to you? - I feel included in informal DJ scene networks.

	N	%
Somewhat disagree	6	23,1%
Neither agree nor disagree	3	11,5%
Somewhat agree	15	57,7%
Strongly agree	2	7,7%

Appendix C19

To what extent do the following statements apply to you? - I receive recognition for my DJ performances.

	N	%
Neither agree nor disagree	2	7,7%
Somewhat agree	17	65,4%
Strongly agree	7	26,9%

Appendix C20

To what extent do the following statements apply to you? - There are more male DJs than female DJs.

	N	%
Somewhat agree	7	26,9%
Strongly agree	19	73,1%

Appendix C21

To what extent do the following statements apply to you? - Men have more rights in DJing than women.

	N	%
Strongly disagree	7	26,9%
Somewhat disagree	7	26,9%
Neither agree nor disagree	7	26,9%
Somewhat agree	2	7,7%
Strongly agree	3	11,5%

Appendix C22

To what extent do the following statements apply to you? - Men have more advantages in DJing than women.

	N	%
Strongly disagree	4	15,4%
Somewhat disagree	8	30,8%
Neither agree nor disagree	9	34,6%
Strongly agree	5	19,2%