

Sonic Collage: A video-mapping exploration of female and LGBTQIA+ amateur electronic music and sound artists relations with audio technologies

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Title

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Abstract

In music composition, women, queer, and non-normative bodies often face marginalization, mirroring patterns seen in predominantly white male-dominated fields. This Art-based research unearths the creative ideas and composition processes of six female and LGBTQIA+ amateur electronic music and sound practitioners. It explores the potential of electronics as a liberating medium, echoing Laurie Spiegel's statement, and examines whether this technological usage can be deemed as a good technology. Employing friendship-as-a-method for qualitative interviews, and thematic analysis for data comprehension, the research show that community support is crucial for unlocking artistic potential and countering gender biases in music technology. Also highlight that these music practice empowers individuals to express personal narratives and artistic self-discovery. The analysis of the interviews reveals progress towards gender balance in European counterculture but persistent gendered hierarchies challenge true equality, emphasizing the ongoing struggle for representation and diversity in technical roles. The dissemination of project embraces avant-garde aesthetics. Through video mapping techniques, research extends beyond academic boundaries, sparking dialogues on gender and technology.

Keywords

Feminist musicology, post-humanism, art-based research, friendship-as-a-method, electronic music and sound, gender, technology, video-mapping, female and LGBTQIA+, amateur musicians.

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1. Introduction	4
2. State of the art	5
3. Theoretical Framework	7
Feminist Musicology	7
Gift-Exchange Economies	7
Sound Studies	7
Posthumanist Theory	8
4. Research purposes and objectives	9
5. Methodology	9
5.1. Qualitative inquiry	11
5.1.1. Participant sampling	11
5.1.2. Participant Bio	12
5.1.2. Data analysis and interpretation strategies	13
5.2. Creative Video- mapping installation	14
5.2.1. Content creation and aesthetics	15
5.2.2. Representation and audience	15
6. Results	16
6.1. Interviews	16
6.2. Audiovisual representation	19
7. Conclusions	20
8. Limitations	21
9. References	22
10. Appendix	25

1. Introduction

Electronic music is a complex and multifaceted and encompasses a wide range of styles, genres, subgenres, and practices. It is characterized by its use of electronic instruments and technology, and is often distinguished by its relationship to capitalism, mass culture, and commercialism. As Joanna Demers define in her book *Listening through the noises*, electronic music can be divided into three metagenres: institutional electroacoustic music, electronica, and sound art. I will use her definition for this project, where institutional electroacoustic music is characterised by its reliance on government funding, private industry, and educational institutions. It is often viewed as elite and intellectual, and is typically performed by small communities of academics and practitioners. Sound art, on the other hand, is a genre that emphasizes the use of non-narrative sound and often takes place in specific contexts and it may have a strong relation with video. Electronica, meanwhile, is a commercial genre that is marketed to large audiences and is often associated with popular music (Demers, 2010).

The use of electronic instruments and technology has helped to create new sounds and styles, as well as new ways of interacting with audio and sound, like the emergence of the figure of DJ, as highlighted by Demers, disc jockey is anyone who plays recordings on the radio or at a club, party, or concert. In live settings, the DJ plays record players, compact-disc players, or laptops and, in the case of the first two, often turns the disc backward and forward to change the speed of playback or to add scratching noises (Demers, 2010), and laptop DJing may include a hardware to manipulate live the digital music files. Electronic instruments and audio technology had been embraced by marginalised bodies, defined by Judith Butler as excluded bodies based on societal norms and expectations, enforced by language, institutions, and cultural practices (Butler, 2011). New subjects involved, evolved into pieces of great musical and sound interest and reshaped the notions of musical talent, as well as allowing many amateur musicians to craft professional-grade music using accessible software and equipment. For that reason electronica and sound-art can also be understood as a popular practice of self-expression free from commercial constraints.

As a Video Jockey (VJ) with over a decade of experience synchronizing visuals with audio, I have immersed myself in nightclub and electronic music environments, where light and imagery complement sonic experiences. I started to VJ at Punk concerts, and electronic music venues known as “free parties” and “teknivals”, gatherings of fans of electronic music at the margins of the market and the state (Petiau, 2015), in other words, gift exchange economy venues that take place around Europe since beginning of the 90s, where donations are expected to cover expenses or for a benefit cause. The first thing that attracted me to these events was the fact that they were safer and more respectful environments than a nightclub. I have always been interested in music technology and I am surrounded by it, even though I don’t know how to use any instrument, acoustic or electronic, nor my voice, and I rarely play music for others. On the other hand, I enjoy music and sound very much, which is why I chose to be a VJ and a video mapping technician. In both cases, I can tell a visual story in synchrony with music and sound created by others. Apart from my interest in audiovisual technology, another thing that motivates me to be part of these subcultural events as an

organizer and performer is the lack of diversity behind the dj booth. Similar situations happen in commercial electronic music venues, where I also participate as professional VJ, light and video mapping technic. As female: Pressure FACTS2023 survey on gender representation in electronic music festivals worldwide reveals that from 2012 to 2023, 20.9% of the acts are female, 69.3% are male, 7.1% are mixed acts, 1.3% are non-binary acts, and 1.9% are unidentified (female: Pressure, 2024). These survey show that still a lot of work is necessary to be done to achieve diversity in music practices.

To add my little grain of sand to this topic and because I believe that inspirational models and diversity are very important for our society, I decided to conduct qualitative interviews with female and LGBTQIA+ amateur electronic music and sound artists from the European counterculture scene. Employing thematic analysis and friendship-as-a-method, I delve into the artists' narratives, exploring their technological engagements and the transformative potential of electronic music.

The methodology employed in this study aligns with an Art-based research approach, as outlined by Patricia Leavy (2020). Art-based research involves integrating principles from the creative arts into research endeavors. These practices encompass a range of methodological tools utilized by researchers throughout various stages of the research process, encompassing data collection, analysis, interpretation, and representation (Leavy, 2020).

In this inquiry, a creative art approach is integrated into the representation of findings to effectively fulfill the research objectives. By visualizing the research findings through video-mapping, consider it an advance multidisciplinary form of expression resulting from the evolution of art and technology and popularly use since the first decade of XXI century in publicity, entertainment and technological research environments (Arbaizar, 2020), I aspire to engage a broader audience in conversations on music, technology, and gender representation, fostering inclusivity and inspiring new bodies and future generations in electronic music and sound practices, including myself.

