

Beauty surveillance: the digital self-monitoring cultures of neoliberalism ('SIDigiplay')

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Abstract (165 words)

This paper argues that ‘beauty apps’ are transforming the arena of appearance politics and foregrounds a theoretical architecture for critically understanding them. Informed by a feminist-Foucaultian framework, it argues that beauty apps offer a technology of gender which brings together digital self-monitoring and postfeminist modalities of subjecthood to produce an hitherto unprecedented regulatory gaze upon women that is marked by the intensification, extensification and psychologization of surveillance.

The paper is divided into four sections. First it introduces the literature on digital self-tracking. Secondly it sets out our understanding of neoliberalism and postfeminism. Thirdly it looks at beauty and surveillance, before offering, in the final section, a typology of appearance apps. This is followed by a discussion of the modes of address/authority deployed in these apps – especially what we call ‘surveillant sisterhood’ - and the kinds of entrepreneurial subjectivity they constitute. The paper seeks to make a contribution to feminist surveillance studies and argues that much more detailed research is needed to critically examine beauty apps.

Key words :

Foucault, digital self-tracking, postfeminism, neoliberalism, subjectivity, gender, beauty, surveillance, labour, new media

Beauty surveillance: the digital self-monitoring cultures of neoliberalism (9264 words)

Ana Sofia Elias and Rosalind Gill

Introduction

Golden Beauty Meter is an app (mobile application) that will ‘determine if you are pretty or ugly’. *Instagram* and *Modiface* allow you to ‘swipe your way to beautification’ by enhancing self-portraits to give you (for example) longer legs, higher cheekbones or whiter teeth in seconds. *Beauty Mirror* ‘lets you play plastic surgeon on your face’. These are examples of a rapidly proliferating category of computer, tablet and smart phone applications that we call ‘aesthetic self-tracking and modifying devices’ or – put simply – ‘beauty apps’. We use this term to encompass a wide range of different applications designed to analyse, rate, evaluate, monitor or enhance appearance. There are already thousands of these apps available – often free of charge or available for sale at very low prices (e.g. under a dollar) – but as yet there has been no scholarly research investigating them.

In this paper we seek to inaugurate some discussion of these apps, raising critical questions about them from a feminist perspective. We will argue that they form part of a wider trend towards self-tracking and self-monitoring (Nafus and Sherman, 2014; Lupton, 2014a; Rettberg, 2014) that has been understood as giving rise to a ‘quantified self’ (QS). For Deborah Lupton the QS is best conceptualised as a ‘self-tracking’ or ‘reflexive monitoring’ self who uses the affordances of digital technology to collect, monitor, record and share a range of – quantified and non-quantifiable - information about her/himself while engaging in ‘the process of making sense of this information as part of the ethical project of selfhood.’ (2014b). Her conceptualisation valuably foregrounds the links between the QS and neoliberalism: ‘the very act of self-tracking, or positioning oneself as a self-tracker, is already a performance of a certain type of subject: the entrepreneurial, self-optimising subject.’ (ibid). As Lupton shows in her analysis of sex apps and pregnancy apps (Lupton, 2015; Lupton and Thomas, 2015), women are major targets of these tracking technologies and they urgently require feminist attention.

Pushing forward Lupton's argument, we contend that beauty apps need to be understood in gendered (and racialised and classed) terms, as related to the dominant neoliberal and postfeminist sensibility circulating in contemporary society which addresses women as entrepreneurial subjects *par excellence* (Gill and Scharff, 2011). In particular, we suggest that beauty apps mark out a particularly powerful example of the intensified surveillance of women's bodies, whereby the ever more fine grained, metricised and forensic scrutiny of the female body is increasingly mediated by the mobile phone. As we will argue beauty apps not only recalibrate but also reconfigure the gendered rationality of postfeminist self-capitalisation, predicated as it is on relentless beauty surveillance, labour and optimal transformation through consumption.

In addition to looking critically at the rise of aesthetic self-tracking and modifying apps, then, we seek to begin a dialogue between the small but growing body of critical work on self-tracking technologies, and a different corpus of work concerned with the 'psychic life' of postfeminism and neoliberalism (Elias, Gill and Scharff, 2016; Gill, 2016; Scharff, 2015). We will suggest that there are a number of productive parallels in these bodies of work, both of which are deeply informed by Foucaultian ideas. Both share a critical emphasis upon ideas of personal responsibility and moral accountability of the subject for his or her body or biography; both emphasize the simultaneously pleasurable/playful and disciplinary aspects of self-monitoring; both are built around understandings of entrepreneurial modes of selfhood centred on labour, measurement, comparison and (self) transformation; and both are imbricated in relations of ever more intensive and extensive surveillance of the self and others. How, then, can we 'think together' these bodies of work in order to develop a critical understanding of rapidly proliferating appearance apps?

The paper is divided into four sections. First we introduce the literature on digital self-tracking and the quantified self. Secondly we set out our understanding of neoliberalism and postfeminism as cultural forces that not only shape broader social and economic relations but are also remaking subjectivity. We then turn to look at beauty and surveillance, before focusing, in the final section, on appearance apps.

Digital self-monitoring and the quantified self

Mobile smart technologies are changing the way we relate to others, and how we experience our embodied selves (Goggin **and** Hjorth, 2014). Most new phones now include as standard a variety of applications that allow users to self-monitor a range of aspects of their lives (e.g. steps, weight, calories, sleep). In health domains, more and more sophisticated apps are being developed, allowing users to check and record data such as heart rate, blood pressure and blood sugar levels. More broadly, the range and number of apps is proliferating, facilitating the measurement and monitoring of everything from mood, to pain, to stress levels to work productivity to sex life to computer use to meditation habits to pregnancy and parenting.

Human beings' desire to reflexively monitor aspects of our lives is not new. Keeping diaries and filling in charts to record menstrual cycles or money spent are just a few examples. In the realm of postfeminist media culture, famously, each entry of *Bridget Jones's Diary* (Fielding, 1996) started with a 'confession' about how many cigarettes she had smoked, alcohol units consumed, and her body weight – along with self-evaluations such as: 'Feb 16: 8 st 12 (weight loss through use of stairs), alcohol units 0 (excellent) cigarettes: 5 (excellent), calories 2452 (not vg), times gone downstairs to check for Valentine-type envelope: 18 (bad psychologically but vg exercise-wise). This example vividly conveys a picture of a self-surveilling postfeminist subject, struggling to 'discipline' an 'unruly' body (Gill, 2007a).

