Instagram hates sex, the world hates sex

The algorithmic imaginary of online sex educators

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1. Introduction

Many aspects of our social lives have transferred online to places that are governed by a variety of algorithms (Natale, 2019). Hence, most people encounter the workings of algorithms on a daily basis (Jasanoff & Kim, 2015). Yet, their workings still remain a mystery to most (Natale, 2019). Algorithms are often described as a 'black box' due to their opaque and incomprehensible nature (Natale, 2019). There have been many calls both in society and the academic world to open this 'black box' (Bucher, 2018). However, there are more ways of knowing and understanding algorithms. Under the banner of critical algorithm studies, several researchers have started to critically assess algorithms, their role in society, and the notions that surround them (Gillespie, 2014).

One string of research thereby focuses on the experience of users with algorithms, and the recursive interplay that exists between them (Andersen, 2020; Bucher, 2017; Lomborg & Kapsch, 2020). Algorithms are often approached through technical notions, such as fairness and transparency (Lomborg & Kapsch, 2020), meaning that everyday experiences of users are often ignored, yet these may impact the user just as much (Andersen, 2020; Lomborg & Kapsch, 2020). Users assess the output of algorithms based on preconceived ideas of the algorithm. For example, users may continue to perceive an algorithm as discriminatory based on previous experiences, even when efforts have been put in to remove any biases. Thus, through the experiences and perceptions of users one can study the impact of algorithms in everyday life (Bucher, 2017). This thesis follows Bucher (2018) in studying algorithms through phenomenology and the notion of the algorithmic imaginary (Bucher, 2017), to describe users' experiences with and perceptions of algorithms.

In her research, Bucher (2017) studies the algorithmic imaginary of a broad group of Facebook users. Others have studied more specific groups of users, such as users of dating apps (Parisi & Comunello, 2020), or musicians on Spotify (Raffa & Pronzato, 2021). This research adds on to existing research by studying the algorithmic imaginaries of content creators, particularly of online sex educators. Increasingly, sex education is provided on social media platforms, such as Instagram, by sex educators, sex coaches, sex therapists and others (Döring, 2021). However, sex-related content is becoming more heavily regulated on social media platforms, including on Instagram (Are & Briggs, 2023; Spišák et al, 2021). This also hampers the work of sex educators, as they encounter shadowbans (the algorithmic reduction of the visibility of content on platforms), content removals, and even account removals. In general, content creators and influencers view the understanding of algorithms as a part of

their job as it may have consequences for their income and livelihood (Cotter, 2021). This may especially apply to those content creators who are disproportionally affected by these algorithms (Are, 2021). The intense relationship that content creators have with algorithms may impact their experiences with algorithms to an extent that regular users of platforms may not reach, making this an interesting group to study when researching the algorithmic imaginary. Due to the frequent encounters with algorithmic mechanisms and content regulation, online sex educators are a group of users who think actively about the algorithms' workings and how they impact them. Therefore, their experiences with and perceptions of algorithms provide new insights into the concept of the algorithmic imaginary. In general, online sex education is an understudied subject (Döring, 2021), and the experiences with algorithms of online sex educators has not yet been researched. Thus, this research studies the algorithmic imaginary of online sex educators, and tries to answer the following research question: "How do online sex educators experience and perceive algorithmic content regulation on Instagram?".

This research makes use of a phenomenological approach to answer the research question. Phenomenology presupposes that one can understand a phenomenon through the experience of those who lived through the phenomenon in question (Fouche, 1993). Bucher (2018) has proposed a new way of researching algorithms through phenomenology. The algorithmic imaginary describes users' experiences and perceptions of algorithms, and how these algorithmic imaginaries in turn shape the users' behaviours on the platform. Changes in user behaviour have the potential to shape the outcomes of algorithms due to the powerful recursive relationship between people and algorithms (Bucher, 2017). Uncovering these relationships and dependencies gives us new insights into the social power of algorithms (Bucher, 2017). This research sets a precedent by using phenomenological in-depth interviews to study the algorithmic imaginary of users, and with that outlines a new approach to the studying of user experiences with algorithms.

This study finds that online sex educators on Instagram experience many encounters with the output of algorithms in the form of shadowbans, content removals and account removals. These encounters have inspired them to reflect on the workings of the algorithm and analyse their outputs. They experience a bias in the way content on Instagram is regulated. While their efforts to educate, help, and inform people are pushed back, other forms of nudity and sex that objectify and sexualise women are allowed to exist on the platform. Sex educators relate their experiences on the platform to the current social and political climate, where the access to sex education and the rights for LGBTQIA+ are under pressure. Sex

educators do not view algorithms as a neutral technical system that functions in isolation of its social climate, rather they regard algorithms as another tool in the arsenal of institutions that uphold the patriarchal values which they aim to undermine. This provides a new understanding into how users understand and perceive algorithms.

For this research, first a review of the literature regarding sex education, content regulation and algorithms is provided. Then, the phenomenological methodology is outlined, giving insight into how this research was conducted. A description of the experience of sex educators is provided in the results section, after which the implications of this research are reviewed in the discussion.

2. Literature review

2.1. Online sex education

This research aims to understand online sex educators' experiences with and perceptions of algorithmic content regulation. Social media platforms have given the opportunity for a plethora of users to create content and form communities (Are & Briggs, 2023). Amongst those creators are a group of sex education and sex-positive accounts that have taken on the job of creating communities, and informing and educating users about sex and sexuality (Döring, 2021). This section will dive into sex education, and the role that online sex education fulfils.

Inclusive and comprehensive sex education leads to safer and more enjoyable sexual experiences (Lameiras-Fernández et al, 2021). There are a variety of internationally recognized frameworks that ensure the quality of sex education around the world (Döring, 2021). These frameworks argue that sex education should go beyond solely looking at sexual risk behaviours to also incorporate pleasure, desire, sexual diversity, gender equality, and consent (Döring, 2021; Lameiras-Fernández et al, 2021). It has been shown that sex education that adheres to the values of these frameworks leads to safer and more enjoyable sexual experiences (Lameiras-Fernández et al, 2021).

However, sex education in schools often does not follow these guidelines, and take on a risk-focused approach and sometimes even an abstinence-only approach (Lameiras-Fernández et al, 2021). In these forms of education the focus is on preventing sexually transmitted diseases and unintended pregnancies, where abstinence is seen as the solution to any sexual risk adolescents could endure (Lameiras-Fernández et al, 2021). Such programs are found not to be effective in reducing sexual risk behaviours, the spread of STDs and unwanted pregnancies (Santelli et al, 2017). Even the more comprehensive sex education programs are often lacking in that they are hetero- and cisnormative, and do not discuss (female) pleasure (Haley et al, 2019; Hobaica et al, 2019; Lameiras-Fernández et al, 2021).

Due to the inadequacy of most sex education programs, many adolescents go online to find information and answers to their sex questions (Haley et al, 2019; Hobaica et al, 2019; Johnston, 2017; Lameiras-Fernández et al, 2021; Naezer et al, 2017). Döring (2021) finds that especially people with a sexual minority status and those who have received traditional and abstinence-only classes are overrepresented in the use of social media for sex education. The internet provides a place for adolescents to find inclusive sex education, and an opportunity to interact with experts and professionals (Johnston, 2017). It provides a private and anonymous

space to find information and ask questions (Naezer et al, 2017; Thianthai, 2019). Although most research is focused on youth and adolescents, Döring (2021) finds that people from all age ranges go online to find information about sex.

Sex education on social media provides the opportunity to promote sex-positive and inclusive sexual health knowledge (Döring, 2021). There are a variety of accounts who have started to provide sex education on social media, such as professional health organizations, professional sex educators and therapists, and peer educators (Döring, 2021). Indeed, Johnston (2017) has found that many sexual health professionals and sex experts use YouTube to attract young audiences and inform them about sex and sexuality in an entertaining way. Oftentimes peer sex educators stem from a particular (sexual) community such as the LGBTQIA+, BDSM, polyamory, sex work, disability, and asexuality community (Döring, 2021). Through their profile they are able to create communities and inform them about the issues that resonate with them (Döring, 2021).

Sex educators on social media aim to provide inclusive and comprehensive sex education, and try to overcome the stigma's that surround sex, sexuality and gender (Döring, 2021). The work of online sex educators appears to be in line with a larger movement of feminist content creators (Sciberras & Tanner, 2022). This new movement, also called fourth-wave feminists, aims to fight the dominant male gaze through an intersectional and diverse representation of bodies, genders and sexualities (Sciberras & Tanner, 2022). The male gaze describes the gendered spectatorial state by which the male sexual desires are projected onto passive female figures (Mulvey, 1989). Through this gaze the existence of female desires, pleasure and sexual agency is ignored or even denied completely (Mulvey, 1989). In the last two decades the male gaze has been perpetuated by the media, as female bodies have been objectified and over-sexualized (Attwood, 2007; Sciberras & Tanner, 2022). Also on social media platforms has this male gaze been perpetuated, as 'desirable' hetero- and cisnormative female bodies are favoured and celebrated by platforms (Scriberras & Tanner, 2022; Tiidenberg & van der Nagel, 2020).

This new movement of feminist content creators is trying to subvert the male gaze. They make art and create illustrations that aim to desexualise the naked female body, and show an inclusive range of bodies and sexualities (Mahoney, 2022; Sciberras & Tanner, 2022). By centring female pleasure and joy, they go against the passive representation of women and retrieve a sense of agency over their bodies and sexual pleasure (Sciberras & Tanner, 2022). Online sex educators on social media platforms have a similar goal of centring (female) sexual pleasure and agency over one's body and sexuality through the means of

education. Yet, while a variety of content creators have started to produce feminist and sex-positive content, social media platforms are increasingly using their tools to regulate the content that they produce. The next section will dive into the content regulation practices of social media platforms, and how they are used to regulate sex-related content.

2.2. Content regulation and sex

For a long time social media platforms were exempt from liability for the content that users published (York & Zuckerman, 2019). However, due to the upsurge of illegal and problematic content, social media platforms came under a large stream of critique (Gillespie, 2020; York & Zuckerman, 2019). Under the pressure of governments and users, social media platforms were forced to start moderating content (Katzenbach, 2021). This also meant that, increasingly, social media platforms have started to regulate sexually explicit content, impacting a wide range of content creators such as sex-workers, artists, sex therapists, and sex educators (Are, 2021; Spišák et al, 2021). This section will outline the different elements of content regulation, and how it is used to moderate sex.

Content regulation can be seen as a form of governance through which platforms impose their norms and values, and by which they structure their users' participation on the platform (Grimmelmann, 2015; Savolainen, 2022). York and Zuckerman (2019) argue that platforms make use of hard and soft control to regulate content. Hereby, hard control is viewed as the removal of content and accounts that go against the platform's rules (York & Zuckerman, 2019). The rules of platforms are communicated in their terms of services, yet these are often unclear and vaguely described, making it difficult for users to adhere to them (Savolainen, 2022). Soft control, then, is seen as the sorting of content through algorithmic means which impacts the visibility of content (York & Zuckerman, 2019).

To note, for this research I chose to use the term content regulation instead of content moderation. Although the two overlap in the practices that they describe, I view content regulation to be a more encompassing term that includes any form of regulation that participants of this study may describe.

2.2.1. Human labour and algorithmic labour

Social media platforms make use of both human moderation and algorithmic systems to execute the rules and regulations of the platform. The entanglement of human and

algorithmic moderation creates a complex socio-technical system, making it hard to discern which decisions have been made by either one (Savolainen, 2022).

Social media platforms make use of human labour through flagging and human content moderation. Platforms rely on human moderators to determine whether content violates the terms of services (Roberts, 2016; York & Zuckerman, 2019). Many platforms also depend on the flagging of content by users, through which they identify offensive or illegal content (Crawford & Gillespie, 2016; York & Zuckerman, 2019). However, Crawford and Gillespie (2016) argue that flagging is often used as a strategic tool by users as they often flag content that contradicts their social and political views, and in certain cases this is used as a form of harassment or retribution (York & Zuckerman, 2019).

Increasingly, platforms make use of algorithms for the regulation of the excessive amounts of content on their platforms (Cotter, 2021; Gillespie, 2020; Katzenbach, 2021). In many cases artificial intelligence and machine learning are seen as the solution to the problems with big data, also in the case of social media platforms (Gillespie, 2020; Katzenbach, 2021). Algorithms are used to identify content that goes against the terms of services, and to promote and demote content that appears to users (Gillespie, 2020).

2.2.2. Algorithmic sorting and reduction policies

Platforms make use of algorithms to personalize users' feeds, and to rank, promote and demote specific content (Cotter, 2019). Oftentimes these algorithmic recommendation systems are argued to be a different platform function than content moderation (Gillespie, 2022). However, several scholars argue that algorithmic recommendation should be seen as a form of governance by different means (Gillespie, 2022; York & Zuckerman, 2019).