From my stand point, music technology and emerging forms of presenting fieldwork can both be powerful tools for sharing knowledge, desires, frustrations, and discomfort. Art is able to unearth knowledge that otherwise will be missed and reach more people than an academic paper.

2. State of the art

The lack of female and LGBTQIA+ electronic musician representation behind the DJBooth, in music books, and in documentaries is worrisome (English et al., 2024; female:pressure Trouble Makers, 2024; Gadir, 2017; Gray, 2022; Olszanowski, 2012; Strong & Gadir, 2023). Most audiovisual documents available on this topic depict white men as pioneers or fathers of electronic music practices (Olszanowski, 2012). The Canadian film and television production company Waveshaper Media has a great influence on this aspect. All the documentaries and videos they produce leave female and LGBTQIA+ people aside; of the 65 videos published on Youtube, only 5 focus on female music influences. Documentaries like *Modulation: Cinema for the Ear* (Lee, 1998), *Moogs* (Fjellestad, 2004), and *People Who Do Noise* (Cornelius, 2008), together with books like *Modulations: A History of Electronic Music: Throbbing Words on Sound* (Shapiro & Lee, 2000) and

Renegade Snares: The Resistance and Resilience of Drum & Bass (Murphy & Loben Carl, 2021), perpetuate the imaginary that females and LGBTQIA+ are little or not existing in electronic music.

On the other hand, movies like *Girls Gone Vinyl* (Lafemme, 2013), *Sisters With Transistors* (Rovner, 2020), and *Underplayed* (Lee, 2020) are good citations on how other subjects rather than white men get involved in electronic sound practices. They promote women in electronic music as well as circulate information about marginalized bodies in music production. The interactive documentary *Microfemininewarfare* (Olszanowski, 2013) and the book *Pink Noises* (Rodgers, 2010) depict how women make use of audio technologies in different ways and how these practices differ from phallogocentric ones. Rodgers, echoing McCartney's observation, suggests that women may adopt a unique approach to music, viewing it as a strategy for flexibility. Female and LGBTQIA+ artists often switch between roles as DJs, electronic music producers, and sound artists, making it challenging to categorize them based on traditional aesthetic methods.

If we want to understand how music is made and experienced by the artists, as Mark Katz argues, we must investigate its relationship with technology (Katz, 2022). In this research, I will borrow the definition of music technology that Mark Katz proposes, as any tool or system meant to facilitate the creation, preservation, reception or dissemination of music (Katz, 2022). These ideas about music technology will be combined with feminist musicology, sound studies, and gender studies theories (Ruck, 2020).

The representation of the findings of this Art-based research imply an audiovisual installation in the form of video mapping. Making use of new media art is understood as a union of art, technology, and media fields (ERGUN & AYGENC, 2018; Schmitt et al., 2020; Tribe & Jana, 2009). Using video or other art practices to represent the findings of academic research may contribute to developing inclusive, collaborative, and less hierarchical research, blurring distances between researcher and participant (Sendra, 2020; Leavy, 2023). As well as reaching a broader audience. As Arbaizar defines it, video mapping is an audio-visual technique that uses different surfaces to project on, making it an advanced multidisciplinary form of expression where sound, image, and <surface> work together to create an immersive experience (Arbaizar, 2020). The surface and the content projected vary from project to project, as does the relationship between the images and sound. In this project, the video mapping will be in the form of a micro-video mapping, as in "Grandma," an installation developed by the researcher and video artist Maria L. Lázaro. Micro-mapping, in contrast with immersive video mapping, takes place on a smaller surface than a building facade, and normally the chosen surface is related to the content or the storytelling. In the case of "Grandma" the projection surface is several pieces of hand-made soap, representing one of the lost professions of women from the artist's home town (Etopia, 2021). The video mapping will be projected in synchrony with the sound, making the audio as important as the image connecting the surface with the audiovisual medium (Schmitt et al., 2020). The audio will use two novel aspects of sound technology known as sampling and mashup. As defined by Mark Katz, sampling is the extraction and musical repurposing of fragments of existing recordings, and mashup is the combination of two or more recordings into a single piece (Katz, 2010, 2022).

3. Theoretical Framework

Rooted in feminist musicology and critical perspectives, this theoretical framework synthesizes insights from feminist and queer theory, gift-exchange economies, sound studies and post humanist theory; to illuminate the gendered dynamics and power structures at play in electronic music production. As Susan McClary asserts, feminist musicology challenges traditional narratives and seeks to uncover the marginalized voices and experiences within music history (McClary, 2012).

Feminist Musicology

The historical narrative of electronic music indicates a prevailing presence of masculine ideals in sound composition, art, and experimentation, with men predominantly shaping these fields (Armstrong, 2003; Gray, 2022; McCartney, 2012; Rodgers, 2010; Ruck, 2020). The notion that men exhibit a greater inclination towards technology (Armstrong, 2003) directly impacts the historical representation of female and LGBTQIA+ musicians, composers, and sound artists, whose interactions with sound and technology may differ (McCartney, 2012; Ruck, 2020). Approaching electronic music research from a feminist perspective can reveal alternative ways of engaging with technology (Gadir, 2017; Gray, 2022; Olszanowski, 2012; Rodgers, 2010; Ruck, 2020).

Through a queer lens, Ruck explores gender and sexuality in electronic art music, challenging notions of meritocracy and talent in postfeminist contexts. Ruck's work prompts us to critically examine the queer narratives that shape talent recognition and gender representation in electronic music (Ruck, 2020).

Gift-Exchange Economies

Incorporating insights from Petiau's study on gift-exchange economies at Free Parties and Teknivals, this framework explores the alternative modes of participation and community building on the margins of the market and the state. Petiau's work sheds light on the transformative potential of gift-exchange practices in fostering inclusive and participatory music cultures outside traditional market structures (Petiau, 2015).

Sound Studies

In order to comprehend the creation and experience of music, as emphasized by Mark Katz, an exploration of its relationship with technology is essential (Katz, 2022). This research adopts Katz's definition of music technology, which encompasses any tool or system designed to facilitate the creation, preservation, reception, or dissemination of music (Katz, 2022). The dissemination component of this study will incorporate two innovative aspects of sound technology: sampling and mashup. Sampling involves extracting and creatively repurposing fragments of existing recordings, while mashup entails blending two or more recordings into a cohesive piece (Katz, 2010, 2022). By integrating these technological practices into the dissemination process, this research aims to delve into the transformative impact of music technology on the creation and reception of musical works.