However, what is striking is how self-monitoring is intensifying, as the capabilities offered by smart mobile technologies meet a neoliberal culture increasingly concerned with tracking an ever greater variety of personal characteristics and experiences. If Bridget were thirty today she would probably be wearing a FitBit wristband or have a Jawbone UP insert in her bra – her sleep stats would be automatically bluetoothed to her phone every morning and she would receive messages throughout the day from her phone reporting on her activity levels and calories burned, and asking her to input her mood, using a simple menu of emoticons. Perhaps she would have replaced 'to do' lists with an app like GettingThingsDone. No doubt she would have fully embraced the proliferating 'psycho-technology mobile apps' to help her deal with stress and learn deep relaxation and meditation techniques ('must become goddess radiating inner calm' as she would say.) She would also certainly be employing the aesthetic self-monitoring devices that are the topic of this paper – to assess her chance of cellulite developing,

measure her facial symmetry, call up emergency beautician treatments, or simply to enhance her selfies.

These self-tracking technologies are developing rapidly. Not limited to mobile phones they include an ever-increasing range of ‘wearable’ biometric devices such as bracelets, watches, running shoe inserts and sensors that clip onto underwear and enable 24h monitoring. A range of ‘smart’ objects ranging from cars to mattresses and clothes containing ‘wearable technology’ also have capacities for self-monitoring (e.g. drivers’ drowsiness, sleep patterns). Mainstream fast-selling devices include as standard GPS (geographic positioning systems), altimeters, accelerometers and various other kinds of increasingly sensitive mobility-monitor (e.g. to help detect motion during sleep). The number and range of devices and apps is growing at an extraordinarily rapid rate. According to industry analysts, this market is predicted to grow by 40% each year for the next five years (Ator, 2013).

Most responses to these technologies have been enthusiastic – indeed, distinctly boosterish. Health practitioners have championed the possibility to monitor key aspects of patients’ health ‘at a distance’. Many patients have welcomed digital engagement and the opportunities it offers to challenge hierarchical relations with doctors. Cultural intermediaries in the fashion, beauty and lifestyle worlds celebrate the ‘biometric revolution’ (*Vogue*, April 2015) as aiding women’s health and beauty projects in new and significant ways as we will discuss later.

The technologies themselves are viewed as a major source of revenue for digital developers and entrepreneurs (Lupton, 2014a). The most visible face of this is seen in the Quantified Self ‘community-industry’ (O’Neill, 2015), set up by two *Wired* editors in California. Wolf and Kelly host a website, promote the development of new tools, run annual conferences and publish a blog documenting numerous self-tracking activities and novel ways of representing these through maps, artworks, sound files and other creative exhibits. Their motto ‘self knowledge through numbers’ captures the view of these devices and their applications as essentially benign developments. Indeed, where concerns have been raised, worries about privacy have dominated (Barceno et al., 2014). However, as Dubrofsky and Magnet (2015) argue, privacy remains a ‘limited lens’ through which to think about these technologies. Likewise, a focus upon ‘abuses’ (identity theft, fraud, data breaches) ‘works to deflect attention away from concerns about emergent uses’ (Andrejevic, 2015: xiii), implying that ‘normal’ practice is unproblematic and requires no attention.

Increasingly, however, a more critical form of engagement has been developing, centred around questions about coercion (Lupton, 2014a) surveillance (Andrejevic, 2015; Lupton, 2014a), and data use (Beer, 2013), with particular concerns about employers, insurance companies and the state having access to (and in some cases selling on) ‘personal’ data. Lupton (2014a) has proposed a useful typology of modes of self-tracking – three of which relate to the degree of freedom or coercion involved. According to this typology, ‘private self-tracking’ ‘is undertaken for purely personal reasons’ with the data kept private; ‘pushed self-tracking’ involves some sort of external ‘nudge’ towards self-tracking – often from medical practitioners or employers or insurance companies; and ‘imposed’ self-tracking involves coercion – seen most clearly in school settings, the penal system and drug addiction programmes but also in a growing number of workers’ lives (e.g. warehouse staff, call centre workers and academics).

When the critical angle turns to surveillance, the bulk of research focuses on the surveillance practices of the state, the military, the immigration apparatus and – more recently – corporate surveillance by companies like Google or Facebook (Andrejevic, 2015). An interest in biometric surveillance is predominantly centred on coerced or compelled forms of surveillance – such as airport scanners, ultrasound testing, network genomics - showing how a whole person becomes fragmented into a composite of data sets. But these practices also remake the body ‘classifying some bodies as normative and legal, and some as illegal and out of bounds’ (Nakamura, 2015). As Lisa Nakamura (2015: expands ‘There is no form of surveillance that is innocent’ and biometric forms of monitoring serve two functions: ‘to regulate, define and control populations; and to create new gendered, racialised, and abled or disabled bodies through digital means’.

Compared with surveillance apparatuses that underpin the ‘war on terror’, immigration control or the prison system, the apps that are the subject of this paper are distinct in being located in consumer culture and largely ‘voluntary’ rather than compelled – although as we argue in the next section such a clear cut distinction is problematic. We believe they require critical interrogation for their contribution to a ‘surveillant imaginary’ that is expanding ‘vertiginously’ (Andrejevic, 2015). As we will argue, they incite women to ever greater punitive self-surveillance, enrolling them into intense metricised self-scrutiny that is no less toxic for being ‘freely’ chosen. Indeed in making sense of the proliferation of these apps with their

exhortations to critical and forensic surveillance of women's bodies, their seemingly paradoxical construction as useful, pleasurable and 'fun' urgently requires explanation.