Reduction policies are an example of an algorithmic content moderation practice (Gillespie, 2022). Gillespie (2022) has defined reduction policies as the algorithmic demotion or exclusion of content from rankings. Other names that are used in the literature to describe this practice are shadowbanning (Are, 2021) or content suppression (Savolainen, 2022). Reduction policies are used to reduce the visibility of so-called borderline content. Platforms classify borderline content as content that does not necessarily violate the terms of services, but still can be seen as problematic (Are, 2021). Platforms algorithmically reduce the visibility and reach of borderline content and the accounts that produce it without removing the content entirely (Gillespie, 2022). The content is not recommended to users, or shown in personal feeds, reels, or searches (Gillespie, 2022).

While York and Zuckerman (2019) see the reduction policies as a form of soft control, others have argued that a reduction in visibility may impact content creators just as heavily as content removal does (Are, 2021; Bucher, 2012). Content creators have to navigate an economy of visibility (Banet-Weiser, 2018), and their ability to be visible and place high in the algorithmically-ranked feeds ultimately will determine how successful they are (Bishop, 2019; Cotter, 2019; Glatt, 2022). Therefore, when social media platforms use algorithmic means to reduce the visibility of content, this may heavily impact the success and even livelihood of content creators.

Due to the looming threat of invisibility, users try to conform to the norms and values that the platform envisions (Bucher, 2012). Indeed, content creators view the understanding of algorithms as a part of their job, as their knowledge of algorithms may determine their success and financial situation (Cotter, 2021). However, it can be difficult to understand these algorithms, because social media platforms are often unclear and secretive about the rules and the way algorithms are used to enforce them (Bishop, 2019; Savolainen, 2022). The precarious and inscrutable nature of algorithms makes it difficult for content creators to know why certain content is promoted or, more importantly, demoted (Bishop, 2019). This leaves content creators feeling confused, frustrated, and anxious (Cotter, 2021; Glatt, 2022; Myers West, 2018).

Currently, social media platforms are in control of the tools that provide visibility to creators, and Are (2021) finds that said visibility is unequally and unfairly distributed to users and creators from different social, economical and racial backgrounds. The algorithmically curated systems are argued to give an advantage to content creators pertaining to the neoliberal status quo: "white, male, middle class, heteronormative, brand friendly." (Glatt, 2022, p. 13). Instead, marginalised groups are not granted the same tools of visibility, and at times are even actively removed from the platform (Are & Briggs, 2023; Glatt, 2022; Haimson et al, 2021).

2.2.3. Regulation of sex-related content

Increasingly, social media platforms are regulating content related to sex and nudity (Are & Briggs, 2023; Spišák et al, 2021). Scholars argue that the U.S. FOSTA-SESTA bills of 2018 have led to the increase in regulation of sex-related content (Are, 2021; Are & Paasonen, 2021; Blunt & Wolf, 2020; Spišák et al, 2021). These bills make platforms liable for content that promotes and facilitates sex trafficking (Are, 2021). Social media platforms have taken an

expansive approach to the interpretation of these bills to prevent any form of liability by regulating all content containing some form of nudity or sexual communication (Spišák et al, 2021). While the aim of the bill is to prevent sex trafficking specifically, the expansive interpretation of the bills has resulted in the over-censoring of all sorts of content creators including but not limited to sex workers, lingerie brands, LGBTQIA+, athletes, activists, and sex educators (Are & Briggs, 2023; Blunt & Wolf, 2020; Haimson et al, 2021; Tiidenberg & van der Nagel, 2020).

Are (2021) argues that the strict regulation of nudity and sexuality derives from the puritan mindset that exists in the U.S.A. through which sexuality and sexual desire is seen as impure and something to be controlled. Instead of seeing sex as a crucial aspect of human life, platforms identify sex and nudity as safety issues needed to be resolved (Are & Briggs, 2023).

The FOSTA-SESTA bills have severely impacted the financial stability, health, and safety of, primarily, online sex workers (Are & Briggs, 2023; Blunt & Wolf, 2020). Yet, due to the expansive interpretation of social media platforms, the strict regulation of sex-related content has impacted a variety of content creators (Are & Briggs, 2023; Spišák et al, 2021). Several scholars have identified that the regulation of sex by platforms has led to disproportional, unfair and hypocritical practices (Are, 2021; Are & Paasonen, 2021; Haimson et al, 2021). Are and Paasonen (2021) find that advertisers and celebrities are exempt from the strict regulation of sexuality and nudity that applies to users, due to the commercial value that they bring to platforms. These double standards allow celebrities to rise, while making marginalized communities even more invisible (Are & Paasonen, 2021). Furthermore, in a research of user experiences with disproportional content and account removals, Haimson et al (2021) found that LGBTQIA+ people and particularly trans people experience content removals under the banner of nudity or sexually explicit content. Even though social media platforms claim to allow nudity for trans people, in practice this appears to not be enforced (Haimson et al, 2021).

The strict regulation of sex and nudity leads to the stigmatization of the sexualities and practices that do not fulfil the heteronormative and cisgender ideals (Tiidenberg & van der Nagel, 2020). Are (2021) argues that current content moderation practices reinforce the male gaze, as community guidelines are used to retain the imagery of women as passive and erotic. Even though social media has provided a place for feminists and activists to protest, the content moderation of sex that is in place inhibits their possibilities to be heard and to be visible (Are, 2021; Sciberras & Tanner, 2022). Sex educators are also impacted by the strict regulation of sex-related content, and they experience shadowbans, and content and account

removals. Therefore, this research aims to understand their experiences with and perceptions of algorithmic content regulation.

2.3. The study of algorithms

In this section I will outline the research on algorithms, specifically focussing on the study of user experiences with algorithms and the algorithmic imaginary. Algorithms are increasingly being used by platforms to regulate the massive stream of user-generated content (Katzenbach, 2021). The study of algorithms has long remained within the realm of information and data scientists, yet it has more recently been picked up by a variety of humanities and social science scholars under the banner of critical algorithm studies (Gillespie, 2014). Scholars of critical algorithm studies aim to understand the power of algorithms, study its impact on society, and understand their socio-cultural features (Beer, 2017; Gillespie, 2014). The concept of the algorithmic imaginary also derives from this field of study, and it proposes a new way of researching algorithms through the experiences of users (Bucher, 2017). This section will introduce the critical algorithm studies field, and the study of user experiences with algorithms.

An important element of the critical algorithm studies is to understand the relevance, power, and impact of algorithms. Gillespie (2014) argues that algorithms are the most recent institutionalised mechanism that determine the relevance of news and knowledge. A sociological inquiry into algorithms should uncover how these systems select the information that is presented to users and what biases may be consolidated into that system (Gillespie, 2014). Yet, an equally important question is to understand how these algorithmic systems came to be the legitimised knowledge institutions in the first place (Gillespie, 2014). Beer (2017) argues that algorithms are given agency in society, because they are connotated with the dominant values of rationality, objectivity, efficiency and strategy. Through the authority they are given, algorithms have now become the arbiters of what is relevant, and often reinforce the existing biases of society (Beer, 2017).

When critically studying algorithms, Beer (2017) argues that algorithms should not be detached from the social world they exist in. In fact, the existence, mechanism, implementations and readaptations of algorithms are a product of social forces (Beer, 2017). In a similar line, Seaver (2017) argues that we should approach algorithms ethnographically and regard them as culture, seeing that algorithms are: "culturally enacted by the practices people use to engage with them" (p. 5). Studying algorithms in this way allows us to not view

algorithms as opaque black boxes, but rather as: "heterogeneous and diffuse sociotechnical systems, with entanglements beyond the boundaries of proprietary software." (Seaver, 2017, p. 10).

2.3.1. Recursive relationship between algorithms and users

Within the critical algorithm studies field, there are several scholars that approach algorithms as socio-material constructs, and they study the recursive relationships between algorithms and their users (Anderson, 2020; Bucher, 2017; Lomborg & Kapsch, 2020). These scholars aim to understand how algorithms are not only shaped by their engineers and their code, but also gain meaning and have impact through the interactions with and interpretations of their users.

Lomborg and Kapsch (2020) have used the concept of decoding to see how users know and understand algorithms. They argue that algorithms encode meaning by structuring information and data (Lomborg & Kapsch, 2020). Users decode these meanings by interpreting the outputs of the algorithms, while also being informed by their own socio-cultural backgrounds. Andersen (2020) also aims to study how users understand and interpret algorithms by adopting a hermeneutics approach. Andersen (2020) argues that, similar to many other cultural artifacts, people cannot directly access the meaning of algorithms. To make meaning out of algorithms, users have to interpret them. This interpretive mode, Anderson (2020) argues, is a part of living with algorithms. Others approach user experiences of algorithms through folk theory (DeVito et al, 2018; Savolainen, 2022). They argue that people form certain beliefs and stories, folk theories, both through their own experiences of algorithms and with information they obtained through the media or relatives (DeVito et al, 2018; Savolainen, 2022).

The study of the algorithmic imaginary also aims to understand the recursive relationship between users and algorithms (Bucher, 2017). Where the previously outlined studies focus on users' interpretation and understanding of algorithms, Bucher (2017) aims to understand the experiences of users with algorithms. This approach is also taken for this research, as it aims to understand the experiences and perceptions of sex educators of algorithmic content regulation. The next section explores the concept of the imaginary, and the algorithmic imaginary.

2.3.2. The algorithmic imaginary

The notion of the imaginary returns in different works. Taylor (2004) sees the imaginary as a way of making sense of the things around us, and as a collective imagination of the things in society, that are created through imagery and stories (Taylor, 2004). It is through these collective imaginations that symbols and institutions become established in society (Castoriadis, 1997). Researchers in the science and technology studies (STS) field have adopted the concept and study the so-called socio-technical imaginary, which describes the collective imagination of the possibilities and futures of science and technologies (Flichy, 2007; Jasanoff, 2015). In this line of thought, imaginaries can be defined as: "the outcome of individual and collective sense-making activities resulting in shared ideas about technology, including fears, hopes, and expectations." (Kazansky & Milan, 2021, p. 364). Especially those technologies that are opaque and ambiguous are viable for imaginative practices, such as algorithms (Raffa & Pronzato, 2021).

Bucher (2017) argues that even if users lack knowledge about the code of algorithms, they form a certain practical or tacit knowledge through their interaction with the algorithm. Hence, she introduces the notion of the algorithmic imaginary, which entails: "ways of thinking about what algorithms are, what they should be, how they function and what these imaginations in turn make possible" (Bucher, 2017, pp. 39-40). Using a phenomenological approach, she aims to understand how users experience and perceive algorithms. Additionally, being informed by the theory of affect (Blackman & Venn, 2010), Bucher (2017) also aims to understand which encounters make users aware of the algorithms. Bucher (2017) argues that encounters with the outputs of algorithms can have an affective capacity, as these instances may lead to a particular feeling or response. She finds that it is particularly 'strange encounters' (Ahmed, 2000), that have such an affective capacity (Bucher, 2017). Hence, when an algorithm produces strange, surprising or wrong outcomes, people become aware of the algorithms and start to evaluate them (Bucher, 2018; Lomborg & Kapsch, 2020).

Essential to Bucher's (2017) approach is the understanding of the recursive relationship between users and algorithms. Other scholars have also argued that users' perceptions of algorithms shape their use of a platform (Anderson, 2020; Lomborg & Kapsch, 2020). Understanding such changes in user behaviour is important as this may also influence the output of algorithms (Lomborg & Kapsch, 2020). The different tactics and uses of platforms feed back into the algorithm, and it has the potential to reconfigure its results (Rader & Gray, 2015). Hence, to understand the social power of algorithms, it is of importance to analyse how algorithms make people feel (Bucher, 2017).

The study of the algorithmic imaginary as outlined by Bucher (2017) is threefold. Firstly, it aims to understand how users become aware of algorithms, and what instances have led to this awareness. Secondly, it tries to understand the experiences and perceptions that they have formed of the algorithm. And lastly, it wishes to understand how the algorithmic imaginary of users shapes their use of the platform (Bucher, 2017).

The algorithmic imaginary has been studied by other researchers as well. Williamson (2018) uses the term algorithmic imaginary to describe the technocratic mentalities and imaginaries that are present in the coders and technicians. He argues that these imaginaries manifest through the code and design of these algorithms (Williamson, 2018). This interpretation solely looks at the imaginaries of designers of the algorithm, and ignores the interplay between technology, the environment, and its users (Raffa & Pronzato, 2021).