In the theoretical framework of this master's thesis, *"Listening through the Noise: The Aesthetics of Experimental Electronic Music"* by Joanna Demers is a pivotal text that underpins the exploration of experimental electronic music aesthetics. Demers' work serves as a theoretical anchor, offering

profound insights into the creative processes, technological advancements, and cultural implications within the realm of electronic music. By dissecting the experimental nature of electronic music, the book illuminates how artists manipulate sound to forge new sonic landscapes and challenge conventional norms. Through an examination of the historical evolution of electronic music aesthetics and the elucidation of key theoretical constructs, Demers provides a theoretical framework for understanding the intricate artistic expressions present in experimental electronic music. Drawing on elements of music theory, cultural analysis, and critical perspectives, Demers' text enriches the discourse surrounding avant-garde electronic soundscapes, making it an indispensable resource for scholars, researchers, and enthusiasts seeking to delve into the innovative dimensions of electronic music.

Posthumanist Theory

Posthumanism recognises that We are not all human to the same extent. As Rosi Braidotti writes: s

‘We’ – the dwellers of this planet at this point in time – are interconnected, but also internally fractured. Class, race, gender and sexual orientations, age and able-bodiedness continue to function as significant markers in framing and policing access to normal ‘humanity’. The critical posthumanities provide a diversified array of the changing perceptions and formations of the ‘human’ in the posthuman era (Braidotti, 2019).

This perspective plays a crucial role in this research by helping determine whether electronic music can be considered a positive technology. As noted by Posthumanist philosopher Rosi Braidotti, in *The Good Robot Podcast*, the idea of good technology is plausible, but it requires some negotiation (McInerney et al., 2021). The concept suggests that technology can be beneficial if it recognizes the varying power dynamics and entitlements that shape different human identities in our world.

From Braidotti's view, "good technology" is technology that empowers marginalized groups, challenges dominant power structures, and fosters more inclusive, ethical modes of being and creating. This resonates with the goals of participants in these electronic music spaces to build more equitable, collaborative communities.

Integrating Braidotti's ideas, we might ask: How can the participants in European electronic music counterculture further develop their technologies and practices in ways that actively dismantle, rather than inadvertently reproduce, gender inequities? What does "good technology" look like in the context of electronic music production, performance and community-building?

This could involve consciously designing technologies and workflows that center the needs and perspectives of women, non-binary and other marginalized creators. It might also mean cultivating pedagogical approaches and mentorship programs that proactively address the gender biases that can shape access to technical skills and resources.

This vision of "good technology" calls us to be vigilant about the ways power dynamics can subtly reassert themselves, even in spaces that aim to be radically inclusive. Applying this lens could help

the participants in these electronic music countercultures more effectively confront the spectral qualities of gender that continue to haunt their communities

By focusing on feminist and queer musicology, gift-exchange economies, sound studies, and post-human theory, this theoretical framework provides a holistic approach to examining the connections between technology and female and LGBTQIA+ amateur electronic music and sound practitioners within European counterculture. This inclusive theoretical framework incorporates perspectives from gift-exchange economies, emphasizing the empowering possibilities of non-traditional participation models in music communities that exist outside conventional market systems.

4. Research purposes and objectives

This study aims to explore the experience and relations of female and LGBTQIA+ amateur composers within the realm of electronic music and sound, with a focus on sparking discussions surrounding gender dynamics and technological advancements. By delving in the landscape of electronic music and sound, this research seeks to introduce fresh perspectives to the cultural and musical spheres, building upon the groundwork laid by scholars such as Tara Rodgers and Magdalena Olszanowski.

The investigation intends to challenge prevailing notions that associate technology predominantly with masculinity, seeking to unravel how electronic music can serve as a platform to challenge conventional assumptions about audio, technology, and gender roles.

Furthermore, the study aims to understand the approaches adopted by female and LGBTQIA+ amateur artists in Europe towards integrating technology into their sonic creations.

Additionally, it seeks to elucidate the intricate relationships that artists share with sound and audio technologies, shedding light on their creative processes and interactions. Moreover, the research explores the collaborative endeavours and community involvements of these artists within the electronic music domain, and assess the extent to which they harness audio and sound technologies as mediums for articulating political ideologies and concepts.

Understanding that sound and image do cultural work, I will use new media to represent the findings in a compelling way to reach an audience outside of academia. Adding new perspectives and understandings about electronic music practices and learning from the voices of female and LGBTQIA+ amateur musicians.

5. Methodology

The study adopts an Art-based research methodology, focusing on qualitative interviews with amateur electronic music artists from European counterculture as the primary data source. The research findings will be presented through an art installation in the form of video mapping. This video mapping will integrate audio recordings by the artists, their interview dialogues, and sounds to synchronize with visual imagery. The visual content will be a blend of images provided by the artists, written text relevant to the research, and computer-generated graphics.

The data collection process involves conducting semi-structured interviews with female and LGBTQIA+ amateur electronic music composers, scheduled in the spring of 2024. A pre-prepared set of questions serves as a flexible guide during the interviews, offering support if needed (Leavy, 2023). The interviews will serve as a platform for discussing the artists' creative work and perspectives, following a feminist inquiry approach that fosters a conversational dynamic between the researcher and participants. A copy of the questionnaire guide has been included in the appendix. Starting with general inquiries about music backgrounds and technology experiences, the interviews progress to specific topics like music preferences, creative processes, performance preparation and gender power dynamics within the European electronic music counter culture. Finally, we wrap up by inquiring about their future plans, aiming to create a welcoming and supportive atmosphere for the participants. Active listening techniques, including the use of probes to encourage elaboration and markers to explore related but tangential themes, guide the interview process (Leavy, 2023).

For the study, we conducted fifty-minute interviews with each participant either via video conference using JitsiMeet or face-to-face, depending on the participants' availability. Five of the interviews were recorded in audio format, with only the first one being captured on video and audio. However, after realizing during the second interview that video recording was unnecessary, especially since the researcher is working independently on this project, physical expressions were deemed unnecessary to document. Subsequently, audio files were created to be uploaded to the speech recognition model for transcription. The interview transcripts were meticulously maintained in verbatim form to preserve all valuable data, with the assistance of Whisper from OpenAI's; running the language model locally on a personal server. The following step was an initial review and correction of the transcripts, implementing thematic analysis proposed by Braun and Clarke (2006, 2017, 2023).