Neoliberalism, Postfeminism and Subjectivity

If the 'appearance apps' that are the focus of this paper are part of a more general move to self-tracking, self-monitoring and the quantified self, then these apps also have to be understood as a product of the dominant neoliberal and postfeminist sensibility circulating in contemporary societies. Neoliberalism has been broadly understood as a political and economic rationality characterized by privatization, a 'rolling back' and withdrawal of the state from many areas of social provision, alongside an emphasis 'that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong property rights, free markets and free trade' (Harvey, 2005: 2). Equally important as this macro-political and economic 'ethic' is the way in which it is, in Aihwa Ong's (2006: 3) words, 'reconfiguring relationships between governing and governed, power and knowledge, sovereignty and territoriality'. In societies in which a neoliberal rationality is dominant the enterprise form is extended to 'all forms of conduct' (Burchell, 1993: 275) and 'normatively constructs and interpellates individuals as entrepreneurial actors in every sphere of life' (Brown 2005:42). Individuals are constituted as self-managing, autonomous and 'responsibilised'.

In this context, governing is recast as a technical rather than political activity – one in which both 'big data' and micro-measurement increasingly play a key part (Ajana, 2013) – including, we will argue, in self-monitoring apps. Davies (2014:16) argues that neoliberalism seeks to 'replace critique with technique, judgment with measurement' in such a way as to efface power and to displace it onto seemingly neutral systems or algorithms that can govern at a distance.

Extending critical writing on neoliberalism, feminist scholars have compellingly demonstrated its gendered politics – often characterized as postfeminism. Used as a critical term postfeminism reflects upon how in popular culture feminism is both taken into account yet also repudiated. Angela McRobbie (2009) suggests that this 'double entanglement' facilitates both a doing and an undoing of feminism. She argues that young women are offered particular kinds of

freedom, empowerment and choice ‘in exchange for’ or ‘as a kind of substitute for’ feminist politics and transformation. Yet postfeminism ‘is not simply a response to feminism but also a sensibility that is at least partly constituted through the pervasiveness of neoliberal ideas’ (Gill and Scharff, 2011: 7). Both postfeminism and neoliberalism are structured by a grammar of individualism that has almost entirely replaced notions of the social or political, or any idea of individuals as subject to pressures, constraints or even influence from the outside. In postfeminist culture, women are interpellated as active, autonomous and self-reinventing subjects, whose lives are the outcome of individual choice and agency.

Analysts of postfeminism have had much to say about the body, highlighting the way in which it has come to prominence as a defining feature of identity for women and the site of intense circulating power relations. These questions are foregrounded in critical analysis of postfeminist culture, which draws on a long tradition of feminist scholarship concerned with the body and appearance, highlighting the force of bodily discipline for women (Bartky, 1990; Bordo, 1993). It is striking to note that in this postfeminist moment this has intensified rather than diminished, albeit wrapped in discourses that highlight pleasure, choice, agency, confidence and pleasing oneself, obscuring the extent to which aesthetic labour on the body is normatively demanded (Elias et al., 2016). The body and intimate relationships remain sites of profound asymmetry, suffused by power relations (O’Neill, 2015). Indeed, McRobbie has argued in a Deleuzian vein that patriarchy is ‘deterritorialised’, spread out and diffuse but is ‘reterritorialising’ in the ‘fashion-beauty complex’, an institutionally unbounded assemblage producing a specific kind of female subject who is perpetually dissatisfied and unhappy with her body and appearance and thus compelled to embark on new regimes of ‘self-perfectibility’ (McRobbie, 2009: 62-3). This individualist striving for perfection is best understood as entrepreneurial self-work and, more specifically, self-capitalisation concentrated on the visual register (Conor, 2004) and effected through consumer regimes of beauty – and increasingly psychic – labour.

A key line of inquiry, then, has explored the psychic life of neoliberal postfeminism through a close interest in the ‘makeover paradigm’ – and its extended disciplinary power in the turn to confidence (Gill and Orgad, 2015). The makeover paradigm is a key part of the contemporary postfeminist sensibility (Gill, 2007b) – demanding work on, careful styling of and reinvention of the body (Ringrose and

Walkerdine, 2008), but also remodelling *psychic* life, requiring a makeover of subjectivity itself – whether this is to produce the ‘sexual entrepreneur’ who is ‘compulsorily sexy and always ‘up for it’ (Harvey & Gill, 2011: 56) or the ‘confident woman’ of *Lean In* or women’s magazines who must exude wellbeing, ‘positive mental attitude’, and self-esteem, however fragile or insecure she may actually be feeling (Garcia-Favaro, 2016; Gill and Orgad, 2015).

Appearance and surveillance

An interest in self-tracking and in the contemporary neoliberal/postfeminist moment come together in the emergent field of feminist surveillance studies (Dubrofsky and Magnet, 2015). To this phenomenon our paper contributes an argument that highlights the injurious force of beauty surveillance and its proliferating techniques, gazes and metrics. Our analysis brings to feminist surveillance studies a feminist-Foucaultian understanding of discipline and regulation also concerned with affective technologies (Elias, 2016); longstanding interests in visual culture, the gaze and the politics of looking; and an interest in the psychosocial and the remaking of subjectivity.

Within media and cultural studies, critical scholars of postfeminism have been at the forefront of highlighting the intensification of surveillance of women’s appearance. Rosalind Gill has argued that ‘surveillance of women’s bodies (but not men’s) constitutes perhaps the largest type of media content across all genres and media forms’ (2007b:149) – a trend that has been increasing in the 10 years since Gill was writing (Winch, 2013).

It is impossible to understand the heightened surveillance of women’s appearance in contemporary culture without reference to celebrity culture with its circulating news articles, magazines, gossip sites and social media. In tandem with new photographic technologies it has helped to inaugurate a moment of 360 degree surveillance. Being ‘in the public eye’ now also has an amplified meaning as camera phones can be used to record and upload video within seconds. The dissemination and uptake of paparazzi practices such as ‘the upskirt’ shot has generated discussion, as has the use of other covert filming techniques – frequently designed for the objectification of women (e.g. the scandal over the filming then distribution of images of women eating whilst on train journeys). As Amielle Shoshana Magnet has

argued, the pleasures of this kind of gaze also need to be theorized; it represents perhaps a scopophilic surveillance.