Schulz (2022) builds further on the algorithmic imaginary as conceptualized by Bucher (2017). Schulz (2022) critiques her approach for solely focussing on the imaginary of users, and makes the case that for a complete study of the algorithmic imaginary the imaginaries of algorithms and their designers should also be included. I recognize that the imaginaries of designers are capable of shaping the algorithm. Yet, studying the algorithmic imaginary of both users, designers, and algorithms is too large of an objective for this study. Furthermore, the impact of designers' biases on the output of algorithm has frequently been studied, while user experiences with and perceptions of algorithms is a relatively under-studied but equally important subject. Hence, this research will adopt the approach of Bucher (2017) and solely focus on the algorithmic imaginary of users.

Other studies have taken the conceptualization of the algorithmic imaginary as outlined by Bucher (2017) and used its methodology to research the experiences and perceptions of users of dating apps (Parisi & Comunello, 2020) and of musicians on Spotify (Raffa & Pronzato, 2021). They have found that most users have formed certain perceptions about the algorithmic workings of platforms, and that these ideas and perceptions shape their use of the platforms.

2.4. The algorithmic imaginaries of online sex educators

This research adopts the approach of Bucher (2017) to study the algorithmic imaginary of sex educators. Online sex educators are a group of platform users that have an intimate and active relationship with algorithms, hence their experiences with algorithms provide new insights into the understanding of the algorithmic imaginary.

As mentioned earlier, content creators often view the understanding of algorithms as a part of their job, as it may impact their success and even livelihood (Cotter, 2021). This may be particularly the case for content creators who are disproportionally affected by algorithmic content regulation (Are, 2021). A lack of knowledge of algorithms may then lead to content removals or even account removals. Since online sex educators experience relatively high levels of content regulation, it was expected that they put in great effort to understand the algorithms that influence their work. Additionally, it was expected that they have many encounters with the outputs of algorithms, which can turn their attention to the algorithms, and lead them to evaluate their workings (Bucher, 2018).

Online sex education is a relatively understudied subject (Döring, 2021), and there has not yet been a study into online sex educators' experiences with and perceptions of algorithms. Other researchers have studied the experiences of nude and sex-work related content creators with de-platforming (Are & Briggs, 2023), yet this research does not focus on the experiences with algorithms. Research into the algorithmic imaginaries of users has focused on Facebook users (Bucher, 2017), dating app users (Parisi & Communello, 2019), and musicians on Spotify (Raffa & Pronzato, 2021). Therefore, this research will add on to existing research of the algorithmic imaginary by focusing on the experiences and perceptions of content creators, particularly of online sex educators.

3. Methodology

3.1. Introduction

This research makes use of phenomenology and in-depth interviews to answer the following research question: "How do online sex educators experience and perceive algorithmic content regulation on Instagram?". In this section the phenomenological approach will be outlined. Then, an explanation is provided on how participants have been gathered and selected, and how the interviews were conducted. Lastly, I will explain how I have used the phenomenological approach to analyse the data.

3.2. Phenomenology

Phenomenology is a philosophy that concerns the epistemological question of what information about our world we can rely on (Dowling, 2007). It is particularly Husserl who is known for his work on phenomenology (Eagleton, 1983). Husserl posits that we can only rely on how things appear to our consciousness, and anything outside of experience should not be included in the understanding of a phenomenon (Eagleton, 1983; Husserl, 1965, as cited in Moustakas, 1994). In phenomenology objects are seen to exist in relation to the consciousness, which is seen as the intentional thinking directed towards an object (Moustakas, 1994). Husserl argued that the object in one's experience does not always exist and may just as well be imaginary (Husserl, 1931, as cited in Moustakas, 1994). This line of thinking indicates that one can never be certain that the object that they experience exists or that the information or perception that they have of it is correct (Moustakas, 1994). The only thing that we can be certain about, Husserl argues, is the experience of the phenomenon and that we are conscious about it. Therefore, Husserl argued that one has to discard anything outside of consciousness when trying to understand a phenomenon, and that all realities should be regarded as phenomena (Eagleton, 1983). The process of discarding anything outside of our immediate experience and consciousness is what Husserl called phenomenological reduction, and it forms the basis of a phenomenological study (Eagleton, 1983).

Phenomenology posits that the world needs to be understood in relation to the subject, and needs to be seen as being brought about by our consciousness (Eagleton, 1983). Hence, we can come to understand a phenomenon through the immediate experience of those who lived through the phenomenon in question (Fouche, 1993). Therefore, in a phenomenological study one gathers the descriptions of lived experiences of the phenomenon (Bliss, 2016;

Kvale, 1996; Mapp, 2008). Yet, the aim is not only to find individual experiences, but rather to find the universal essence of the experience of a phenomenon (Bliss, 2016; Kvale, 1996; Mapp, 2008). When a similar element of the experience keeps returning in the individual description of the phenomenon, this can be seen as the universal essence of a phenomenon (Moustakas, 1994). Finding such a system of universal essences is what generates a certainty about a phenomenon, and it is the goal of a phenomenological study (Eagleton, 1983).

Phenomenology is first and foremost a philosophy, and its original thinkers did not outline a methodological framework for a phenomenological study (Dowling, 2007). Some of the more recent phenomenological researchers have taken it upon themselves to form such a methodological framework (Dowling, 2007). Indeed, having a clear and repeatable framework for phenomenological studies allows for validity and reliability in research (Creswell, 2007). This research is based on the methodological framework as outlined by Moustakas (1994), who based his work on Husserl and transcendental phenomenology. Transcendental phenomenology argues that there should be no interpretation of the experience, and it requires one to set aside presumptions, judgements, and preconceived ideas to see things as they appear to our consciousness (Moustakas, 1994). This stands in opposition to other methods that argue that the understandings and interpretation should be included in the study (Dowling, 2007).

A phenomenological approach suits this research well, as it aims to understand online sex educators' experiences and perceptions of algorithmic content regulation. This approach is inspired upon that of Bucher (2017) who uses a phenomenological approach to study the algorithmic imaginary. She argues that users form a practical or tacit knowledge of algorithms in their use of the platform, even if they do not know the code behind the algorithm. The encounters with algorithms shape users' online experience. Hence, phenomenology can be used to study this experience, and with that gain access to the recursive relationship between users and algorithms (Bucher, 2018). It is important to note that a phenomenological study of user's experiences of algorithms solely provides information about how it is to live with algorithms, it does not provide insight into the workings of the algorithms themselves. Still, as Bucher (2017) argues the algorithm's output is capable of enacting material realities, which can be studied through the interactions between users and the algorithm's output. This study also uses phenomenology to study the algorithmic imaginary of sex educators, and with that gain an understanding of their experiences with and perceptions of algorithms, and learn about the algorithms that impact their work.

3.3. Data Collection Process

For this research one-on-one in-depth interviews were conducted as a form of data collection, which is a frequently used method in phenomenological studies (Creswell, 2007; Kvale, 1996). For a phenomenological study a total 10-15 interviewees is often used (Kvale, 1996). Due to the scale of this research, a total of nine interviews were conducted with separate individuals, which was sufficient data to reach thematic saturation in the results. To select the individuals for this study a purposeful sampling strategy was used, specifically a criterion sampling strategy. A criterion sampling strategy is suitable for a phenomenological study, seeing that participants in the study need to have experience with the phenomenon that is studied (Creswell, 2007; Mapp, 2008). The following criteria were used to select the sample.

The individuals in the sample needed to have a profile on Instagram on which they publish content that contains information, education or coaching on a broad range of topics related to sex, sexuality, intimacy, sex positivity, pleasure, sensuality, overcoming sexual trauma, and breaking down stigma's related to sex. I solely focus on Instagram to ensure that the participants have experience with the same set of algorithmic systems. Additionally, the content creators must have a significant amount of their profile dedicated to sex (education). The interviewees needed to have been active on the platform recently, meaning content posted within three weeks before the participant was approached. This ensured that they could easily recollect a vivid description of their experiences. Furthermore, the interviewees had to speak either Dutch or English, as these are the languages spoken by the researcher.

There were various obstacles in finding the appropriate accounts on Instagram. Many sex educators use their personal names or pseudonyms for their account name, rather than including the terms sex education. More importantly due to the reduction policies of Instagram, accounts that post content related to sex are often reduced in visibility and not findable in the search function (Gillespie, 2022). Therefore, finding a sample of sex educators on Instagram is not possible through search queries. Hence, the sex education accounts I already followed were used as a starting point to find participants, as these matched the criteria of the study. This could, however, impose a personal bias in the sample. Therefore, to widen the sample, I started with the sex educators I currently follow, and searched and selected the sex educators that they follow. This step has been repeated two times until I reached a large assemblage of individuals that are appropriate for this study. From this final

large group of sex educators, I have selected and contacted the accounts that fit the criteria of the study, of which nine participants agreed to participate in the research.

The final sample consisted out of nine participants, who provided sex education, sex-positive content and coaching on their Instagram accounts. To note, not all participants labelled themselves specifically as sex educators. Some provided new research on sex and sex education via Instagram, or aimed to open the conversation about sex and different sexual practices. This still falls within the aim of this study as they provided information about sex or tried to overcome the stigma surrounding sex and sexuality through the means of conversation. For simplicity I will henceforth refer to the participants as sex educators. Several participants were certified sex therapists, coaches and researchers into sex and sex education. Participants lived in the Netherlands, the U.K., the U.S.A. and Spain. The largest part of the sample identified as women, and the remainder of the participants identified as non-binary. The amount of followers that participants had ranged from 1000 to 50.000. For this research I have decided not to provide a list with specific identifiable information, because there is a higher risk of identification for these participants as they have existing accounts on Instagram in a niche sector of content creators. Therefore, the identifiable information is not listed and combined with their quotations for the protection of the participants.

3.4. Interviews

The interviews were done using recorded videocalls. Most of the participants requested the interview to be in a video-call, due to time constraints, efficiency or because they were living outside of the Netherlands. Before the interviews started, I asked participants for informed consent through an informed consent form and by orally repeating and confirming this consent form at the start of the interview.

For this research semi-structured interviews were conducted. In phenomenological research the interviews are often open-ended or semi-structured, where only one or several questions are used to guide the participant to the experience and allow the participant to speak freely about their experiences in whatever way they feel is needed (Roulston, 2010). This research has used a semi-structured approach for the interviews. It was predicted that algorithmic content regulation is an abstract concept that is hard to grasp. Therefore, several guiding questions were prepared if participants needed guidance to reach their experience. Similarly, Moustakas (1994) recommends the use of an interview guide when the interviewee

does not describe the experience in its full depth and meaning. The questions can help to obtain rich descriptions and vital information. This interview guide can be found in appendix A. When the interviewee reached the depth of the experience easily on their own accord, the prepared questions were not used.

In phenomenological interviews researchers ask the interviewees to describe an experience in detail (Kvale, 1996). I used follow-up probes to expand and deepen the descriptions of their experiences, such as: "What feelings stood out to you in that moment?". The focus of the questions was to let the participant retrieve a situation and to describe this as extensively as possible.

In a phenomenological study it is important for the quality and validity of the research that the descriptions in the interviews truly reflect the experience of the participants (Polkinghorne, 1989). This can be difficult, as a description of an experience is still a second person perspective of the experience, and it may not be a static sketch of the experience (Høffding & Martiny, 2016). Yet, when the descriptions are as rich and nuanced as possible, then the structures of an experience can maintain a certain stability (Høffding & Martiny, 2016). To reach such detailed descriptions, I ensured that throughout the interview participants were continuously brought back from explanations to actual descriptions of the experience. This was done by repeatedly bringing participants back to a singular experience of a particular time and space, and using probes and follow-up questions to deepen the description (Høffding & Martiny, 2016).

For this research I have adopted a transcendental phenomenological approach, as outlined by Moustakes (1994), which aims to eliminate the researcher's interpretation (Creswell, 2007). Moustakas (1994), argues that the research should not be focused on the interpretations of the researcher, rather it should focus on the experiences of the participants in the study. Bracketing, or epoche, is proposed by Moustakes (1994) by which the researcher sets aside any preconceptions, biases or ideas they have of the phenomenon (Creswell, 2007; Moustakas, 1994). For this research bracketing has been done by writing down any biases or preconceived ideas of the phenomenon before the research process starts to become conscious of them throughout both the data collection and data analysis process (Moustakas, 1994). In the bracketing process I became aware of the fact that my knowledge of algorithms and content regulation could potentially influence the data collection process. Because of my preconceived ideas of what algorithms are and how they work, I could potentially steer participants in a certain direction. I considered this bias when formulating the questions before and during the interview. Additionally, it is important to note that I am a white,

cisgendered woman. Hence, this can make me unaware of the experiences of marginalised people. Yet, it also makes me more sensitive for the injustices against women on social media platforms. It is important to be aware of it, and the bracketing process has helped me consider these prejudgments when conducting the research.