Throughout the interview and analysis phases, ethical considerations played a pivotal role. As the researcher, it was imperative to uphold a sense of respect towards the interviewees, recognizing the potential personal nature of the topics discussed, which might prompt individuals to withhold certain information or opt out of specific discussions. Prior to the interviews, participants were provided with informed consent forms outlining the interview procedures, the nature of questions, data usage protocols, and their right to withdraw, skip questions, halt the interview, or cease recording at any point. Emphasizing transparency, participants were assured of their freedom to discontinue their involvement even post-interviews. Viewing this research as a collaborative effort between myself and the participants, I endeavored to ensure accessibility and committed to sharing the research outcomes with them upon completion of the study.

Drawing inspiration from works like *Pink Noises* (Rodger, 2010) and *Microfemininewarfare* (Olszanowski, 2013), the friendship-as-method approach aims to cultivate a sense of community and mutual respect among all involved parties, potentially paving the way for future collaborations. The participants will be actively engaged in the research process, including the representation of findings, to ensure their voices are accurately portrayed. Maintaining open communication and transparency, as advocated by Olszanowski (2012), will be integral to the project's success.

The friendship-as-method framework by Tillmann-Healy (2003) will be employed to establish a collaborative and egalitarian relationship, transcending traditional researcher-participant hierarchies. Central to the friendship-as-method framework are principles of friendship ethics, care, and respect, emphasizing the importance of informed consent and participant autonomy. Detailed consent forms will be provided, outlining the research procedures and offering participants the opportunity to review findings and representations or withdraw from the study at any stage.

Upon the conclusion of this research, all participants and the researcher will join forces to organize a heartwarming benefit event, showcasing a diverse lineup of performances and installations.

5.1. Qualitative inquiry

5.1.1. Participant sampling

The participants were selected based on their diverse music creation styles and accessibility. A convenience sample approach (Leavy, 2023) was utilized to ensure representation of various electronic music styles and practices within European counterculture. The participants consist of female and LGBTQIA+ amateur electronic music producers and DJs based in Europe, aged between 34 and 44 years. Many of the participants have prior collaborative experiences with the researcher, establishing a friendship-based approach to data collection and representation.

Participants are fully informed about all aspects of the project. Prior to interviews, an informed consent document outlining the risks and benefits of participation, the voluntary nature of involvement in the research, and the right to ask questions and withdraw from the project is provided and signed by participants.

Interviews were conducted either through video conference or face-to-face, based on the participant's availability. In both scenarios, the interviews were audio recorded and transcribed afterwards. Transcription assistance was provided by Whisper from Open AI, utilizing the "base" language model run locally on the personal server. Whisper is a tool developed by Open AI that enables users to run machine learning models locally on your own devices without the need to send the data to an external server or cloud. This practice provides an extra layer of privacy and security, as the data stays on your device, reducing the risk of data exposure or leaks than can occur when sending data to external servers.

The interviews focused on exploring participants' approaches to electronic music and sound, their personal creative practices, their music technology education, and their perspectives on gender representation within the field.

The relationship with participants is grounded in friendship ethics, fostering a personal connection with varying degrees of intimacy, where mutual care and respect are paramount. This reciprocal relationship, characterized by mutual concern and social value (Bennett, 2023), ensures that participants have the necessary support throughout the project. After the data collection phase is completed, participants will receive a summary of the results. They will have the opportunity to listen to the track and confirm if they are in agreement with how the results are being presented.

Additionally, they will review the installation and provide consent for its publication. Participants will have ongoing access to the final piece and can reproduce it for any future events as they wish.

In alignment with the perspectives of Patricia Leavy, bell hooks, and Sara Ahmed in social research, the notion of "giving voice to the voiceless" is often critiqued for implying that certain groups are inherently voiceless or powerless. Instead, these scholars advocate for amplifying the voices of underrepresented groups. By amplifying their voices, researchers can draw attention to the perspectives and experiences of these groups, emphasizing their agency and resilience rather than depicting them as passive recipients of assistance. This approach recognizes the existing voices within these communities and aims to elevate them in a manner that empowers and validates their lived experiences (Leavy, 2023).

Furthermore, in her book *Method Meets Art: Arts-Based Research Practice*, Leavy also addresses this theme, underscoring the importance of integrating arts-based methods to amplify diverse voices and perspectives in research. Therefore, the goal of this inquiry is not to give voice to the voiceless but to act as an amplifier of the artists' viewpoints. By utilizing friendship as a method and establishing personal connections with participants, the project is collaboratively developed, transcending conventional researcher-participant boundaries. As a researcher, my role involves synthesizing the artists' ideas and expressions, giving them a cohesive aesthetic, and sharing them with a wider audience.

5.1.2. Participant Bio

- Skøre: Born in Gran Canaria 35 years ago and now a resident of Berlin for more than a decade, Sofía Puertas is a passionate philology teacher who found a new calling in the vibrant music scene of the city. Starting DJing in Berlin, she discovered a love for music production, particularly for theatre plays. Blending her background in education with a growing interest in music, she had found a unique creative outlet that allows her to express herself through sound and storytelling. Her journey from the Canary Islands to the cultural hub of Berlin has shaped her artistic pursuits and continues to inspire their work in both teaching and music production. www.soundcloud.com/skorethc
- Vudoppia: Valeria, a 34-year-old Italian native, spent the last decade in Amsterdam before embarking on a new adventure as a restaurant owner in Las Palmas de Gran Canaria. With a background as a singer in a hard rock band during her youth, she discovered her passion for electronic music engaging in a HackLab in Amsterdam. Eager to expand her skills, Valeria aspires to study audio engineering, blending her love for music with technical expertise.
- ZoVies: Formerly a body piercer for over 15 years, she has been leaving in Amsterdam for the past decade, now back in Portugal Sofia Vera with 39 year-old is a bass guitar lover. She had the chance to start DJing in Amsterdam more than six years ago and since then she can not stop producing music.
- Bloodhole: Miriam Tesselar with 43-year-old is an eclectic electronic music practitioner, web designer and IT help desk worker from the Netherlands. SShe has a lifelong connection to music,

having played piano and taken lessons since very young. Her passion for electronic music blossomed early, but it was in her 30s that she began DJing at free parties and teknivals. Engaged in a DIY radio show, she shares her love for music with a wider audience. Teaching DJing to aspiring female artists, she empowers others to explore their creativity. With a blend of technical expertise and musical talent, she continues to contribute to the electronic music underground community. <https://bloodhole.net/>