More familiar and everyday forms of intensified surveilling of women's bodies are to be found in the gossip and celebrity magazines and websites whose content is dominated by forensic dissection of the cellulite, fat, blocked pores, undepilated hairs, wrinkles, blotches and hairstyle/sartorial/cosmetic surgery (mis)adventures of women in the public eye. Red circles highlight close ups of each and every bodily part in a context in which no aesthetic misdemeanor is too trivial to be microscopically 'picked over and picked apart by paparazzi photographers and writers.' (Gill, 2007b: 149)

What is striking, however, is the extent to which the surveillant gaze is becoming more and more intense – operating at ever finer-grained levels and with a proliferating range of lenses that do not necessarily regard the outer membrane of the body – the skin – as their boundary. This intensified and increasingly forensic surveillance is seen repeatedly in contemporary advertising and beauty culture – with the recurrent emphasis upon microscopes, telescopic gunsights, peep holes, alarm clocks, calipers and set squares. Most common of all are the motifs of the tape measure (often around the upper thigh) and the magnifying glass, used to scrutinize pores or to highlight blemish-free skin, but – most importantly at a meta-level – underscoring the idea of the female face and body as under constant (magnified) surveillance.

One case in point is Benefit's POREfection campaign (2015) which constructs facial beautification through an analogy with the highly skilled military labour of espionage – a traditionally male dominated sphere reinvented to include the magnifying-glass wielding 'spygal' (at a beauty counter near you). Likewise Estee Lauder's (2015) campaign for 'little black primer' invites us to 'spy' women's made-up eyes through a peephole. Perfumier Douglas also deploys the magnifying glass trope, repeatedly encouraging the audience for their brand messages to forensically analyze what is wrong with a face (our own or others') and how it can be improved (e.g. is it too 'wide', 'thin', 'round', 'square', is the nose too 'broad' or 'long?'). These are just a few examples attesting to the way in which an ever refined (and punitive) visual literacy of the female face is being normalized.

In fact, we want to argue that a quantified/biometric rationality increasingly runs through contemporary beauty culture. We understand this as a metricization of

the postfeminist gaze, which subjects the female body to increasingly ‘scientific’ and quantified forms of surveillance and judgment, which – as we have argued elsewhere (Elias, 2016; Elias and Gill) – now extends to trichological, glandular, dermatological, vascular, and genetic aesthetics. The apps that we consider in the next section push the postfeminist surveillance of beauty culture even further in this direction.

Digital aesthetic self-monitoring: ‘perfection at your fingertips’!

Computer, tablet and smart phone applications centred on appearance are being developed and marketed at an extraordinary rate. A search on Google in December 2015, using the search term ‘beauty apps’ generated a staggering 171 million results. At the top of the list of results were well-established companies or brands such as *Stylist magazine*, *Cosmopolitan* and *Harpers Bazaar* who are actively promoting beauty apps as fun, portable, everyday means of enhancing women’s beauty. As we will show, beauty apps are a firmly established part of the beauty industrial complex, with horizontal ties to cosmetics companies, women’s magazines, celebrity culture, the aesthetic surgery industry, fashion industry, social media entrepreneurship and the burgeoning aesthetic service sector.

Below we offer a provisional typology focusing upon those apps with an explicit emphasis on the aesthetic dimensions of the body. As perhaps the first (certainly one of the first) studies to examine these beauty apps our approach is a broad and exploratory one, centred on capturing a sense of the field rather than offering detailed discussions of specific apps. Our method for selecting the apps that we discuss was based on top search returns, numbers of downloads and the appearance of the apps on lists such as ‘top beauty apps’ in magazines and digital sites targeted at women. We identify five broad types of appearance apps – pedagogic apps that ‘teach’ beauty techniques; apps which facilitate virtual makeovers or the ‘trying on’ of a ‘new smile’ or reshaped nose ahead of potential cosmetic surgery; self-surveillance apps which ‘scan’ the body for flaws and damage; aesthetic benchmarking apps which ‘rate’ attractiveness in a multiplicity of different ways. After setting out the different types of apps we discuss the kind of entrepreneurial subjectivity incited by these apps and the specific kind of postfeminist intimate relationality they configure – one organized around what we call surveillant sisterhood. We start by talking about perhaps the most commonplace and ubiquitous beauty apps: self(ie)-modification apps which filter or enhance photographs;

A provisional typology of beauty apps

1. Selfie-modification: 'Give your photos a true beauty makeover in just a few minutes!'

Selfie-modification apps are amongst the most common apps, popularized by Instagram, and thus are worth discussing in some detail. According to Amy Slater's (2016) research with young people (18-25) in 7 countries, 74% of young women said they used filters when taking self-portraits and 43% agreed with the statement that 'I would never publish a photo that I don't look my best in'. Selfie-modification apps are characterized by inbuilt visual filters aimed at aestheticizing digital self-portraits so that they more closely resemble images of ideal or normative femininity. For instance, *Beauty Makeover Photo Effects* promises to 'help you edit your photos like a true professional while giving yourself a full beauty makeover treatment!' Since Instagram has popularized the visual filter function, selfie-customization is now everywhere (Rettberg, 2014) with tens of thousands of apps claiming that the world of digital postproduction is at your fingertips with facilities to work with contrast, brightness, shadows, textures, contouring, collage, among many other filters. These can be combined to produce customizable - yet highly standardized or formulaic - visual effects. For instance, several apps let you 'swipe to erase blemishes, whiten teeth, brighten dark circles and even reshape your facial structure' (*Face Tune*) or 'to look 5, 10 or 15 lbs. skinnier'' (*SkinneePix*). In so doing, they facilitate the creation of 'ever-greater stylized identities' (Wendt, 2014:7) and are illustrative of an algorithmic-filtered culture (Rettberg, 2014) which is inherently contradictory.

Emerging critical accounts (especially focused on Instagram) have emphasized that while selfie-filtering might be understood as a tool for identity making and expression of individuality, it is inarguably a disciplinary practice which calls upon critics to 'to think about how these filters work. What is filtered out? What flavours or styles are added?' (Rettberg, 2014:21) and what are 'the consequences of seeing ourselves as data bodies' (ibid:61). In response to this call we identify four ways in which selfie-modification apps can be seen as implicated in the disciplinary project of neoliberal postfeminism, working to sustain social injustice, as Nakamura had it.