The interviews were transcribed to prepare them for analysis. An anticipated harm for this research was that participants might be concerned about whether the platforms (such as Instagram) may take notice of and adapt to the strategies they use to avoid content regulation. Therefore, participants were informed that they are allowed to review the transcripts and retract any information from the transcript if they wish.

3.5. Data Analysis Process

The interviews were analysed using the phenomenological approach by Moustakas (1994). The aim is to understand the experiences and perceptions of algorithmic content regulations of online sex educators, by finding the common themes and the essence of their experience (Kvale, 1996). In a phenomenological analysis every individual experience is processed and analysed first, after which a composite analysis of the experience is done. Therefore, the analysis process started by conducting the following steps for the transcripts of every individual interview. First, through the process of horizonalization, the 'significant' statements were selected, which are statements that give insight into the experience of interviewees (Moustakas, 1994). Then, these statements were reduced by selecting only those that represent a necessary and constituent part to the understanding of the experience, and those that allow for an abstraction where the statement can be given a label (Moustakas, 1994). The other statements were eliminated, alongside statements that were overlapping, repetitive and vague. The remaining expressions formed the invariant constituents of the experience (Moustakas, 1994). Then, Atlas.ti was used to label the statements according to the meaning they represent, after which the network function was used to cluster the statements into themes. Then, an individual textural and structural description was created using the themes and significant statements that were found (Moustakas, 1994). These individual descriptions included verbatim quotations of participants to accurately describe their experience.

The individual descriptions of all the participants were analysed using Atlas.ti, to find the common elements and themes by coding the quotations of the participants according to the meaning that they represent. The network function of Atlas.ti was used to cluster the codes

and find the themes that represent the essence of the experience of sex educators with algorithmic content regulation. This network is included in the appendix B. The results section represents a composite description of the essence of the phenomenon (Moustakas, 1994).

4. Results

The transcripts of the interviews were analysed using a phenomenological approach. The aim was to understand how online sex educators experience and perceive algorithmic content regulation on Instagram. In analysing the algorithmic imaginary of sex educators, eight themes were found that will be presented in three sections.

Firstly, sex educators become aware of algorithms through the multiple incidents with content regulation. It is particularly the strange outputs of the algorithm that turned their attention towards the algorithm and enticed them to analyse its output. Sex educators put in the effort to find a pattern in the decisions of the algorithm, to circumvent any future content regulations. However, they find it hard to find such a pattern, as they experience the algorithm as random, confusing, and inconsistent. Hence, due to the unpredictability of the algorithm, participants felt that regulation may happen at any given time, which caused feelings of fear and insecurity for the stability of their work.

Secondly, sex educators encounter a variety of regulatory measures on Instagram, specifically targeted towards sex, sexuality, and nudity. Often sex educators learn about the different forms of regulation through the community of sex-related content creators. Yet, all participants also experienced at least once a content removal, account removal or a shadowban themselves. They experienced pushbacks from Instagram like inhibiting their financial opportunities, such as taking on sponsorships, or by being shadowbanned. Sex educators consider censoring words related to sex in their posts to be able to prevent regulations, even though this runs counter to their aim of promoting open communication about sex.

Lastly, sex educators feel that Instagram strictly regulates sex and nudity on the platform. Although they understand the intentions of Instagram to remove porn and child porn on the platform, they dread the lack of nuance in the way it is regulated. They feel that Instagram does not understand the importance of sex education, and does not prioritize it. They relate the obstacles on Instagram to their experiences in the offline world, where they see that there are severe pushbacks against sex, sex workers, sex education, the LGBTQIA+ community and marginalised groups.

4.1. Experiencing the algorithm

4.1.1. Strange encounters

Throughout the interviews, participants mentioned various incidents of content regulation that had peaked their interest and made them think about how regulation systems worked. It was particularly the strange encounters (Ahmed, 2000) that sparked their attention. As Bucher (2018) argues it is the strange, surprising or wrong outcomes of algorithms that make users aware of them and prompts them to evaluate their outcomes. To illustrate, I will provide some examples of strange encounters and how this motivated participants to evaluate the algorithms.

One of the participants had done an Instagram live (a live broadcast of a video that followers can watch in real time) in collaboration with a large lingerie brand in the Netherlands, in which she explained about the clitoris and sexual pleasure. Yet, this video got removed. She thought it was odd that on an Instagram account that is full of half-naked people in lingerie, it is an informative video that is removed. Yet, more importantly, she said: "my account of course is full of things that are about sex and also with the terms sex, and yet that is not taken away." This made her think about why that is: "Maybe it is just that she just has a lot more followers, so maybe it is noticed sooner." The oddness of the situation made her analyse what produced the difference in outcomes, and it led her to conclude that perhaps the difference in the amount of followers is the factor that got the video on that account removed while leaving the content on her own account untouched.

Another participant described an experience with a post removal, where Instagram had deleted one post out of three almost identical posts. She thought it was weird that only one was removed:

That's funny, because the other two were almost the same, but they weren't removed. […] What are the real guidelines if there are actually 3 almost, maybe slightly different photos […] The fact that just one is removed, yes, it is just weird.

It left her wondering what must have caused that, and mostly left her confused: "We were just flabbergasted […] Yes, that is just very strange. Also like who is behind it and who controls it and who determines this? So weird." The strange encounter had sparked her attention, and made her wonder who makes the decisions about what is and is not allowed on the platform.

Lastly, another participant became aware of banned hashtags through a strange encounter. They wanted to add a particular hashtag to a post, but the hashtag was not provided as an option and there were no posts connected to the hashtag. This made them think about why that is and what consequences derive from still using this hashtag:

I wonder if those hashtags are connected to something on the algorithm that maybe tells Instagram this is what they're trying to post, I'm not sure. […] I wonder if when someone tries to use that hashtag, does that pop up in the system to be like hey look this person is doing that, therefore watch them, keep a close eye. I'm not sure but I also don't want to risk it just in case.

Thus, this incident made them aware of banned hashtags, and it made them think about how the system may react to the use of the hashtag. Out of precaution, they refrained from using the hashtag in posts.

Even though for every participant the specific incident was different, they all experienced a strange encounter that provoked them to evaluate the workings and outputs of the algorithm. The odd outcomes or a change in the usual set-up of the system made them wonder how the regulation system must work and in some cases also motivated them to change their use of the platform.

4.1.2. Thinking like an algorithm

Sex educators want to understand the algorithmic systems that regulate their work in order to prevent future regulations. Hence, they try to deduce a pattern in the way that their content is regulated to understand what it is about a post that triggers the algorithm to regulate it. In a way sex educators think like an algorithm by analysing the input and output data, and by using experiments to see what works or does not work.

In the interviews it became clear that the participants did not find the community guidelines of Instagram informative, particularly because there is no specific information related to sex education: "What's really frustrating, too, is obviously as a creator, I can keep up on what's going on with the algorithms. But trying to find sex educator specific information is really just trial and error." Therefore, in order to prevent regulation, sex educators have to analyse how their content is regulated: "at some point if you've been blocked by Instagram a few times, you'll get a sense of which post doesn't work and which ones do."

Most participants kept track of the engagement and reach of posts, to analyse whether posts did well or not. One participant explained how she tracked this: "Stories peak at 700, posts can peak at 800 and 1000, depending on who you're sharing it with or whatever. So if something is blocked, then it completely disappears, so then instead of being 700, you see that peak fall to 100." When they see a sudden change in the usual engagement, they try to explain and understand what caused this. If they ensured optimal conditions for the post and there is still no engagement with it, they deduce that this must be due to the regulations of Instagram:

> There is occasionally times where I'm like this was well done, it's well lit, it's captioned, it's posted at the exact right times based on when my highest engagement is, it's been promoted really well […] And the engagement just isn't there, and I'll ask is anyone seeing this? No. And that's when you know it's been throttled by Instagram.

By analysing the engagement with posts, sex educators come to understand the workings of the algorithm. In order to be sure about their suspicion that their account or content is being shadowbanned, they use a personal account to see if people can still find their account. Through these means they become aware of the fact that their account is subject to regulatory practices.

Once they have deduced that their content has been meddled with by Instagram, sex educators try to understand what it was about a post that caused the regulation to occur. They compare the posts that were flagged or shadowbanned to the posts that were not flagged by Instagram. One participant experienced a post being banned by Instagram in which she talked about vulva diversity and the insecurities that women can have about their vulva. She compares this to other content on her account that is not banned: "I've got videos then talking about anal sex, and that's not banned […] It feels like a punishment of stay within the lines of what is acceptable and talking about vulva diversity clearly isn't acceptable." Participants try to understand what it is about a post that triggers the algorithm to regulate it.

Often times they also regard this process as a form of "trial and error", or even like a "game". They test out all sorts of things to see what does or does not work:

> It's a game of how much can I say? Well, not saying too much so that I don't get in trouble with Instagram. […] It is trial and error. I'm having to go through and see what works? What doesn't work?

Hence, sex educators think like an algorithm when trying to understand the algorithm that regulates their work. Sex educators gather and analyse all sorts of input and output data, such as views, likes, the conditions of a post, or the content of a post. They change up and test different factors and conditions to see whether that changes the outcome of the algorithm. Through these means they try to get a grip on the algorithm and ensure that their work is not hampered by them in the future.

4.1.3. A confusing and ever-changing algorithm

Even though sex educators put in the effort to understand the algorithms that regulate their work, they cannot seem to find a pattern in the way it regulates content. They experience the algorithm as confusing and ever-changing. This makes it difficult to learn how to prevent regulation, making them feel stuck in a cycle of regulation.

Participants described that they felt frustrated that they could not find a pattern in the way that their content is regulated: "I'm not exactly sure what the rule is here. And I am good at seeing connections and structures, but I have not yet been able to see any connection there". Sex educators experience the algorithm as confusing, random and inconsistent: "I think the algorithm is very confusing and fickle. I think you could just do something one day and it likes it and do something the exact same thing the next day and it doesn't." Because if this it can be difficult to determine what is affecting their content and visibility, and whether it is even the algorithm that is causing a lack of engagement: "And I don't know if that's the algorithm or just like people or time of day. I think it's just, I think it's so random to predict."

The incomprehensiveness of the algorithm and the way things are regulated made them annoyed and visibly confused. The following quote shows the confusion of a participant with the way that her content is regulated:

> It must be words, but then if it was words, all of my content would be banned? So I actually don't know. […] You know, I do pay attention to this and I just. I don't. I don't know. […] So there's not a pattern that I can see. I have no idea how it works.

Another layer of complication is added by the fact that the algorithm appears to be constantly changing. Even when sex educators feel that they have a general understanding of how the algorithm may work, the next day the algorithm may be different and they have to start all over again: "The algorithms are constantly changing, how much they censor and what

they censor is constantly changing. […] It's an ever changing monster." They describe an ebb and flow of being censored more or less in different periods.

The ever-changing nature of algorithms incites frustration in participants, as it takes a lot of work to keep up with all the changes: "It takes so much to be able to set on, learn the algorithm, and try and basically bend over backwards to it. I can't do that every time there's a change and there's a change every few months so." This inhibits participants from learning what works and what does not work, and they cannot make the appropriate changes to their work to prevent regulation. Participant described it as being stuck in a cycle: "Because I can't recognise a pattern, I can't stop the cycle of me having my work flagged up, not being removed but not being shown. I don't know why, so then it happens again. So it is just repetitive." They feel that there is no opportunity to learn from their mistakes, and with that learn the rules of Instagram and adhere to them to prevent regulation. One participant describes the experience as follows: "As if you live in a certain culture of fear. As if you are dominated by an invisible dictator who thinks certain things are not okay, but what exactly is not okay? And why?"

Thus, for sex educators the experience with an algorithm can be described as confusing and frustrating. The ever-changing and inconsistent nature of the algorithm makes it difficult to get a grip on the workings of the algorithm. Even if one would want to adhere to its demands, it appears as if the algorithm makes it impossible to do so.

4.1.4. A volatile existence

The inconsistency of the algorithm's output makes it unpredictable. Sex educators cannot seem to get a grip of the algorithm, and when and how it is triggered to regulate and restrict their content. This makes it feel as though regulation of their content and their account could occur in any moment. Sex educators experience their existence on Instagram as volatile, as something that can be taken away any second. Indeed, participants felt insecure about their existence on the platform:

> It is scary that I have to kind of blindly trust this platform that also doesn't appreciate my work. You know it feels like there's a timer on it. […] I can't trust what I've built, because it can be taken away any second, which is scary.

Participants described a lack of ownership over their account, and a feeling of powerlessness over what happens to their work. One participant described: "If Instagram

decided tomorrow, that I have just said or done too much, they could just take my account away and I would lose everything on there."