- Atamator: Atama born in Poland 40 years ago. Since more than 15 years she live in Amsterdam. She is a web designer with a rich musical background, she began singing in a rap band at the age of 15, marking the start of a musical journey spanning over two decades. Delving into noise music using analog gear, she channels her love for sound into creative expression. Finding solace in electronic music, she sees it as a realm free from constraints, allowing her to unleash her creativity without limitations. In the electronic music she discovers the freedom to explore and experiment. <https://atamator.com>
- Báthory: A skilled metalworker and a frick show performer, born 35 years ago in Colombia and residing in Catalonia for a long period, she crafts her own instruments to delve into unique sonic realms. Discovering beauty and poetry in the sounds of metal and iron, she harnesses their raw essence to create captivating auditory experiences. Using contact microphones to capture eccentric sounds, she pushes the boundaries of conventional music. Additionally, she employs her voice as an instrument, adding another layer of depth to her sonic explorations. She has an innovative and unconventional approach to sound creation. https://www.instagram.com/misfita_terata

5.1.2. Data analysis and interpretation strategies

The analysis plan for the transcripts encompasses several key stages, including data preparation and organization, initial immersion, coding, categorizing and theming, and interpretation. An initial exploration of the data offers a comprehensive overview, generates insights, and streamlines the data for easier analysis (Leavy, 2023). Reflexive thematic analysis, known for its flexibility and accessibility, is the analytical methodology that I used to derive meaning from the data (Braun & Clarke, 2006, 2017, 2023), being particularly beneficial for researchers with limited experience. This approach focuses on identifying patterns of meaning through a combination of inductive and deductive perspectives (Clarke & Braun, 2006, 2017, 2023).

The rich insights from the participant interviews were meticulously captured through a rigorous data collection and analysis process. After carefully recording the conversations, I leveraged the Whisper speech recognition model from OpenAI to transcribe the audio recordings verbatim. To ensure the utmost accuracy, I personally reviewed each transcript, cross-checking it against the original recordings and making any necessary corrections. This painstaking attention to detail allowed me to preserve the authentic voices and perspectives of the participants, omitting only the most non-essential words to enhance the clarity and conciseness of the data.

Immersing myself in the corrected transcripts, I embarked on a manual, exploratory phase of the analysis, printing the documents and highlighting key concepts while taking detailed notes. Given my intimate familiarity with the interview process, I was able to engage with the data through an analytical lens, attuned to the nuanced meanings and patterns that emerged.

To systematically code the transcripts, I turned to Taguette, an open-source qualitative data analysis tool. During the initial coding stage, I meticulously crafted 238 codes, drawing upon both *in vivo* and descriptive coding techniques to closely align with the participants' intended meanings. This meticulous approach facilitated the identification of salient themes and patterns, even for less experienced researchers. To further refine the analysis, I carefully organized the codes and associated participant quotes into an Excel spreadsheet, enabling me to seamlessly read, interpret, and represent the data.

Applying the theoretical framework to the reflexive thematic analysis, I distilled the rich dataset into three overarching themes that powerfully address the research objectives. These themes, which are explored in depth in the results section, provide a compelling narrative that captures the essence of the participants' experiences and perspectives.

The interpretation of the findings will be presented to the public through a micro-mapping video installation, offering a visually engaging and immersive representation of the research outcomes.

5.2. Creative Video- mapping installation

The presentation of the findings from this Art-based research will take the form of a live performance, an audiovisual installation utilizing video mapping. This approach leverages new media art, which integrates art, technology, and media disciplines (ERGUN & AYGENC, 2018; Schmitt et al., 2020; Tribe & Jana, 2009). Incorporating video mapping or other artistic practices to convey academic research outcomes can foster a more inclusive, collaborative, and less hierarchical research environment, bridging the gap between researchers and participants (Sendra, 2020; Leavy, 2023), while also expanding the reach to a wider audience.

As described by Arbaizar, video mapping is an advanced audio-visual technique that utilizes diverse surfaces for projection, creating a multidisciplinary form of expression where sound, imagery, and the surface interact to craft an immersive experience (Arbaizar, 2020). The choice of projection surface and content can vary across projects, influencing the relationship between visuals and sound. In this study, the video mapping will adopt a micro-video mapping approach, akin to the installation "Grandma" developed by the researcher and video artist Maria L. Lázaro. Unlike immersive video mapping, micro-mapping occurs on smaller surfaces. In "Grandma," the projection surface comprises hand-made soap pieces symbolizing a vanishing profession of women from the artist's hometown (Etopia, 2021).

The video mapping will be synchronized with the audio, emphasizing the significance of sound in connecting the surface with the audiovisual medium (Schmitt et al., 2020). The audio component will incorporate innovative sound technologies such as sampling and mashup,

5.2.1. Content creation and aesthetics

Within the project's audio component, a diverse blend of sound effects, curated mashup music by the researcher, and sampled audio snippets from the interviews will be skillfully integrated. Each participant contributes a track that best represents their music creation, which the researcher then combines to create a unified song lasting approximately six minutes.

Leveraging the capabilities of software tools like Ableton Live and Adobe Audition, the audio production process will be crafted to blend these elements seamlessly. Through the use of Ableton Live Lite, a versatile digital audio workstation, I will have the flexibility to experiment with different sounds, create unique compositions, and fine-tune the audio landscape. Adobe Audition will further enhance the audio editing process, allowing for precise adjustments and professional-quality production. By integrating sound effects, artist-provided music, and interview samples, the audio component will serve as a dynamic and immersive accompaniment to the visual elements of the project, enriching the overall sensory experience for the audience.

The textual fragments extracted from the transcripts will serve as the cornerstone of the visual narrative, intertwining the diverse voices and narratives of the participants to create a multi-layered and engaging visual collage. Through the manipulation of video loops and deliberate glitches, I seek to infuse the visuals with a sense of movement, unpredictability, and artistic experimentation, inviting viewers to explore a realm where traditional boundaries are blurred and new possibilities emerge.