To start with, they help create new racialized bodies through digital means in, at least, two ways. Firstly, users are offered skin ‘brightening’, ‘lightening’ or ‘whitening’ as standard – encoding particular ideas about skin colour and desirability. In contrast with photography’s ‘skin tone bias filter’ - which has long suited light skin tones but distorted photographic representations of people with darker skin tones (Rettberg, 2014:27-30) - apps like *PicBeauty* or *MoreBeauté* offer *self-chosen* ‘whitening’ filters. Likewise nose reshaping and eye reshaping are hugely popular features of selfie-modifying apps (e.g. *Plastic Surgery Simulator*) underscoring another aspect of the racialised sub-text that informs them, in a transnationally circulating market of ‘global beauty’ (Dosekun, 2015).

A second - but also deeply problematic – set of ideas that have become encoded in such apps include those from evolutionary psychology – centred on the desirability of particular waist-to-hip ratios or on facial symmetry. The links between these ideas and the reassertion of sexual difference and heteronormative femininity deserves critical attention.

A third problematic element is the nostalgic quality of filtered selfies seen in images emulating analog photography styles such as Polaroid, black-and-white and Kodachrome. While these nostalgic aesthetics have started to attract scholarly attention (Wendt, 2014), we want to argue that an analytics of postfeminism might productively expand existing theoretical accounts by attending to the gendered politics of the retro or vintage filter - a line of inquiry which has been underexplored. Furthermore, given that filtered images have a sedative effect (e.g. self-numbness) and might help producing the illusion of an ahistorical subject (Wendt, 2014), could we think of selfie-modification apps as yet another site for the neoliberal disarticulation of politics?

Fourthly, following Rettberg’s (2014) insights we want to argue that selfie modification apps are technological filters intimately shaped by the ‘cultural filters’ of postfeminism, by highlighting how they participate in the intensification of aesthetic surveillance and labour. Not only are women required to engage in intensive regimes of selfie-taking labour (see Wendt, 2014) and visual filtering labour but they are now addressed by beauty advertising as digitally augmented consumer subjects who (should normatively) challenge boundaries between their ‘data bodies’ (Rettberg, 2014) (or digital reflexive body projects) and fleshy ones. Let us take the example of

Revlon's *PhotoReady* makeup which 'promises its wearers they will look like photographs that have been digitally enhanced', asserting that the 'elisions and virtual surgeries that Photoshop provides for two-dimensional images can be applied to three-dimensional faces.' (Jones, 2012: 204). Selfie-modification apps, we argue, increase the extent to which the female body and face are rendered visible as a site for crisis and commodification. As digital aesthetic self-monitoring is emerging as one key economic and cultural currency of contemporary femininity, *Revlon* - and many others cosmetic brands - are capitalizing from women's sophisticated visual literacy. One outcome of this cultural promiscuity has been the intensification and extension of traditional makeup sets - which now include more products and more routines (e.g. *Mac*'s eight step routine for colouring the lips alone, see also *Benefit* and *Estee Lauder*'s campaigns discussed earlier).

Importantly, selfie-modification apps also work to disavow the very same bodily discipline they incite (e.g. 'SkinneePix gives you inspiration if you're working out and trying to keep fit or lose a little weight. It's not complicated. No one needs to know. It's our little secret.'). Secrecy around all the effort we are now demanded to put into taking and enhancing our self-portraits (and the motivations behind it) is not only a feature of apps' intimate form of address discussed later, but should also be accounted by attending to a 'selfie hatred' culture which mocks women (e.g. as narcissistic, exhibitionist) and works to put them back in their place at a time when they have found new platforms to speak out and be heard (Rettberg, 2014: 17-19). Thus, even though selfie-modification apps are repeatedly celebrated for its pleasurable and playful components, a focus on 'self(ie) disgust' reminds us that they may well intensify the cultural pathologization of femininity (see McRobbie, 2009) and, therefore, women's engagement with them is likely to produce complex and contradictory affective responses (e.g. relief, pleasure vs feelings of shame and failure) which require urgent attention. Below we turn more briefly to four other beauty apps.

2. Pedagogies of perfection/ Learning to labour: 'your personal beauty advisor'

A huge variety of beauty apps offer instructions in techniques to enhance appearance. These include contouring, brow shaping, hair styling (e.g. according to daily/local weather conditions), makeup, manicure, dress and (colour) accessorizing. They deliver this tutelage in the style of a 'personal beauty advisor', an expert professional,

and a best friend. For example *Benefit Brow Genie* works by uploading a photo which the app will use to ‘custom map your eyebrows to reveal the best brow shape for your face’. Their brow-mapping technique also delivers a photo that contrasts your real eyebrows with your ideal arches. L’Oréal *The Colour Genius* helps women deciding whether to ‘match, blend or clash’ the colour schemes of their outfits and makeup. Importantly, it promises to act as a ‘personal stylist in your pocket’ giving customizable instruction on the chromatic aspect of visual presentation: ‘you’ll get instant, personalized nail polish and makeup suggestions to suit your mood and complete your look!’ *The Colour Genius*’ trend towards individualized customization is representative of a pervasive feature of pedagogic apps which work with your height, body shape or getting ready for a particular occasion - and increasingly also with your personality and your mood.

3. *Virtual makeovers/ try-on apps: ‘Do you wonder sometimes how you would look with whiter teeth and a brighter smile?’*

If selfie-modification apps facilitate ‘improvement’ of images to be posted to social media, the third category of apps offers users the possibility of going one step further: trying out different looks ranging from new clothes, hair styles or colours, make up, teeth colour – through to nose reconstruction, eyelid reshaping, breast augmentation, and vulval surgery – as a prelude to actually modifying the body. Some of these are depicted as ‘augmented reality’ beauty apps because they have ‘real-time’ cameras which allow you to ‘virtually try on any product’ and ‘see how it looks on you, as if you’re looking in a mirror!’ (*ShadeScout* and *L’Oreal Makeup Genius*). Similar apps allow you to ‘try on’ any hair colour (*Modiface - Hair Color Studio*) or to decide whether various cosmetic dental procedures really are for you (*I white instant*). The interactivity of the apps is much promoted, as is the fact that they work with individualized pictures or mirror functions. *I white instant* offers ‘automatic smile zoom functionality [that] gives an even closer look at your results’ allowing you to analyse how different shades of whiteness ‘affect your smile aesthetics’.