The fear of losing one's account is even further amplified by seeing a lot of accounts around them being deleted. This confirms the idea that there may be repercussions from Instagram. Participants described that they would feel devastated if they lose their accounts and the networks they have built, as they have put a lot of work and effort into it: "I lose my entire network, I have to start all over again from scratch. Just thinking about it makes me very anxious, I think. Yeah, what the fuck am I supposed to do? Then you become very demotivated."

Many feel that doing this work on Instagram is so unstable and unreliable that they do not trust it to be their main source of income. They diversify their income sources, and do not focus solely on Instagram. One participant explained:

> I'm very self aware of wanting to make sure I'm putting far more effort into my in-person things, because there is literally just no guarantee. But it would be a big part of income gone if I get banned or anything like that happens. It would like affect a lot of things, and not even just my feelings, but like actual livelihood.

Despite the insecurities that the platform brings along, sex educators still use Instagram. They feel that in current society, social media is the only way to reach the audience that want to reach: "especially with a subject like this, social media is just the way to reach people […] You can't really do without social media, for all sorts of reasons, but especially for such a small company or organization." Sex educators also express gratitude for the platform, as it has given them the opportunity to reach people, connect to people and help them. Yet, they find it conflicting to be so grateful for and dependent on a platform that does not appear to want them. The experience can be described as a love-hate relationship with Instagram:

> On the one hand, my love for it is that without this platform, I definitely wouldn't have reached the people I've reached now. […] But my hate is very much that when I am building and growing my community, I run into all this bullshit so you think, oh man, what a prude hassle.

So, the inconsistency and unpredictability of the algorithm brings a lot of insecurity to the work of providing sex education on Instagram. It is difficult to anticipate when regulation

will happen, which makes it feel as though it could happen any time. Sex educators feel as though they cannot trust their existence on the platform, which is scary as they are dependent on it to find and built their community.

4.2. Censorship of sex education

Sex educators experience regulation of their content on Instagram in a variety of ways. Participants described experiencing content removals, and even account removals. Many of the participants also mentioned being shadowbanned. As said earlier, the shadowban is a user-generated term used to describe the reduction policies of social media platform, where the visibility of content and accounts is algorithmically reduced (Are, 2021; Gillespie, 2022). As the participants used the term shadowban, this will be the term that I adopt when describing their experience with algorithms. In this section I will describe how sex educators experience the content regulation practices meant to reduce and restrict content related to sex. Yet, first I will highlight how sex educators become aware of the rules and regulations through the community of sex-related content creators.

4.2.1. The community

Instagram regulates content containing sex and nudity on their platform. This also impacts the work of sex educators as their content relates to sex. Sex educators wish to understand the rules and regulations that impact their work. However, participants felt that the community guidelines do not aid in understanding how sex education is regulated on Instagram, as they are not specifically tailored to sex education. Still, sex educators appear to have a decent understanding of what rules and regulation apply to their work. Participants described being informed and educated about content regulation practices through other sex-related content creators. As a community they learn and inform each other about what is going on and how to circumvent it.

One participant explained that it is odd to know the rules without the rules being explicit and clearly communicated:

They are set, they are written somewhere and they're a bit vague, but it's kind of like I think we all know […] It's just funny that we all know them without them being explicit. And it's the community that learns the rules, instead of Instagram telling us. In

a way like we, we share, it's like word of mouth. […] It's unfortunate that you're learning about the rules through someone else's misfortune.

Many participants described that they had learned about the different forms of regulation on Instagram through other sex-related content creators. These content creators create posts explaining how the regulation works and what you can do about it: "They make really helpful graphics of, okay, this is what's happening, this is how it looks, this is how you can check in your settings how your account is being censored or policed." Furthermore, some content creators create a post when they experience a content removal or a shadowban, and express their frustration with the regulation that occurred. Also the participants of this study described creating posts when they experience different forms of regulation to inform their followers about what has happened. Through these means sex educators and other sex-related content creators spread their knowledge and perspectives on content regulation on Instagram.

Participants described a sense of community amongst sex-related content creators and others who work in this field: "There's a big sense of community between people who are in this line of work because we're all being fucked over by basically. So we look out for each other." Not only do they try to inform each other about content regulation, they also try to help each other overcome it. They share each others content to make them more visible and like each other's work to generate more engagement: "So the shadowban is kind of countered, or we try to counter it as friends and fellow sex-related entrepreneurs […] by always liking, commenting and saving and maybe even forwarding it too." They feel that the way they support each other is quite unique for a community of entrepreneurs.

Hence, it is through the misfortune of others that sex educators learn about the rules and regulations that also might impact their work. As they all encounter the same pushbacks, the community of sex-related content creators informs and supports each other to crawl out from under the invisibility cloak of Instagram.

4.2.2. The shadow cast by Instagram

Not only do sex educators learn about the rules and regulations through others. Sex educators also experience pushbacks themselves on Instagram in a variety of ways. The different forms of content regulation that sex educators experience makes them less visible on the platform. Their ability to produce and spread content is taken away when their content or account is removed. Additionally, they are robbed from financial opportunities, such as

taking on sponsorships, which limits the financial support they have for their work. Yet, it is especially the shadowban that limits their visibility and with that their ability to reach and educate new users.

Several participants described setbacks in the financial opportunities that they could take on. Many participants sold their own products, such as a card game to open up the conversation about sex, or provided therapy sessions. Yet, some participants described that they were not able to sell or advertise their products or their account due to regulations of Instagram. Furthermore, they were not able to take on sponsorships, a commonly used method for content creators to finance their work on platforms. A participant explained:

> I've also had issues too with them just blatantly saying like you can't post the sponsored content because you're working with a lubricant company or you're working with a menstrual cup company [...] It's frustrating and it limits how much sponsored work I can do as a creator, which limits how much like financial support I have continuing to do what I do.

Through these means, sex educators have limited financial opportunities to sustain their work as a content creator on the platform.

The visibility of sex education on Instagram is reduced through the means of content regulation. All participants mentioned the shadowban as a way in which this occurs. Indeed, many of them also experienced shadowbans. A participant described the shadowban as follows:

> It [posts] never reaches new people, it doesn't show in the feed, it never shows on explorer page, it doesn't come up. And it [Instagram] never recommends my work to anyone. The only way people see it [posts] is if people follow me, go into their list of people they follow, find me and actively seek it out.

A similar description was given by other participants. Often they noticed that their content was doing quite well at the start, yet it would then reach a plateau and the amount of engagement would drop significantly. They became particularly confident of their assumption that they were being shadowbanned when they could not find their own account when they searched for it in a search query. The shadowban stops sex educators from reaching new users, as their content is not recommended or shown to anyone other than their followers:

"Our goal is to reach new people who can also learn to communicate openly. But you can't do that because Instagram doesn't allow that."

Participants described their experience with the shadowban as "aggravating", "frustrating", and "disheartening". They find it frustrating to put a lot of time and energy into creating content that does not reach anybody. This is essentially demotivating: "It means that it basically is stopping you from growing. It is working for nothing. It just basically allows you to create content and keep an effort in, but nothing can come of it." They feel that Instagram is inhibiting them from growing: "I don't feel like I've grown as much as I could have. I haven't had the engagement that I could have if I wasn't constantly censored and edited."

Additionally, sex educators feel that the shadowban is a sneaky way of regulating content. They feel that it is "devious", because it is not communicated to them that it is happening. Participants experience self-doubt when they are shadowbanned, as they do not know what is causing a lack of engagement with their content. One participant described the experience with the shadowban as "a slap on the wrist" and a punishment:

> It's more of a punishment, because it's not outright removal. It's like we don't like this, we're just gonna [sic] basically cast a shadow over it […] It's almost like gaslighting. So it's like my content isn't outrightly removed, but it's not shown. So it's like I'm in this in between thing and they're not making a big deal out of it, but they're still punishing me. And I can't figure out why. So it's not as if I can have any control in it.

Thus, through different means the presence of sex educators on Instagram is reduced. Instagram limits their financial opportunities, and with that their ability to sustain themselves as content creators. Additionally, through the means of shadowbans and content removals, the visibility and reach of their content and account is undermined.

4.2.3. Sex or s*x

Sex educators are subject to a variety of content regulation practices. Participants described incidents with content removals and shadowbans. Sex educators believe that it is mainly due to the language they use, words related to sex, that their content is noticed and removed by the systems that Instagram uses to regulate content. To be able to circumvent content regulation and still provide sex education, many sex educators consider censoring words related to sex in their posts.

Sex educators believe that it is the sex-related words in their posts that may make them subject to content regulation. Often, they were informed about this through other content creators. Participants described seeing others censor words related to sex, which made them theorise about why that is. Yet, they also experience themselves that posts containing sex-related words will be regulated: "I will have my engagement tank if I use anatomically correct terms, which is really frustrating. If you use the word sex or vulva or masturbation or any of these, it can affect your engagement."

Participants believed that there is a system that scans through and detects content that is not allowed. They used a variety of terms to describe these systems, for example "computer program", "AI", "algorithm", "automatic systems". A participant explained:

> Instagram accounts are kind of read or scanned by a computer program and it just recognizes things and picks out things and then just says yes that should not be there, that should not be there, that should not be there. And that it goes super fast and that is why quite often things are removed of course.

It is difficult for sex educators to still provide sex education when words related to sex or body parts trigger the algorithm to regulate their content. Participants believed that the censoring of these words can help circumvent these forms of regulations: "if you write all the words wrong, you get a long way". For example, they explain that you can write words by replacing letters with an asterisk or by spelling them wrong.

However, sex educators feel conflicted about censoring words related to sex and body parts. Participants explained that their motivation for their work on Instagram was to break taboo's and overcome the stigma's that surround sex, sexuality and body parts. Hence, the censoring of words appears to run counter their values and objectives. All the participants experienced a dilemma by having to choose between being visible on Instagram and being able to align with their value of open communication about sex.

Some of the participants refused to censor words related to sex. They felt that the censoring of sex-related words could signal to their followers that it is a subject of shame and a taboo: "it automatically gives a kind of feeling like hey you should be ashamed of these words, and that's exactly the feeling we wanted to take away." They recognized that this could mean that their visibility on the platform would be reduced, and that they risked losing their account. Yet, they accepted this risk: "I rather have fewer followers or less visibility and

information that I really support, than that I make something of which I think that is not correct at all."

Other participants chose to censor their words related to sex in order to remain visible on the platform and continue to be able to provide education about sex and sexuality. They argued that even though the words are written differently, their message will still come across to followers: "If I then write the word sexuality like seggsuality or sexuality? I think I'll still be able to pass on the message." They feel that it is still better than not being able to provide sex education at all. One of the participants explained:

> Anything that I put out there is intended for someone else to read. If that was taken away because I used the word [sic], I didn't censor myself, then I wouldn't be able to help as many people as I potentially help. […] It's just that it's a fickle system, right? And it's a circle, it's a cycle, and until Instagram breaks the cycle, I probably won't stop. […] And if you look at an X and it just is a small X instead of a big X, I don't think it's gonna [sic] change education, I hope.

Regardless of the decision that sex educators make, they all feel that there is a decision to make. They experience a "trade-off" between visibility for their account and being able to speak openly about sex, which can be difficult:

> That is very much the contradiction that I sometimes feel in myself, or like the contradiction of my work. I want to open up the conversation, but my main communication channel is a platform like Instagram and to be visible there, I have to go against my nature and use other words.

To conclude, sex educators experience different forms of content regulation on Instagram. They believe this is caused by the fact that they openly speak about sex, and that this is not allowed. Sex educators believe that algorithms are used to scan content for sex-related words, and potentially remove them or shadowban them. In order to circumvent future regulations sex educators feel that they should censor words related to sex in their posts. Yet, this does not align with their objective to create an open conversation about sex and sexuality. It is consistent trade-off between existing on the platform and promoting open communication.

4.3. The world hates sex

Sex educators endure a variety of content regulation practices imposed on them by Instagram. The rules and regulations that impact them are intended to remove sex and nudity from the platform, yet they also befall education about sex. Sex educators try to understand why their work is targeted the way it is. They relate their experience to the current societal and political climate, where pushbacks against sex and sex education also occur.

4.3.1. Sex education is not pornography

Sex educators try to comprehend why their content is so heavily targeted by Instagram. They believe that the intent of Instagram is to remove pornography from its platform. Yet, they feel that, because of the lack of nuance in the way content is regulated, these regulations also befall them. They attribute the lack of nuance partially to the use of algorithms in regulation. Nevertheless, they dread that Instagram does not view sex education as a priority, and with that does not take subsequent measures to protect its existence on the platform.