I will incorporate elements of the participants' body parts into the visual composition using mixed media. My goal is to infuse the project with a personal and intimate touch, imbuing it with a sense of human presence. Participants will share images of their eyes, mouth, hands, and ears with the researcher. Since the photos will be taken by various photographers using different cameras and qualities, I have opted for mixed media to harmonize the diverse styles of the images. The visual elements will be carefully curated and juxtaposed to evoke emotions, stimulate reflection, and push the boundaries of traditional art and representation.

Inspired by the innovative approaches of Avant-guard and pioneer video artist Marie Ellen Bute and the unique aesthetic of photo collage from the Dadist Hanna Höch, this visual project endeavors to push the boundaries of traditional art forms, embracing a spirit of exploration, creativity, and collaboration. Through a friendly and inviting lens, I aspire to create a project that not only captivates the audience but also sparks dialogue, reflection, and a deeper appreciation for the intersection of education, art, technology, and human expression.

Permission has been obtained from participants to utilize audio samples and images for the creation of the final audiovisual piece, which will be broadcasted on LeftoverRadio and showcased as a video mapping installation at festivals, museums, cultural and electronic music events.

5.2.2. Representation and audience

In this installation project, I will construct the structure using vinyl records, symbolizing the tangible essence of music and its historical significance. Vinyl records, with their tactile quality and

nostalgic charm, will serve as a foundational element representing the physicality and materiality of music. The use of vinyl records not only pays homage to music's roots but also adds a unique visual and tactile dimension to the installation.

The installation will feature micro video mapping techniques, where intricate mapping and warping will be employed to project visuals onto the vinyl structure. By utilizing micro video mapping, I can precisely adjust and align the video content to fit the contours and surfaces of the vinyl records, creating a seamless and immersive visual experience. The mapping and warping techniques will allow me to adapt the video content to the specific shape and texture of the vinyl structure, enhancing the overall aesthetic and impact of the installation.

In all stages, this project intends to encourage positive social change by amplifying the voices of an underrepresented group of amateur female and LGBTQIA+ electronic music and sound artists. The production of a knowledge exchange outside the academic realm as well as generating an informal discussion on music, technology, and gender have been key elements of this project. To achieve that, during the interviews and in the representation of the findings, the language is vernacular, avoiding the use of jargon and allowing the participants and a broader audience to engage with the research.

Through precise rendering using Adobe After Effects and alignment of the video content to suit the structure using video-mapping software, Resolume 6, my goal is to achieve a seamless integration of visuals with the vinyl elements. The tailored video content will fit with the distinct features of the vinyl records, creating a captivating interplay between music, visuals, and materiality. By combining micro video mapping techniques with vinyl structures, I aim to offer viewers an immersive and multi-dimensional experience that explores the intricate relationship between sound and visual art.

The installation is anticipated to be showcased in museums, electronic music venues, events, and festivals, as well as in cultural gatherings centered around music, technology, and gender. The portability of this installation, along with the use of video mapping techniques, enables it to be displayed in various spaces, even on the streets. The audience is expected to encompass a diverse mix of age groups, backgrounds, and interests, varying based on the installation's location.

6. Results

6.1. Interviews

The results presented here stem from the analysis of the interviews, where I have identified three core themes to elucidate the data's relevance in meeting the research objectives. These themes also serve as the central concepts in the audiovisual representation.

Sonic Synergies: Learning journey cultivates community, confidence, and knowledge exchange

For all the participants in this research the community environment has been fundamental in unlocking their artistic potential. Vodoppia commented “Self-thought also means people around you

that give advice, friends for example, or people that like to do the same thing you do”. They consistently emphasize the vital role that their social networks play in shaping their relationships with electronic music and sound technology. This sentiment is echoed by Báthory, who spoke

I went to Calafou when there were a lot of people from the transfeminist collective, so we had like all workshops and there were two people very interested in noise, they made their own modular devices, they welded their own pieces and they were all day and night playing noise. I met them and I was fascinated, and well I started to learn with them. We used to make jams and it was beautiful.

Armstrong (2003)'s research has shown that community-driven learning can be particularly empowering for women and non-binary individuals, who have often been marginalized in the traditionally male-dominated field of music technology. This pattern of discovery of their music passion through meaningful personal connections was a common thread woven throughout the participants' narratives.

Whether it was a chance encounter or the encouragement of a mentor, the participants highlighted the social/interpersonal element as a key part of how they came to understand and interact with these musical and technological environments. As Zovies point out “It was through, ex-partner. Through him I had access to a lot of gear and software. I tried and it felt that I could do it”; As Bloodhole add “I was inspired basically by my boyfriend, because he taught me how to use the devices, and I liked it”. Atamator got introduced into electronic music through a member of her rap band, as she said “He introduced me to Venetian Snare, and this is when I say, ok I have to do this”

None of the participants had formal education on music technology. They are all self-taught music and sound practitioners who learn through a community centred process, reinforced in some cases with internet courses. As Skøre said “Well, if I didn't watch 200 tutorials on YouTube, I didn't watch any” and she add to her experience with online courses “There is a platform where people upload their online courses, super cheap, and you can access them anytime”.¹

Some of the participants show a lack of confidence related to not having formal education in music in general and in electronic music in particular. Explained by Bloodhole about her last track “I took a break from it because I thought it was bad and I was bad and then everything was bad, so I got a little bit insecure” As Vudoppia said “I'm afraid, I'm an spontaneous person, I think, but for things that I'm not so sure yet, about how to do, then, I need to be prepared you know”. Additionally, the limited opportunities for formal education in music and technology may be linked to the gender of the participants, as noted by Bloodhole “So, boys got these things for birthdays. Boys get the PC. Girls don't get them PCs, you know?”.

Sonic Alchemy: Electronic music empowers personal narratives and artistic self discovery.

The power of electronic music lies in its ability to transcend the boundaries of traditional musical expression, allowing participants to craft deeply personal narratives and forge new modes of artistic

¹ Translation from: “Pues, si yo no vi 200 tutorials en YouTube, no vi ninguno” “hay una plataforma donde la gente pone sus cursos online, super baratos y los puedes visitar siempre”.

self-discovery. As Mark Katz eloquently observes, the integration of technology into the creative process has transformed the ways in which music is made, distributed, and experienced (Katz, 2022). This sentiment is echoed in the work of Joanna Demers, who argues that experimental electronic music, in particular, challenges listeners to rethink their assumptions about what music is and can be (Demers, 2010).