A plethora of apps also offer try-outs of surgical procedures for the face and body. *Plastic Surgery Simulator Lite*, available on Google play for Android, has been installed on more than five million devices. It asks people ‘How would you look with a different nose, chin, breasts or buttocks, or with less weight?’ It encourages people to ‘simulate realistic plastic surgeries, improve your appearance on social networks,

or have fun warping people'. In turn, *Facetouchup* invites: 'visualize the new you™' and promises 'we bring you the same digital imaging technology that surgeons use to visualize plastic surgery results – all in a super easy to use site. For nose jobs, chin augmentation, liposuction, breast reshaping and more. FaceTouchUp is the virtual plastic surgery tool you've been waiting for'. Horizontal links with the plastic surgery industry are well-established – indeed surgeons ply their services on this kind of site or app, and are addressed through specialist areas which promise that the app will 'attract new patients, elevate your practice and increase patient acceptance, satisfaction and word of mouth'.

4. Surveilling the self: 'Apps that could save your life!'

All the genres of apps discussed so far involve a heightened degree of self-surveillance, and incite intensified self-scrutiny of the face and body, compared with 'traditional' beauty advertising. But this has a particular force in those apps which are centred on using the photographic or scanning facilities of the phone to measure and highlight present or even future problems. Blurring into the health field, there is a fourth multiplying genre of apps that seek to identify and 'diagnose' problems before they even become visible to the naked eye. Perhaps you have cellulite that is not yet obvious when you look in the mirror; maybe you have freckles or moles that are changing shape and may signal the development of something more sinister (e.g. *UMSkinCheck*); or think your veins look ok now, but perhaps there are already signs of broken capillaries (e.g. *Soffer Vein*). Sunburn, dental problems, smoking damage can all be identified using beauty apps (e.g. *SunSafe*; *Coppertone MyUV alert*; *Dental X-Ray*; *Dental Decide*; *Smoking Time Machine*); that can then bring into play a whole array of anticipatory labours to prevent or mitigate damage (e.g. 'to-the-minute countdown' of how much sunbathing time we have left before 'racking up skin damage'; set alerts for sunscreen applications).

5. Aesthetic benchmarking: 'Do you ever wonder if you're ugly and your friends just don't tell you?'

Another category of apps is focused on evaluation, rating and ranking -specifically aesthetic benchmarking (how pretty am I?). They invite users to benchmark different aspects of their appearance – one of them being their facial attractiveness. Apps

solely focused on facial self-assessment abound (e.g. Ugly Meter, Facial Beauty Analysis and Face Meter are just a few examples) and are hugely popular ¹.

Many of these apps challenge users to submit their face to a metric scan which delivers numerical scores on individual facial attractiveness. They ‘scan a user's face and measure the proportions and placement of their features. The person's attractiveness – and the ‘magic’ behind the ratings – is based on a mathematical equation called the ‘golden ratio’ that defines perfect proportions (not just in faces, but also in design, architecture, math, and more).’ ¹ As this article reports, each rating is delivered through affectively-loaded comments which underpin a complementary or derogatory tone (e.g. ‘You're so sexy you make Athena jealous.’ Or ‘You could win a professional ugly contest’).

Again facial assessment apps increase the extent to which the female face is culturally intelligible as a site of value or its lack, the – sometimes hostile – judgment being authorised by the supposedly scientific metric system - the ‘machine vision’ (Rettberg, 2014). These apps direct the user to several emerging consumer markets, some of which include the cosmetics brands examined earlier (i.e. new makeup ranges); brow and lash bar studios (e.g. *Superdrug*'s and *Wink*'s), but also the rapidly growing market of non-invasive cosmetic procedures (see Jones, 2012). All these markets can then satisfy the ever-expanding consumer desires these beauty apps help to create. Your eyebags rank your face as ugly? Go for a ‘lunch-hour’ hyaluronic acide procedure in the nearest shopping mall!; That one facial hair scores you a 6 in the Ugly Meter? Go for a laser hair removal in the nearest high street boutique!; Your reemerging facial spots undermined your latest high score in the Beauty Meter? Go for a chemical peel instead of getting yourself a new pair of shoes!; Your face ranks lower than your more attractive friend? Then why not trying a microdermabrasion? Compared to traditional surgical methods, this range of ‘walk-in-walk-out’ or ‘lunch-hour’ surgical interventions is less expensive and is becoming widely available to women as it ‘moved into the high streets and the malls (where it is administered in a range of spas, beauty salons and medical sites) and where it now shares physical and symbolic space with mainstream consumer fashion.’ (Jones, 2012: 199).

In addition to the five broad types of apps considered here we can also add another fast growing genre concerned with shopping for products and services. These promise ‘on-demand beauty’ in the form of products, stylists, therapists and

beauticians who can arrive at your door or your office within an hour (e.g. *Glamsquad, Beautified*). Furthermore another genre is focused upon constructing look books or cataloguing your wardrobe or style decisions in multiple ways – for example to avoid embarrassing faux pas such as wearing the same outfit twice to a venue (god forbid!) or to associate particular styles with particular states of mind (e.g. this dress made me feel confident, these pants were sexy). New genres of apps are developing all the time – with up and coming ones increasingly using the location functionality of smart phones to inform about particular weather conditions or to tie goods and services to place-based features (e.g. through push notifications about particular ranges on sale in a store near you). This is an area of new media development that is developing at a phenomenal rate. We have simply made a start to understanding it by mapping some of the different types of apps that constitute the field of beauty apps.