Participants explained that they understood the motivation of Instagram to tackle pornography, particularly child pornography: "I understand the desire of Instagram not to be just completely infiltrated with porn. I understand that like they're trying to avoid that." Also, they understand that to tackle online sexual abuse, content containing sex and nudity must be removed quickly: "I also understand very well that a lot of things are deleted automatically and quickly."

However, participants found it dreadful that there is no nuance in the way that content related to sex is regulated. They feel that Instagram groups everything related to sex together in "one big heap", as if it is all equally inappropriate and harmful: "It's difficult for someone who's trying to educate in sexuality. They just group everything altogether as like sex needs to be censored, doesn't matter if it's education or pornography, it just needs to be censored." Participants feel that there is a risk in treating sex education the same way as pornography:

> The apathy to just lump everything together, everything that has to do with sexuality or even with just your body, just things that are on your body, such as nipples, that that's not okay? That ensures that the fear of child porn also seeps into a fear of everything that has to do with sexuality. And to just throw it all in one pile, that is simply detrimental for all the progress we have made.

They feel concerned about the fact that the fear of child pornography and pornography is hampering the progress that is made with regards to sex and sexuality. Indeed, participants felt that the way Instagram regulates sex and naked bodies, leads to the sexualisation of naked bodies and body parts: "The company is sexualizing all sorts of things that aren't about sex at all. That is just a naked body."

Sex educators attribute this lack of nuance partially to the fact that algorithms and computer systems may not be able to distinguish context. They believe that algorithms may not be capable to see the nuance between content that is made for educational purposes, and content that contains pornography: "you can see the difference between a photo taken on a holiday and a person who in porno is lying all like that. But maybe, that program probably can't see it." One of the participants explained that the regulation of sex education content by Instagram is most likely not intentional. Rather the removal of sex education content is "by-catch" of the algorithms that are used to remove sex and nudity:

It is not the intention or the explicit goal to censor sex education […] They just don't have the capacity to deal with it very actively. And then a cheaper solution is to take everything that has to do with nudity or sex offline.

Still, sex educators find it dreadful that Instagram does not put in more effort to protect sex education from being illegitimately and disproportionally removed from the platform. They find it a shame that Instagram does not see its importance and its value: "They don't really know that sex education is just very important and can prevent a lot of awful things and can bring about many good things." They believe that Instagram does not see sex education as a priority:

With the scale of these sex educators, well their interests probably just fall short in the bigger picture of the priorities and goals of those platforms. So I think they don't really care that much and it's not very high on their priority list.

Participants thought it is a shame that Instagram does not see the value of sex education. They feel that Instagram is an excellent place to provide inclusive and accessible sex education: "I think because sex education is not as accessible to many, social media is actually a great platform to create things that start these conversations, create these

communities." The sex educators wish that there was an option for them to state that they are an educator and with that reduce the amount of regulation on their content.

Thus, sex educators understand the motivations of Instagram to regulate content related to sex and nudity. However, they denounce the fact that there is no nuance in the regulation of sex and nudity. They understand that algorithms might not be capable of detecting such nuance. Nevertheless, they wish Instagram would put in more effort to protect sex education on the platform.

4.3.2. Algorithms as culture

Sex educators feel that Instagram does not understand the importance of sex education, and that it does not think it is a priority. They relate the attitude of Instagram towards sex and sex education to the current political and societal climate. Throughout the interviews participants mentioned a variety of current events in which there were pushbacks against sex education. Hence, they view the disdain towards sex and open communication about sex as a societal problem, rather than something that is uniquely present on Instagram. Yet, even though some forms of sex and nudity are strictly regulated on the platform, other content, pertaining to a male gaze, appears to be exempt from regulation. They argue that the bias in regulation is due to the patriarchal values that Instagram adheres to.

Participants feel that the lack of priority for and understanding of sex education is not exclusive to Instagram. They feel that in general, society does not understand its importance:

> There are a lot of people who don't prioritize sexuality and sex education. And that's more a kind of general societal thing. Like it is really a shame and it's frustrating, and I'm trying to overcome that problem. But that is not limited to Instagram only.

Sex educators feel that there is a lot of "push back" against sex education not only on Instagram, but in society in general: "it's yes, it's a broader issue I think, and I think deleting these types of accounts is just part of that, or at least regulating it." Participants related their experiences with content regulation to the issues regarding the acceptance for sex and sex education that are presented in the world. They mentioned recent political debates, in the U.K., the Netherlands, the U.S.A., in which sex education was pushed back against. One of the participants described a situation in the U.K. where the work of an online sex educator, similar to them, was disputed:

Politicians are taking her and using her as fodder for this scaremongering of sex education in the U.K., saying it needs to change and we mustn't teach kids about queerness and stuff. So yes, the world hates sex or sex education, and the world hates queer people.

They see the resistance towards sex education not as a problem exclusive to Instagram, but rather as a general public movement. Another participant mentioned a recent situation in the Netherlands, where a sex education program for primary schools called *lente kriebels* was under dispute politically and the members of the organisation that created it, Rutgers, were severely threatened online. The participant explained:

I think you've also noticed what is going on with *lente kriebels*. So what you get is there is also resistance […] When we talk about Rutgers or the COC[1], we really hear and see a lot of negative reactions, so there's a lot of frustration in that sense.

Not only did participants refer to the issues with regards to sex education in the country of their residence, they also related the issues to the fact that Instagram is a company originating from the U.S.A. The participants believe that the strict regulation of sex and sexuality on Instagram is related to the current political climate in the U.S.A. with regards to sex education and LGBTQIA+ rights: "You can follow what is happening in America in terms of how people are speaking about bodies, how trans people and queer people are spoken of." The participant goes on to explain that they experience fear:

That fear is in the fact that you are aware that you are on a platform, so you know that you can influence people in a positive way, that you could help people with what you do. But that this platform is also influenced by people that you yourself cannot influence, and who are so far removed from you, also culturally.

Hence, they see that Instagram represents certain American values in how they regard sex and sexuality. Not only do the participants see an American influence in the way content is regulated, they also feel that it represents a patriarchal worldview. While sex educators experience heavy regulation of their content, they see that there are other accounts that

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[1] The participant refers to the COC Nederland, a Dutch LGBTQIA+ rights group founded in 1946 (COC, n.d.).

contain sex and nudity that are allowed to exist on the platform. They feel that there is a bias in the way content is regulated that adheres to a male gaze:

> There is definitely a bias there as far as, like, what is seen as allowed and what's not. I feel like there's certain body types that are kind of celebrated and there's others that just aren't seen as allowed in these spaces. […] Beyond the typical gaze like the white male system, heteronormative gaze, whatever is beyond that right, skinny, seemingly perfect bodies, large breasts […] Beyond that, I think it is seen as problematic, it is seen as maybe too sexual, maybe too sexual in a way that it's not for that audience.

Participants analyse the output of the algorithm and look at what is and is not allowed to exist on Instagram. They find that content that pertains the male gaze when presenting sex and nudity appears to be exempt from the regulation practices of Instagram:

> I think Instagram is a really interesting one because it's founded on visuals, so when you have visuals that are classed as inappropriate versus appropriate, it's clear as day what messaging that's given. It's just what is allowed is very masculine, very mainstream and very objectifying. Rather than empowering. It's literally giving evidence to what all of us feminist sex educators are saying.

Thus, participants felt that the regulation of sex and nudity on Instagram is not unique, rather it is a reflection of the power dynamics and the controversies they also experience in the offline world. They relate the pushbacks against sex education on Instagram to the resistance against sex and sex education in the current political and societal debates.

5. Discussion

The previous section presented the results of this research along the lines of a phenomenological analysis. In this section the implications of these results will be discussed and contextualized in light of other research. This research aimed to understand how online sex educators experience and perceive algorithmic content regulation on Instagram. Bucher (2017) identifies three elements of the algorithmic imaginary: becoming aware of the algorithm, experiencing and perceiving the algorithm, and a potential change in the use of the platform. These three elements also appeared in the analysis of this research, and will now be further elaborated upon.

5.1. Becoming aware of the algorithm

In the research it became clear that online sex educators learn about the intricate system of rules and regulations of Instagram through the misfortune of others. There is an active community of sex-related content creators that informs each other about the content regulation that they experience. Even simply the censoring of words in a post can inform other sex educators that Instagram may regulate content that include sex-related words, as otherwise it would be odd that a sex educator would voluntarily choose to censor words related to sex. The encounter with censored words in the post of other sex educators has motivated some of the participants to also censor their posts. This is striking, as it is not a direct encounter with the algorithm itself, but rather an encounter with the adaptation of another user to the output of the algorithm. Still, this indirect encounter has a powerful effect on the algorithmic imaginary of participants, and it has prompted them to change their use of the platform. This finding implicates that the algorithmic imaginary is not solely shaped through one's personal encounters with the algorithm, as appears to be the focus of Bucher (2017), but that it can also be formed through the algorithmic imaginaries of other users. Indeed, Savolainen (2022) speaks of algorithmic folklore as the passing on of existing beliefs and narratives about algorithmic content regulation. These folk theories (DeVito et al, 2018) need not be true, yet, as seen in this research, still may produce powerful effects in the perceptions and behaviours of users on a platform.

Nevertheless, sex educators also become aware of the algorithm through their own misfortune. All participants in this study have encountered at least one incident of content regulation. These incidents inform them about the workings of the algorithm. A participant

described such an incident that made her think, as it was a photo of the word sex that was shadowbanned:

> This was an exceptional post in the sense that there were words in the image of the photo instead of the written word sex. If the photo is the word, I don't know, sex and or, I don't know, group sex and orgies you know, then the word sex must be changed, otherwise it will be banned.

Hence, she derived from this incident that also words in images or photos were scanned by the algorithm, and since then she censors words related to sex in her photos as well.

Perhaps, what makes any incident of content regulation a strange encounter for sex educators is the fact that they feel wrongfully categorised by the algorithm. Bucher (2017) finds that the cybernetic categorisations of users can conflict with how users view themselves, which turns their attention towards the algorithms that categorised them. The content regulation that sex educators experience, makes them feel as though Instagram believes their content is harmful or inappropriate. Sex educators feel that they are not producing harmful content, rather their objective is to help and educate people:

> The fact that you actually want to do good, that you want to offer people information to make them feel more comfortable and that is then being blocked. And you think, I'm really not doing anything wrong, but somehow Facebook doesn't want me / us here. And the same applies to Instagram

This feels unfair and incorrect. They try to explain why this is happening, and conclude that Instagram does not see sex education as helpful, but rather as a risk to be resolved. They even believe that "Instagram hates sex." Thus, these strange encounters of being wrongfully categorised as a risk and a hazard has significant implications for the algorithmic imaginary of the sex educators.

This research reconfirms the idea that strange encounters are a powerful source of influence on the algorithmic imaginaries of users, however, it widens the scope of what can be seen as a strange encounter. There are many other groups of users whom, like sex educators, feel unjustly removed from the platform and who experience disproportional amounts of content regulation, including but not limited to Black people, transgenders, sex workers, and

LGBTQIA+ (Are, 2021; Are & Briggs, 2023; Blunt & Wolf, 2020; Haimson et al, 2021). Hence, the feeling of being wrongfully categorised as a harmful and inappropriate user by social media platforms may also for them play a role in the way they view these social media platforms. It raises questions as to what these social media platforms consider to be right or wrong, safe or unsafe, and it may prompt users to think about the values that these social media platforms represent and reinforce. Therefore, these strange encounters are a powerful instigator for users to reconsider how algorithms are used to exert particular belief systems.

5.2. Experiencing and perceiving the algorithm

Through their work on the platform, sex educators experience and perceive algorithms, and form a 'tacit knowledge' (Bucher, 2017) of how these algorithms work. Similar to Bucher's (2017) findings, when asked directly about algorithms, participants often proclaimed they had no technical knowledge or understandings of how these systems work. Yet, in discussing specific incidents with content removals or the shadowban, participants had elaborate hypotheses of how these system must work. For example, participants described the shadowban as not having their content be recommended on feeds, in explore pages, in stories and reels, and not having their accounts be findable in the search bar on Instagram. Said measures are similarly described by Gillespie (2022) in his theorization of the reduction policies, and relates to how Are (2021) discusses the shadowban in her work.

The sex educators analysed the output of the algorithms to understand how their work is governed by them. Indeed, content creators have to keep up with the algorithms that regulate their work (Cotter, 2021). The platform economy has given rise to a new class of workers such as gig workers, content moderators, and creative laborers whose work is governed by an 'algorithmic boss' (Cotter, 2021; Duffy, 2020; Kellogg et al, 2020). Their success is largely determined by their ability to be visible in algorithmically-ranked feeds (Bishop, 2019; Cotter, 2019). Hence, for creative laborers understanding the algorithm is critical, as it determines ones' livelihood and income (Duffy, 2020). However, this can be a difficult process, especially for those content creators who are disproportionally affected by content regulations.