The participants in this study have embraced the transformative potential of electronic music, using it as a canvas to paint their unique stories and perspectives. As Atamator described her process as "I experiment a lot. The music depends on my feelings, my emotions, freedom output", while ZoVies likened her experience to "I think that machines also give the possibility to create a lot of new sounds". This sense of artistic agency and self-expression is further amplified by the inherent flexibility and malleability of electronic music. As Demers observes, the aesthetics of experimental electronic music often privilege the process of creation over the final product (Demers, 2010) allowing for a more fluid and iterative approach to composition.

The participants in this study have leveraged this fluidity to craft narratives that are both deeply personal and universally resonant, blending the boundaries between the individual and the collective experience. As Báthory described:

"I'm a metalworker so I listen to the sound of metal all the time and how it sounds when you cut it, how it sounds when you weld it, how it sounds when you hammer it, So you discover that it's not like a super annoying noise, you can find beauty in this kind of frequencies, and you can find rhythm and you can find poetry in this kind of material".

Skøre explains how she mix her passion for poetry with her tekno music production "Well, I took a couple of her texts (a poet friend of the participant) and I've put them into this base that I've been working on, and they are turning out really well".²

Bloodhole explain her music practice as "Making weird soundscapes. It's funny, slowing down things extremely, looking at what's happening, but also like going somewhere with a kike, going somewhere with another device" On the other hand Vudoppia add to this topic "I try to make it fit maybe with the team of the night. Or like with the, well mostly about how I feel, also, in that in that moment, in that period"

Sonic Landscapes: Navigating gender dynamics in the gift-exchange economies of European Electronic Music Counterculture.

The results of the research shows that in European electronic music counterculture the gender power dynamics are more in balance than in the nightclub life or commercial electronic music scene. However, even in these ostensibly progressive scenes, the spectral qualities of gender power structures can still persist. As Braidotti (2021) might argue, the mere existence of alternative technologies and DIY practices does not automatically guarantee freedom from gendered hierarchies and exclusions. As ZoVies describe the underground of electronic music scene as:

² Translation from: "pues, cogí de un par de textos suyos (una amiga poeta de la entrevistada) y los he metido en esta base, que he estado haciendo, y también están quedando, están quedando muy bien".

“there is this pushing of like looking for women to play, it's seeking for the balance. It's not for the female image of how good the hair looks, the makeup, or whatever, how good this person look on stage, how good this person look on stage is to force this balance, because there is not this balance yet.”

Vudoppia add her experience as female Dj in free party events “I've been playing out of I don't know 10 DJs, I was sometimes the only girl and sometimes we were two, tree, but for sure the majority was always guys, male”. Atamator points some difference in behaviour depending on gender saying that “These situations which I've seen when the people, guys were fighting because you don't see girls fighting for the DJ booth, sorry”.

Braidotti's work emphasizes the need to reimagine technology in more emancipatory, sustainable ways - what she calls "good technology." This aligns with the spirit of electronic music European counterculture, which seek to develop alternative, community-driven approaches to music production and performance. While the research results suggest that gender stereotypes, gendered behaviors, and gender power structures are reproduced in the alternative electronic music scene to a lesser extent than in the commercial electronic music scene.

Some of the participants consider extremely important the fact of being there as an example for others, as Bloodhole said “the way, people have looked at me like, they were surprised. The surprise on their faces basically told me like, okay, I should continue doing this even though I'm getting so nervous”. Skøre proposed “Yes, that's why we have to be persistent and keep meddling in there”.³

Respect power structures Báthory add “I mean for example in the technical aspects, in the sound for example, who who makes the technical sound. You know who are the techniques and all of that, the most of the time you will see that is road road by a man”.

The research findings shed light on the entrenched nature of gender stereotypes and power structures within Western culture. It becomes evident that societal norms require a transformative shift, as limited educational opportunities and challenging environments hinder female and LGBTQAI+ individuals from fully exploring their creativity in electronic music. Moreover, the results indicate that our immediate community and surroundings play a pivotal role as the most influential factors in shaping our creative endeavors.

6.2. Audiovisual representation

The artistic creation is a video-mapping piece that seamlessly integrates audio and images provided by the participants with videos, animations, and glitch effects crafted by the researcher. These elements are inspired by the interviews, themes, and visual concepts shared by participants, offering a unique portrayal of their music creation process. After deriving themes from the interviews and analyzing the results, the creative process begins to develop an installation that narrates the participants' stories. I opted to weave a single narrative from all the interviews, identifying common threads in their experiences as music creators and intertwining them to form a cohesive story. Each

³ Translation from: “Sí, por eso hay que ser pesadas y estar ahí metiendo las narices”.

theme is represented by two quotes from different participants in the audio, carefully selected to encapsulate ideas shared by all participants. Visual elements enhance the audio and text from the interviews, making the story more engaging and accessible to the audience.

The installation will be showcased at audiovisual events or any gatherings focusing on gender, technology, and music, including museums and educational institutions. Given its intriguing and pertinent subject matter, coupled with its visually captivating format, I anticipate that making the piece accessible to the public will not pose a challenge. It can be featured at a range of events and gatherings, such as "Women Make Noise" in Madrid or Llum BCN, and even in outdoor settings. Like the streets.

7. Conclusions

The notion that men typically exhibit more interest in technology than other subjects directly impacts the historical visibility of female and LGBTQIA+ musicians, composers, and audiovisual and sound artists, influencing their unique relationship with sound and technology. Leveraging artistic practices to creatively depict academic research findings can foster an inclusive, collaborative, and less hierarchical research environment, bridging the gap between researchers and participants, as well as between findings and audiences. In challenging established norms, music technology and innovative approaches to presenting fieldwork emerge as potent tools for sharing knowledge, desires, frustrations, and discomfort.

The investigation reveals that community support plays a pivotal role in unlocking artistic potential, with social networks shaping relationships with electronic music and sound technology. Particularly empowering for women and non-binary individuals, community-driven learning helps counter traditional gender biases in music technology. Despite lacking formal education, they are self-taught practitioners who rely on community-centered learning, supplemented by online resources. Some express insecurity due to the absence of formal training, highlighting the importance of support and preparation in their creative curiosity.