Subjectivity, surveillance and authority

Before concluding we want to look at the modes of address deployed in these apps and the kinds of entrepreneurial subjectivity they constitute. The apps present themselves as a source of considerable authority, an authority that is largely accepted in reviews of these products which depict them as ‘cool ass’, ‘freaking awesome’ and dream makers. Much has been written about the distinctive and intimate ‘voice’ of women’s media – particularly the way that magazines construct themselves as ‘friends’ to their readers – and this address is central to the intimate-credibility that the apps construct. However, they also draw on the authority of scientific knowledge (e.g. the golden ratio, evolutionary psychology), on social media feedback genres and on beauty vloggers and fashion bloggers’ expertise, as well as on the credibility of major beauty brands – sometimes actually purporting to put their power in ‘your’ hands (e.g. with an eyebrow reshaping app that will obviate the need to see a professional). The intimate address constructed by the apps is a composite of all these genres and deserves some more attention for the way it produces a very specific ‘girlfriend gaze’ (Winch, 2013). One feature of this is what we might call ‘warmly couched hostility’ in which criticisms of potential users for procrastination, sloppiness, or bad habits are articulated carefully in an address that is explicitly ‘non-judgmental’. For example:

‘If a big day is approaching and you haven’t booked a hairstylist or makeup artist yet (we aren’t judging), you’ll want to check out this on-demand hair and makeup service’ (review for Vensette ²)

Another mode of authority is drawn from an ‘ideology of dataism’ (van Dijck, 2014 cited in Rettberg, 2014). The key aspect of this address is the claim that the apps will generate (quantitative) objective truths about oneself (that your friends and family might not). ‘Test yourself!’ Facemeter exhorts ‘Just take a picture and let the app scan it! Do you ever wonder if you’re ugly and your friends just don’t tell you?’ Another app explains ‘when your friends won’t tell you the truth, the Ugly Meter will’. The subjective evaluative gaze of friends along with the ‘anonymous’ and always-potentially-brutal- social media gaze (see Banet-Weiser, 2014) which offer ratings by people rather than algorithms undermines their reliability. By contrast the supposedly neutral metric systems of assessment and surveillance offered by beauty apps are positioned as a welcoming asset, continuously actualized within what we call – borrowing from Foucault (1990) and Hook (2007) – a digital ‘pastoral relationship’ which is allegedly a kinder power and a more authoritative one.

These apps turn the acquisition of ‘feedback’ about one’s appearance into entrepreneurial labour that will help subjects maximize their visual capital; it also promises to optimize such labour by enabling users to get feedback from friends/family/facebook likes and comments instantly/having it at your fingertips, pocket or handbag. In so doing, beauty apps inscribe feminine subjectivity into the realm of ‘economies of visibility’ (Banet-Weiser, 2014) and intensify and extend gynaeoptical surveillance (Winch, 2013) by framing the apps as new best friends. Alison Winch argues that ‘girlfriend culture’ is ‘demarcated from other women cultures because of its yoking of an intimate friendliness with a mutual body regulation that is configured as entrepreneurial and empowering’ (2013:2). These apps extend and reinforce the ‘intimate networks of comparison, feedback and motivation [that] are necessary in controlling body image’ (2013:2) offering both an extension of the reach of the beauty-industrial complex and a new modality of digital girlfriendship.

Situated in a media context where temporality – and more specifically ‘time famine’ - has become one of the most crucial dimensions of postfeminist femininity (Nathasson, 2013), beauty apps address women as busy, time-starved, savvy

consumers wanting something that is quick, easy and fun, to unleash or actualize their beauty potential. Increasingly anxious about an apparent crisis of femininity contemporary media is responding with pleasurable and pedagogic depictions of time scarcity and its management which, we argue, are not only limited to the sphere of domestic labour (Nathanson, 2013) but extend to the realm of beauty work. As well as their guarantee of honest no-holds-barred surveillant sisterhood, beauty apps promise an array of forms to ‘help’ women – already juggling the tension between domestic and paid labour - in optimizing beauty through a focus on speeded up temporality – one also suited for a moment of fast capitalism. For example *Cloth* promises that ‘Everything is instant – and doesn’t feel like work’, *Benefit Brow Genie* opines: ‘Tada! In seconds your perfect eyebrows will magically appear’, and *Vensette* promises a ‘pro’ ‘will arrive at your doorstep, hotel room or office in under an hour’.

All kinds of surveillance sensibilities – be it scanning your brows, measuring your facial symmetry, keeping track of your wardrobe, or modifying your pictures – can apparently be achieved ‘instantly’ through these apps, which are presented, then, as time-saving and labour saving – ‘an easier way to look hot all the time’ according to *Cosmopolitan*’s review of the best beauty apps of the year.

The apps are also presented as money-saving and promoting affordability to a group of female consumers assumed to be – if not recessionistas (Nathanson, 2014) – then at least concerned about getting a bargain. Some apps are dedicated to bargain hunting ‘for the best beauty service deals in your area ranging from highlights to Botox’ (*Lifebooker*).

Other beauty apps also address women as ethical consumers who are empowered by the apps to monitor the implications of their consumer practices on a wide range of ethical and political matters spanning climate change, animal testing, genetically modified organisms, sweated labour, LGBT rights, organic products and more. This trend is a response to the recent visibility of issues such as exploitation in the aesthetic service sector (Ouellette, 2016) or the real costs of cheap fashion (Hopkins, 2014). It might also be thought of as a distinct articulation of ‘cool capitalism’ (McGuigan 2012) in the fashion-beauty complex. *Ethical barcode* is an app that will scan products for you as you shop and give you an instant report on the company and its practices. Likewise *Goodguide* helps find greener products by scanning the bar code of skin creams and make up for products that are not

environmentally friendly. This app can also help to mitigate the risks of buying a beauty product that is not good for your health.

All kinds of possible dangers can be assuaged by use of these apps: health risks, risks posed by cosmetic surgery even weather (i.e. access to real time forecast helps women minimizing the chances of having potentially successful looks undermined by unforeseen weather conditions).