Even when sex educators try to understand what triggers the algorithm to regulate their content, they cannot seem to find a pattern and break the cycle of regulation. Sex educators experience algorithms as confusing, random and inconsistent. There is a continuous game of learning the wants and needs of the algorithm as it is continuously updating its

demands: "It's an ever changing monster". The unpredictability of the algorithm enticed fear and insecurity in participants, their existence on the platform felt unstable and volatile. Duffy (2020) also finds that algorithms provide a new layer of instability to the creative labor economy, due to the inscrutability and capriciousness that surround algorithmic systems on social media platforms. Their precarious nature leads to feelings of annoyance, frustration, and even fear, also in the case of sex educators.

5.3. Recursive relationship between users and algorithms

The algorithmic imaginary of participants also influenced their behaviour on the platform. Indeed, whether or not they are correct, the imaginaries of users influence their behaviours and with that produce material realities that feed back into the algorithm (Bucher, 2017; Rader & Gray, 2015). The most noticeable change in behaviour, in the case of sex educators, is seen in the self-censoring of words and images. Many sex educators censor words related to sex and body parts by replacing letters with signs, writing words wrong, or replacing them with words such as intimacy. This adaptation to the algorithmic output is a quite outspoken and visible way of portraying a certain algorithmic imaginary, and the adapted posts might also notify other users on the platform. As mentioned earlier, these encounters with other people's adaptations to the algorithmic output is a powerful source of influence for the algorithmic imaginary of users. Hence, the dialogical recursive relationship between a user and the algorithm may be too static of a representation. Rather it is a network existing of users and the algorithm, where the algorithmic imaginary of one user may also influence and change another user's relationship with algorithms.

Sex educators experience their relationship with the algorithm as trial and error. They adapted their posts to their perception of how the algorithm might work. And they experimented with their content, for example, by including or excluding certain words, to see if it would trigger the algorithm. Like the example of the participant who posted a photo of her card game containing the word sex to see if it would solicit a response. After this post got shadowbanned, she started to censor words related to sex in images. This example shows the recursive interplay between users and algorithms, where they respond to each others' actions and reactions. As the algorithm keeps changing and transforming, there is a continuous process of trial and error.

Similarly, platforms and the algorithms that they employ adapt to the constant changes in the behaviour of users. Where previously only explicit words, such as sex, were being

shadowbanned, now platforms have gone on to also censor more implicit words related to sex. Indeed, a participant mentioned that Instagram had changed its algorithm two years ago to also censor the word pleasure, a seemingly innocent word that users may have used in replacement of the word sex to keep on providing sex-positive content and sex education on the platform. As users and algorithms keep on adapting to each others changes in behaviour, the conversation about sex is pushed more into the shadows. This recursive relationship represents a downwards spiral, where increasingly the lingo of sex, body parts, and even intimacy is being stigmatized.

Yet, sex educators not only adapt to the algorithm's demands, they also try to fight against them. Sex educators help other sex-related content creators that are shadowbanned by sharing and liking their content, as they believe the increase in engagement can make them more visible. Therefore, the experience with algorithmic content regulation also has the capacity to bring a community closer together and fortify their relationships. As they all endure the same struggles, these content creators come together and help each other, even if this is simply done by liking a post. Similarly, one participant explained that they create a post when they are shadowbanned and entice their followers to respond to that post as a means to increase engagement with their account. Hence, the outputs of the algorithm also encouraged participants to go against its decisions. Participants described feeling more activistic and fervent to carry out their mission due to their experiences with content regulation. As Bucher (2017) describes, algorithmic imaginaries have a productive and affective capacity that mobilises users into action. The encounters with algorithms has the affective capacity to mobilise the sex educators to a state of activism.

5.4. Algorithm as culture

When sex educators analyse the output of the algorithm in terms of what is and is not allowed to exist on the platform, they find that there is a bias in the way content is regulated. Whilst trying to help and educate people, sex educators endure regular incidents of content regulation. Yet, there are certain Instagram accounts that portray nudity and sex that do not appear to be targeted by Instagram in the same way, and it makes them wonder why that is: "Why are these accounts allowed to exist and ours not?" Sex educators believe that Instagram allows forms of nudity and sexuality when these adhere to a male gaze, which objectifies women rather than empowers them. The bias in content regulation on social media platforms has also frequently been covered in academic literature (Are, 2021; Paasonen et al, 2019;

Sciberras & Tanner, 2022). Are (2021) argues that the way nudity is regulated on social media platforms replicates the male gaze and reduces the female to a passive erotic spectacle: "a sexual object to be consumed but contained for viewers' safety." (p. 5). Indeed, Instagram is known to perpetuate and celebrate the representation of young, white, skinny body types while discarding body types that fall outside of the dominant and 'desirable' body types (Are, 2021; Tiidenberg & van der Nagel, 2020).

Previous research into the algorithmic imaginary of users appears to focus on how users regard and perceive algorithms as technical entities and how they understand these mechanical system to work (Bucher, 2017; Parisi & Communello, 2019). However, this research finds that sex educators do not perceive algorithms solely as technical systems per se. Rather, participants described algorithms more as an extension of the current issues in the world and the institutions that hold power in society. The sex educators did not disconnect the algorithm from its operator, Instagram, and the values that this company represents.

Sex educators perceive algorithms as another tool in Instagram's arsenal to determine what the world gets to see and most importantly does not get to see: "such large companies have so much power over what you see and don't see." They considered how the algorithms may aid the objectives of Instagram. Participants reflected on the outputs of the algorithm, what content was or was not removed, what content is made more or less visible, and came to the conclusion that the way content was regulated reflected patriarchal values.

Not only do sex educators consider the algorithm to be a tool of Instagram, they reflected on Instagram as a representation of the powerful institutions that dominate society. Throughout the interviews, participants related their experience to current political and societal debates about sex education, sexuality and LGBTQIA+. They felt that the push backs against sex education were not exclusive to Instagram:

> The importance of this (sex education) is very difficult to push through and of course you now also see that there is a lot of reaction against it, a lot of push back. So it's, yes, it's a broader issue I think, and I think deleting these types of accounts is just part of that, or at least regulating it.

They view the regulation practices of Instagram as just another way in which powerful institutions determine what is seen and not seen, what is prioritized and not prioritized.

The participants' motivation for providing sex education, coaching or sex positive content, was to open up the conversation about sex and pleasure, and overcome the taboos and

stigma's that surround sex. They want to gain attention for (female) pleasure, consent and the empowerment of women and marginalised communities. The essence of their work opposes patriarchal values. So, essentially, the push backs that they encounter in the way that algorithms erase their work reinforces the idea that they are fighting a powerful and dominant worldview. One participant stated: "I'm very aware of how I feel about my work and it feels very political because of that, because there's daily barriers even in how I'm spoken to." However, it is difficult to fight the power on a platform that itself is the power. This same tension is also found in the research of Sciberras and Tanner (2022) where feminist content creators that post cartoons of female gaze body types are being shadowbanned and removed by Instagram: "This tension–between the male gaze and feminist resistance–is played out on Instagram as it is in broader society." (p. 13). Sex educators also experience restrictions imposed by an institution that reinforces a worldview they aim to dispute. In order to remain visible and continue their efforts of resistance, they have to circumvent a plethora of restrictions that aim to make them invisible.

Thus, sex educators do not consider algorithms a new phenomenon per se, or a technical entity that functions in isolation of its social climate. Rather they regard algorithms as another tool in the arsenal of the powerful institutions that uphold patriarchal values. Perhaps it can even be said that the algorithms themselves reflect these patriarchal values. Indeed, Beer (2017) argues that the dominant values of rationality, efficiency and growth are projected upon algorithms, providing them with authority and granting them agency in this society. This aligns with the idea that algorithms should be seen as culture rather than in culture, as they are culturally enacted through the way that people engage with them (Seaver, 2017). The fact that algorithms are used and given agency by platforms such as Instagram indicates a particular frame of thought. Therefore, the algorithm in its essence represents a worldview that the participants have been meaning to overthrow, rather than a neutral technological tool used to regulate the content of sex educators.

5.5. Phenomenological study of algorithms

For this research a phenomenological approach was used. This approach was suggested by Bucher (2017) as a new way of studying algorithms. One of the premises of a phenomenological study is to gather the descriptions of people who have gone through the same life experience (Creswell, 2007; Mapp, 2008). In a phenomenological study of algorithms, all participants have experience with the same set of algorithmic systems.

However, the very nature of algorithms leads to complications in a phenomenological study. Algorithms by definition deliver a personalised experience, as they use a plethora of different data points of a user to produce an output tailored to that user. Indeed, no user has the exact same experience on the platform. Also in the case of this research it became apparent that every participant had different encounters with the algorithm leading to different perceptions and theories about the workings of the algorithm.

One can therefore wonder whether a phenomenological study is suitable for researching experiences with algorithms. However, I would like to posit that the common experience with an algorithm, or the essence of this phenomenon, in this case would be its ever-changing and unstable nature. Similarly, Duffy (2020) argues that algorithms produce a heightened sense of instability for cultural workers, due to its capriciousness and precarity. It appears as though with every touch and every encounter its nature is different than the last time. The algorithm presents itself differently every time, for every individual, in every situation. The algorithm is perceived by the sex educators as confusing, inconsistent, unpredictable, fickle, and ever-changing, which leads to feelings of frustration and insecurity.

Perhaps this is also where the power of the algorithm resides. Because the algorithm produces different outcomes for everyone, it is nearly impossible to make any claims about its nature, making it a tool for gaslighting par excellence. Likewise, Cotter (2021) describes that platforms use the 'black box' nature of algorithms to gaslight their users and undermine any claims made by users about unfair forms of censorship and regulation. In this sense gaslighting is seen as a manipulation technique, where victims of gaslighting are induced to question their reality and align with the gaslighter's wishes (Abramson, 2014). When studying the case of the shadowban accusations of users, Cotter (2021) finds that Instagram had been successful in prompting influencers to question their claims and knowledge about the shadowban. Due to the randomness and unpredictability of algorithms, users of the platform start to question their perceptions of the algorithm, and doubt whether their feelings about its unfairness are correct. It is difficult to make statements about the intentions of an algorithm, as it is simply a computer process prone to making mistakes or incapable of understanding nuance and context, hence there is no thought process that one can judge as we do with human decisions. The algorithm's owner, Instagram in this case, may undermine the claims users make about the unfairness or bias of the algorithm, as the users can never pinpoint its exact nature with certainty. Herein resides the power of the algorithm, and with that the power imbalance between Instagram and its users.

6. Conclusion

This thesis studied the algorithmic imaginary of sex educators on Instagram, and aimed to answer the following research question: "How do online sex educators experience and perceive algorithmic content regulation on Instagram?" Sex educators on Instagram endure many forms of content regulation such as shadowbans, content removals, and even account removals. The use of phenomenological interviews allowed for a detailed description of their experiences with algorithmic content regulation. This research finds that online sex educators do not view algorithms as a neutral technical system that functions in isolation of its social climate, rather they regard algorithms as another tool in the hands of powerful institutions that repress their efforts to empower people in their sexualities, and with that uphold the patriarchal values that dominate society. This provides a new understanding into how users understand and perceive algorithms.

Sex educators are informed about the rules and regulations of Instagram by other sex-related content creators, as this community actively informs each other about their experiences with content regulation. Yet, they also become aware of the presence of algorithms through their own experiences. Especially the strange encounters sparked their awareness and motivated them to think about the algorithms workings. In fact, any form of content regulation may feel odd for sex educators, as it clashes with the way they view their own work. Sex educators feel unjustly categorised as harmful and inappropriate, as their intention is not to incur harm, but rather to help and educate the users of Instagram. The experience of being wrongfully categorized as a hazard to be removed fuels the algorithmic imaginary of the sex educators, and it makes them believe that Instagram does not understand nor appreciate sex education.

Sex educators try to analyse the output of the algorithms to understand what is affecting their work. They find an explanation in technical affordances, such as that algorithms are used to scan content for sex-related words in order to ban or minimize content related to sex. These perceptions also influence their behaviour on the platform, as several sex educators censor words related to sex in their posts. However, their perceptions of algorithms also run beyond technical affordances. Sex educators perceive a bias in the way the algorithm regulates content. While sex educators experience pervasive regulation, the algorithm appears to allow certain forms of sex and nudity that adhere to a male gaze. Sex educators relate this bias to the current political and societal climate, in which certain forms of sex, sexuality and sex educations are being pushed back against. Hence, they perceive the restriction of sex

education as a societal problem, rather than a problem exclusive to Instagram and the use of algorithms. They view algorithms not as a technical entity that acts in isolation of its social climate, but rather as another tool in the arsenal of Instagram and the dominant media to repress the work that they are doing. This sheds a new light on how users view and understand algorithms.