Through the results of the research we can observe how electronic music serves as a catalyst for personal narratives and artistic self-discovery, empowering participants to express their unique stories and perspectives. By embracing the transformative nature of electronic music, individuals use it as a medium to convey their emotions and experiences. The flexibility of electronic music allows for a fluid and iterative approach to composition, prioritizing the creative process over the final product. Through their music, they explore a fusion of individual expression and collective resonance, showcasing the profound impact of electronic music on their creative journeys.

Related with gender dynamics within European electronic music counterculture, the research reveal a more balanced power dynamic compared to mainstream nightclub and commercial scenes. Despite progress, gendered hierarchies persist, challenging the notion of true gender equality. Participants highlight the ongoing struggle for gender balance in music spaces, emphasizing the importance of representation and challenging stereotypes. They also stress the significance of being

role models and advocates for change, recognizing the need to address power structures and promote gender diversity in technical roles within the music industry.

The video-mapping installation merges participant content with researcher-created visuals to tell a compelling story of amateur electronic music creators. With its engaging narrative and broad appeal, the piece is poised to captivate audiences at various events and venues. The audiovisual piece aims to challenge perceptions by highlighting electronic music and video mapping as not just artistic expressions open to exploration by marginalized bodies, but also as innovative methods for presenting academic work to a broader audience.

8. Limitations

In this study, music creation is viewed solely as a form of expression separate from the cultural industry, with participants earning their income from other sectors, suggesting the need for further research on this aspect.

The friendship-as-method approach developed by Tillmann-Healy (2003) has certain limitations that should be acknowledged. These may include subjectivity and bias into the research process, as personal relationships may influence data collection and analysis. The findings may not be easily generalizable to broader populations or contexts, as the focus on specific friendships may limit the scope of the research. Maintaining ethical boundaries and ensuring confidentiality can be challenging when using friendships as a research method, raising concerns about privacy and consent.

The constraints of conducting a small-scale research study, coupled with time limitations and the researcher's lack of experience, alongside the utilization of friendship-as-a-method, pose challenges in amplifying the voices of a more diverse range of female and LGBTQAI+ DJs and composers. This limitation restricts the breadth of perspectives encompassed within the study. Additionally, there are apprehensions regarding potential positional biases during interviews, as participants share their viewpoints, which the researcher interprets. The personal relationships involved in the research process may influence the outcomes and direction of the study.

Presenting the findings through video mapping could face limitations, as the audience may be restricted to those attending museums, electronic music venues, festivals, and other cultural events focused on music, technology, and gender. While the piece can be projected on the streets, it may primarily attract people interested in this innovative medium.

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10. Appendix

1. Artist Statement

As an artist, my work delves into the intricate of music composition, gender identity, and technological innovation. In a world where women, queer, and non-normative individuals often find themselves marginalized in electronic music practices, my art-based research seeks to amplify the voices and creative processes of six talented female and LGBTQIA+ amateur electronic music and sound practitioners.

Through avant-garde aesthetics, mix media and innovative video mapping techniques, my project want to spark dialogues on music, gender and technology. I explore the transformative power of electronics as a medium of liberation and self-expression.

Through personal interviews with the artist, I uncover the profound impact of community support in nurturing artistic growth and challenging gender biases within the music technology landscape.

The installation is constructed using white-painted LP vinyls to enhance the video projection. The structure, audio, and video elements have been exclusively created by me for this installation.

My research not only celebrates the ability of electronic music to empower individuals in expressing their personal narratives and artistic identities but also sheds light on the ongoing struggle for gender equality and representation in electronic music practices and technical roles. While progress towards gender balance is more evident in European counterculture than in commercial venues, entrenched gendered hierarchies continue to pose challenges to true inclusivity and diversity.

2. Interview guide

TOPICS/ OBJECTIVES	QUESTIONS	CATEGORIES
the big topics you want to ask	the questions that you will ask regarding the big topics	the information and data that you expect to get in each section/block of the interview

Intro	<ul style="list-style-type: none"> • Could you tell me a bit about yourself: Your name, age, profession/ work; where do you live? • When and How did you start making music? You will consider you self a self taught musician? • Did you approach it through DJing? • What and who inspired you to begin making music 	<p>Who they are, how they became musicians,</p> <p>their relation with music and technology</p> <p>Musical background, education, performing experience</p>
Gear and space	<ul style="list-style-type: none"> • Where do you create music? How the space looks like? What is in there? • Tell me about the tools that you use (Physical gear, the software, the computer), how you choose them and incorporate them into your work. How did you learn to use them? • Do you use analog gear? 	<p>Type of gear, hardware and software, accessibility</p> <p>How they use technology to work with audio and sound</p> <p>How is their studio or space for creation</p>

Practices	<ul style="list-style-type: none"> • How would you describe the music you do? • Tell me about the topics your are interest on exploring? • How you select the sounds? Do you use live recorded objects or voice? Do you download recordings from internet? • In the process of making your own track, do you spend a lot of time by your self? • Are you interest or excited about working with others? • Have you performed a lot? How do you prepare yourself for a performance? What do you like best about performing? And do you enjoy performing, or do you prefer time alone in your studio? • Do you do activities with the community? • What you think about political content in electronic music? • What excites you most about the music you make? 	<p>How they create the music, topics, way of working</p> <p>how the artists participate in live performances, collaborations and community projects?</p> <p>political content in their music and in general</p>
Music	<ul style="list-style-type: none"> • Would you like to say something about electronic music of today 	Opinion about music
Technology	<ul style="list-style-type: none"> • In which way your artistic practice relates to technology? • In your childhood, did you have access and education in technologies? • What is your opinion about technology and music been associated with white male dominance? • How is your experience regarding money and the technology you use to make music? • Can you imagine the relation of sound, gender, money and technology differently? 	<p>Background in technology</p> <p>How has access to technology</p> <p>Can electronic music and sound practice be a good technology?</p>

Gender	<ul style="list-style-type: none"> • How do you feel that gender representation and lacks of diversity in electronic music and sound practices it is changing? 	<p>Their opinion about gender and electronic music</p> <p>Perception of changes</p>
Future	<ul style="list-style-type: none"> • What future do you predict to electronic music • Things that you would like to discover in music making 	<p>Future plans in music making</p> <p>Prediction in music practices</p>

I want to ask you one of your recordings to create a mashup together with the other artist recordings and some of your answers on top

What inspires you to make this track?

Do you have any image that will represent it?