The ever more minutely dissected problems, failings and risks produced a profoundly troubling and at times surreal experience for us in researching these apps – introducing us to whole new categories of beauty problems (e.g. ‘tech neck’ – which can, ironically, be produced by overuse of mobile phone apps) and whole arenas of moral wrongness that the apps seek to put right: lack of skill, lack of time, procrastination, overspending, poor knowledge of products or procedures, and even – paradoxically – ‘overbeautification’. This overbeautification is a consequence of lacking the skills and routines of what Simidele Dosekun (2016) has called ‘aesthetic vigilance’ and ‘aesthetic rest’ (taking makeup off at night, letting your skin ‘breathe’, not over-dyeing your hair or always having hair extensions).

Conclusion

In this paper we have set out a theoretical architecture for understanding the rise of beauty apps. As we have noted they can be understood as part of the contemporary moment of self-tracking and self-monitoring – discussion of which is growing significantly, even as we write (e.g. Lupton, 2016; Neff and Nafus 2016) - but must also be understood as technologies of gender (de Lauretis, 1987) in a distinctly neoliberal and postfeminist moment. We have argued that in the regime of ‘the perfect’ (McRobbie, 2015) women’s bodies have come under hitherto unprecedented degrees of scrutiny – in ways that represent an intensification (ever finer, more detailed, more forensic), extensification (spreading out, more diffuse, leaving no areas un surveilled) and psychologization (focus not simply on techniques and applications but on making over subjectivity) of surveillance.

In concluding we seek to pull together the threads of our argument in order to highlight what is new in the rise of beauty apps, and why they differ from, say, beauty advertising or women’s magazines which, it might be argued, offer broadly similar ‘messages’, if analyzed merely at the representational level. Without offering

a simplistic ‘medium is the message’ evaluation, we would want to point to the significance of the visuality of these apps, and the interactivity/personalization they afford, as well as their location in perhaps the most intimate technology of the twenty-first century – the mobile phone. Their force and significance, we contend, goes far beyond the (rather typical and familiar) constructions of ‘beauty’ or ‘female desirability’ they encode and promote – the youthfulness, slimness, racialization would offer few surprises to critical observers. Extending Rettberg’s (2014) important argument that technological filters are entangled with cultural ones, we argue that beauty apps do much more than simply reinforcing established cultural ideas about female attractiveness.

First we would point to the role that these apps are playing in the (bio-)metricization of surveillance. They have become a technology of neoliberalism par excellence in purporting to offer neutral, scientifically based evaluations and ‘assistance’ in beauty projects, through apps that do not simply judge, but ‘measure’ and rate against the ‘golden ratio’ benchmark or some other logical syntax/algorithm like the BeautiPHication™ method. These beauty apps invite women to know themselves through an ever-more minute pedagogy of defect (Bordo, 1997) (e.g. your brows do not start, arch, and end in the right place) and to implement upon themselves the disciplinary lessons on the aesthetic labour of femininity, underwritten by a metricized gaze.

Secondly, we seek to point to the significance of these apps’ use of, indeed dependence upon, the camera functions of contemporary smart phones – and increasingly their capabilities as ‘scanners’ of veins, sunburn, moles, blocked pores etc. as women are exhorted to scan their bodies as they would a QR code – a new turn in ‘objectification’, to be sure. Mark Hayward has argued that ‘neoliberal modes of visualisation’ are characterized by the ‘distribution and extension of elements of self and body by technological means and the appropriation of forms of direct, personal address in order to maintain and exploit affective engagement on the part of individuals towards institutions.’ (2013: 194) We contend that the techno-social regime of ‘neoliberal optics’ (Hayward, 2013) has reconfigured the reach of bio-power. With the metricization of the postfeminist gaze, the individualizing knowledge necessary for the successful enactment of ‘techniques of appearing’ (Conor, 2004) has never before been so profound, no longer being skin deep as we have demonstrated.

Moreover, the apps incite a subjectivity that goes far beyond current notions of self-care and beauty practices but are located in a regime of forensic self-scrutiny and self-monitoring, that constitutes the ‘nano surveillance’ (Elias, 2016) of visual appearance (one’s own and that of other women) as a normative practice. Through self-assessment practices women are taught that their faces are unlikely to look attractive enough, thereby they are invited to turn to cosmetic physicians – and their products and services, as we have discussed. This recalls the important work of Anne Balsamo in exploring the co-emergence and co-constitution of photographic and aesthetic surgical technologies. Here again we see clear links between photographic and scanning affordances of smartphone beauty apps and the promotion of particular surgical interventions.

Finally we want to highlight the way in which these apps diffuse and disseminate a multiplicity of ideas, techniques, images, practices, products, surgical interventions relating to the maximization of visual capital whilst simultaneously ‘domesticating’ them and rendering them familiar and everyday. ‘Domestication’ is the common notion for capturing a sense of something transformed from the unfamiliar into the known and the safe. But here, perhaps, ‘intimatization’ would be a better (if clumsy) word – as this process neither relates to the home nor the domestic, but to a technology – the smartphone – which is light, portable, taken everywhere, and with which people have profoundly intimate relations (Ringrose et al., 2012). What these apps do – and quite explicitly and self-consciously – is to take beauty procedures out of the salon, the department store, the hairdresser or the clinic, and present them in interactive, customized form on an item most people in affluent societies carry everywhere. Whilst we do not know how these apps are taken up and used – research is urgently needed – it is clear that being invited to see what your face would look like after rhinoplasty or eyelid surgery whilst you are standing at the bus stop or waiting in line at the ATM radically changes the meanings of such interventions, rendering cosmetic surgery as more familiar, banal and culturally intelligible as ‘normal’ – something that can be accounted as the ‘anestheticising’ and ‘(de)familisaring’ effect of seeing ourselves through technological-cultural filters (Rettberg, 2014:25-26).

In multiple ways, then, beauty apps are transforming the arena of appearance politics, offering a technology that brings together the contemporary focus on digital self-monitoring and self-tracking with a society structured by neoliberal and

postfeminist ethics, to produce an intensified surveillant and regulatory gaze upon women that now fits neatly in our pockets and is with us everywhere.

Notes

1. <http://www.everydayhealth.com/skin-and-beauty-pictures/new-apps-claim-to-rate-attractiveness.aspx>
2. <http://www.realsimple.com/beauty-fashion/best-beauty-apps>

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