Sex educators aim to understand the functioning of the algorithm to reduce the amount of restrictions that are placed on their content. However, the inconsistent, random and confusing outputs of the algorithm makes it impossible for them to find the pattern and learn how to circumvent future regulation. They feel as though they are stuck in a cycle as the algorithm is continuously changing, and they cannot catch up with its demands. As mentioned, it is difficult to talk of a unified experience when approaching algorithms using phenomenology, as algorithms provide a personalized output for every user, at every time, for any given situation. Yet, I argue that it is the dynamic and volatile character of the algorithm that binds these experiences together. Its ever-changing character is what has triggered feelings of insecurity and frustration in all the participants. The algorithms and the platform which operates the algorithm maintain a power imbalance by leaving its users in a state of confusion, and having a ground for rebuttal at hand at all times.

For this research, the participants that were interviewed all had a Western background, mostly Dutch, due to language constraints. Hence, the research lacks insights into other cultural and societal backgrounds that may influence the experience. Additionally, there were no people of colour interviewed for this research. Several sex educators of colour were contacted, however, none of them replied. Hence, I believe this research lacks an important population in the sample. Due to intersectionality, the experiences of people of colour may be marked by an extra dimension of marginalisation in their relation to the platform (Crenshaw, 1989). For future research, a diversification of the sample may provide a more representative description of the experience.

Additionally, it was challenging to reach the experience with algorithms without steering participants through my own presumptions of what an algorithm is. When asked directly about their experiences with algorithms, participants closed up and said they did not know how algorithms worked. However, often we had already talked about incidents in which algorithms play a role and they had elaborate theories about how they work. Indirect questions were used to reach the participant's experience with algorithms, yet these may steer the participant onto a specific dimension of the algorithm. This inhibits a description that is as close to their own experience as possible. This research has ventured a new terrain, as, to the

best of my knowledge, this is the first research that uses phenomenological interviews to study the experiences with algorithms. Therefore, there is still room for development to find the optimal approach for this method. A suggestion for future research is to use prompts in the interview. Two participants mentioned a new feature called account status, which is a tool in settings that shows a user which posts are flagged and if their account is being hidden, which implies a shadowban. This account status can be used as a prompt in interviews to talk about the participants' response to being shadowbanned and having specific posts be flagged.

To conclude, online sex educators experience restrictions due to the algorithms that suppress their presence on Instagram. Rather than approaching this as an imagination, the description of their experiences makes clear that the acceptance for sex education is under constraint on Instagram as it is in the public debate in general. The incidents of regulation that sex educators experience, appears to be yet another form in which the disdain for an open conversation about sex, sexuality and gender is expressed. Meta has a significant influence on the media consumption of many people in the world (Gillespie, 2022). Hence, the suppression and censorship of sex education on Instagram restricts the accessibility of education to many of its users. The experiences of sex educators do not stand alone. There are many reports of sex workers, LGBTQIA+, BIPOC, fat people, disabled people, and more that experience similar forms of content regulation on social media platforms (Are, 2021; Are & Briggs, 2023; Haimson et al, 2021). Therefore, unpacking the experiences of users, similar to the experiences of sex educators, helps us to better understand the way in which social media platforms influence the public debate and the circumstances that these content creators encounter.

A seemingly simple solution would be to provide sex educators with a special status on Instagram that protects them from content regulation. Although I believe that sex education should be protected on social media, it is not the only group of content creators that experience disproportional and unfair content regulation practices. Providing sex educators with a special status only reconfirms the illegitimacy of other content creators, as they are not endowed with the same status. It is important to recognize that this is a problem that supersedes technical affordances. The censoring of sex education is part of a bigger movement. As the rights of women, LGBTQIA+, and BIPOC continue to deteriorate in the U.S.A., the impact of their laws will continue to influence the rules and regulations of social media platforms as did the FOSTA-SESTA bills. This issue ultimately impacts the visibility of marginalised communities, human rights, and freedom of speech far beyond the borders of the

U.S.A.. Most significantly, it is time to take a stance against the upsurge in marginalisation and repression, and defend the freedom and rights that were fought for.

7. References

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Appendix A – Interview guide

Introductory questions

- Can you describe to me how you started to work as a sex educator on Instagram?

- How do you feel about your work on Instagram as a sex educator?

The creation of posts

- Can you take me through the process of creating content for your account?

- What do you do to your posts to prevent regulation?

  - Can you elaborate?

  - What made you decide not to include that?

- What led you to censor words related to sex in your post?

  - How do you decide which words you censor?

Post removal incidents

- Could you describe to me in as much detail as you can an occasion in which your content was removed?

  - What thoughts stood out for you when the post was removed?

  - What feelings stood out for you when the post was removed?

  - What did you do when the post was removed?

  - How did the post removal affect you or your work?

  - What changes do you associate with the post removal?

  - What parts of this experience did you attribute to algorithms?

Visibility

- Can you describe to me a time where you noticed that the visibility of your posts was reduced?

  - What thoughts stood out to you when you noticed the visibility was reduced?

  - What feelings stood out to you when you noticed the visibility was reduced?

  - How did you react to this incident?

  - How did this experience affect you or your work?

  - What changes do you associate with this incident?

- Can you describe to me a time when your posts was really successful?

  - What thoughts stood out to you when you noticed this?

- o What feelings stood out to you when you noticed this?

- o How did you react to this incident?

- o How did this experience affect you or your work?

- o What changes do you associate with this incident?

- What role do you attribute to algorithms in the visibility of your posts?

Algorithms

- How do you think Instagram moderates content related to sex?

- In your opinion, how do you think Instagram uses algorithms for content regulation related to sex education? (based on Bucher, 2017)

- Has your awareness of the algorithms affected your use of Instagram in any way? (inspired by Bucher, 2017)

Final question

- Are there any other forms of (algorithmic) content regulation that we did not discuss that you have experienced?
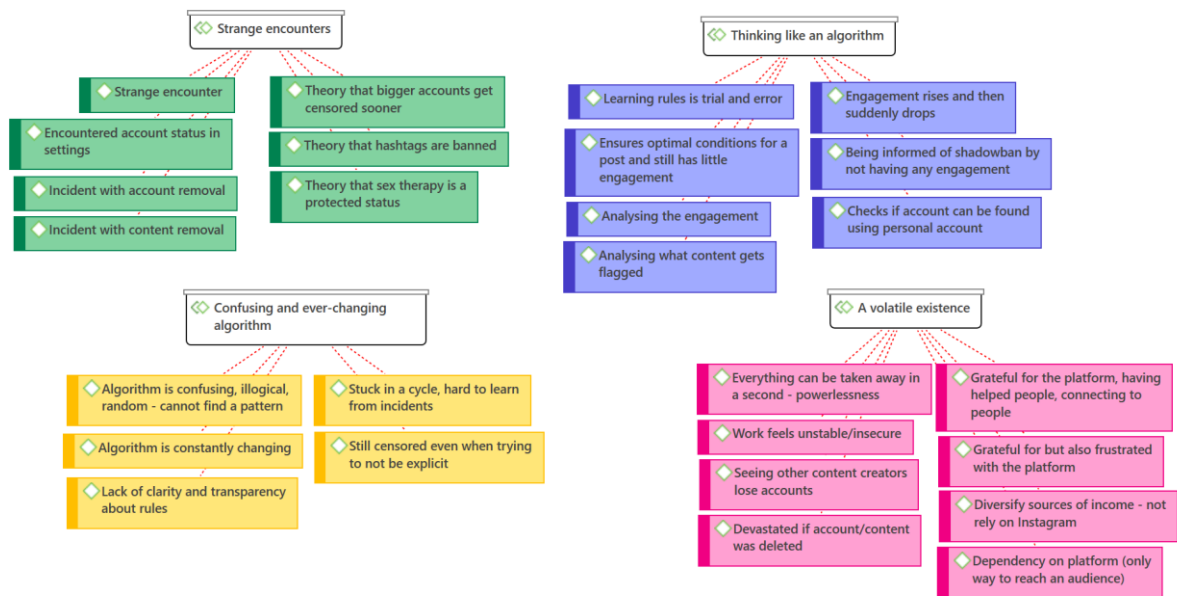
Appendix B – Code network

Figure B1. Part one of the code network.

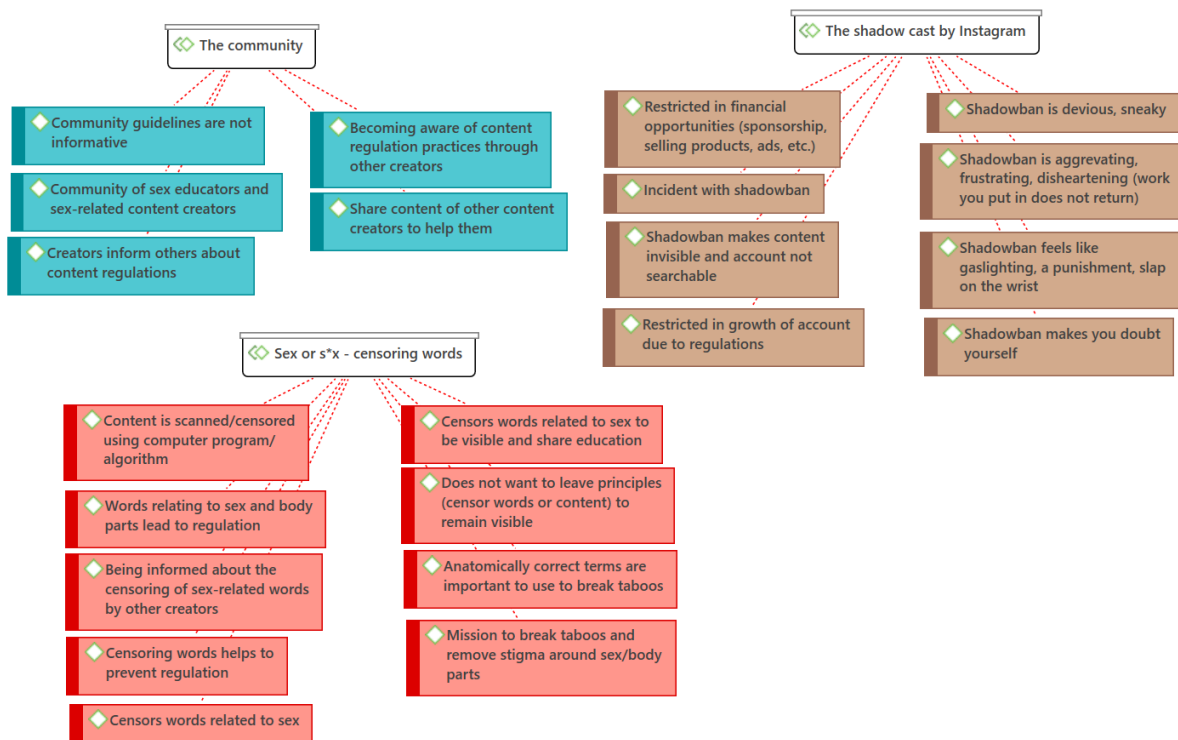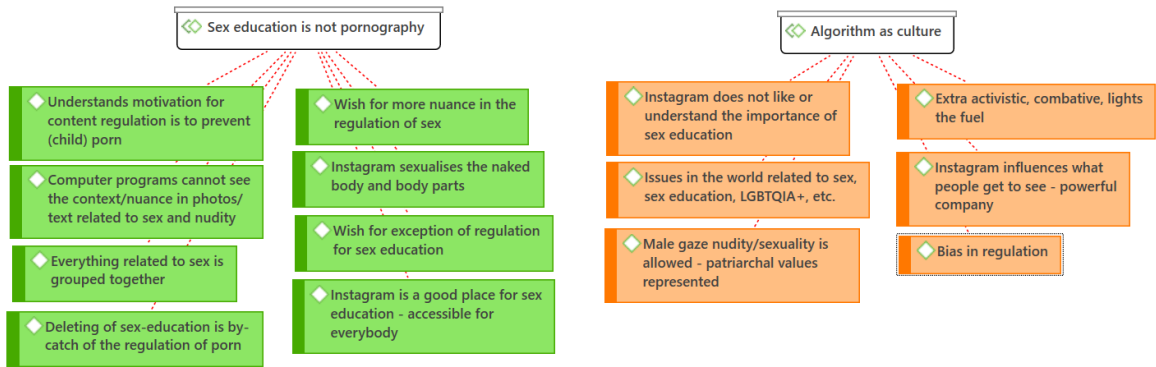*Figure B2.* Part two of the code network.

Figure B3. Part three of the code network.