Playing Pregnancy: The Ludification and Gamification of Expectant Motherhood in Smartphone Apps
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Abstract

Introduction

Like other forms of embodiment, pregnancy has increasingly become subject to representation and interpretation via digital technologies. Pregnancy and the unborn entity were largely private, and few people beyond the pregnant women herself had access to the focus growing within her (Duden). Now pregnant and fetal bodies have been subjected to public scrutiny and display (Lupton The Social Worlds of the Unborn). A plethora of online media – websites depicting the unborn entity from the moment of conception, amateur YouTube videos of births, social media postings of ultrasound images and self-taken photos ("selfies") showing changes in pregnant bellies – now ensure the documentation of pregnant and unborn bodies in extensive detail, rendering them open to other people's scrutiny.

Other recent digital technologies directed at pregnancy include mobile software applications, or 'apps'. In this article, we draw on our study involving a critical discourse analysis of a corpus of pregnancy-related apps, to explain the ways in which pregnant women now experience pregnancy in a playful, creative and performative fashion. We show how this experience is frequently focused on consumption. As we will demonstrate, these strategies have wider implications for concepts of pregnancy and foetal embodiment and subjectivity.

It is important here to make a distinction between ludification and gamification. Ludification is a broader term than gamification. It is used in the academic literature on gaming (sometimes referred to as "ludology") to refer to elements of games reaching into other aspects of life, beyond leisure pursuits (Friesen et al. Playful Industries: The Ludification of Digital Media Culture). Gamification is a process of turning an activity into a game in which users can earn points, badges and rewards, and which is often used in online advertising to increase engagement with websites.

Gamification has been described as 'the use of game design elements in non-game contexts' (Deterding et al. 8). The term originated in the digital media industry to describe the incorporation of features into digital technologies that are not explicitly designed as games, such as competition, badges, news feeds, and social networking. Gamification has been used to describe a wide range of applications, from social networking sites to health and fitness apps.

Analysing Pregnancy Apps

Mobile apps have become an important medium in contemporary digital technology use. As of May 2015, 1.5 million apps were available to download on Google Play while 1.4 million were available on the Apple App Store (Statista). Apps related to pregnancy are one of the leading categories (Lupton The Social Worlds of the Unborn). Pregnancy-related apps can be used for a variety of purposes, including tracking pregnancy progress, management of symptoms, and education of parents-to-be.

We conducted a comprehensive analysis of all pregnancy-related apps available on the Apple App Store and Google Play, in late June 2015. Android and Apple's iOS have a combined market share of 36 percent of apps installed on mobile phones (Seneviratne et al. A More Critical Analysis of Sexual and Reproductive Self-Tracking Apps: The 'Selfie' App Playbook). In undertaking our analysis of the apps described in our corpus, attention was paid to the title of each app, the textual contents of its use and the images that were used to illustrate its content and usage. The apps were also used to identify the user groups.

Our focus in this article is on the apps that we considered as including elements of entertainment. Pregnancy-related game apps were by far the largest category of the apps in our corpus. These included games for young girls and expectant fetuses as well as apps for ultrasound monitoring, pregnancy facts, and gestation prediction, choosing baby names, and quizzes. Less obviously, many other apps included in our analysis offered some elements of gamification and ludification, and these were considered in our analysis.

'Pregnant Adventures': App Games for Girls

One of the major genres of apps that we identified was games directed at young girls. These apps invited users to shop for clothes, dress up, and create a new hair style, 'makeover' and otherwise behave as a pregnant woman. These activities were directed at the goal of improving their physical and mental health during pregnancy. Other apps for this target group involved the user assuming the role of a doctor in conducting medical treatments for injured pregnant women or assisting the birth of the baby.

Many of these games represented the pregnant woman visually as looking like an archetypal Barbie doll, with a wardrobe to match. One app ('Barbara Pregnancy Shopping') is a virtual mall that allows the user to create an infant, bedroom, and other items that can be purchased for the baby. Another app ('Pregnancy Shopping') allows the user to shop for items for the unborn baby, such as clothes, blankets, and other supplies.

In this category of apps, the user is encouraged to dress up as a pregnant woman, and to care for the baby as if it were a real child. The games are designed to be fun and entertaining, and are often used as part of the user's learning process. They are particularly popular with young girls, as they allow them to explore the world of pregnancy and birth in a safe and controlled environment.

An app by the same developer of 'Barbara Pregnancy Shopping' also offers 'Barbara's Cerealien Birth'. The app description claims that: 'Of course her poor little... doesn't allow Barbara to give birth to her baby herself.' It is up to the players to 'make as much fun for Barbara as possible by dressing her up as a baby, changing her clothes, and helping her prepare for the birth.'

In these pregnancy games for girls, the pain and intense bodily effort of birthing and the messiness produced by the blood and body fluids inherent to the process of labour and birth. In these apps, the focus is on the major abdominal surgery required of the mother in order to deliver the baby safely. The fact that the mother is depicted as a disembodied body is evident in the ways in which the apps focus on the mother's body, and the changes in her body during pregnancy.

Track Your Pregnancy Day by Day: Self-Monitoring and Gamified Pregnancy

Elements of gamification were evident in a large number of the apps in our corpus, including many apps that invite pregnant users to engage in self-tracking of their bodies and that of their foetus. Users are asked to customise the apps to document their changing bodies and to track the progression of pregnancy. These apps are designed to reproduce the discourse of the miraculous nature of pregnancy and to promote the pleasures of self-tracking and self-transformation from pregnancy to motherhood. They often use images of the baby in the womb, including ultrasound images and self-taken photos ("selfies") showing changes in pregnant bellies.

According to the app description for "My Pregnancy Today", using such features allows a pregnant woman to: 'Track your pregnancy day by day.'
Other apps encourage women to track such aspects of physical activity, exercise, vitamin and fluid intake, diet, mood and symptoms. The capacity to visually document the pregnant woman's body is also a feature of several apps. The 'Baby Stump Pregnancy', 'WebPhd Pregnancy', 'I'm Expecting', 'Pregnancy' and 'My Pregnancy Today' apps, for example, include a feature for people to take pictures of their baby bump (described as a 'blonde for my pregnancy today'). "Baby Buddy" encourages women to create a pregnant avatar of themselves (looking glamorous, well-dressed and happy). Some apps even advise users on how they should feel. As a screenshot from the 'Pregnancy Tracker Weekly by Weeks' claims: 'Victory, your baby is growing in your body... be the happiest woman in the world!'

Just as pregnancy games for little girls portray pregnancy as a commodified and objectified experience, the apps directed at pregnant women themselves tend to shy away from depicting the realities of pregnant and birthing embodiment. Pregnancy is represented as an enjoyable and fashionable state of embodiment: albeit one that requires constant self-surveillance and vigilance.

"Hello Mommy!: The Personification and Aesthetics of the Foetus"

A dominant feature of pregnancy-related apps is the representation of the foetus as already a communicative person in its own right. For example, the "Pregnancy - Tracker" app features the image of a foetus (looking far more like an infant, with a full head of wavy hair and open eyes) holding a pencil and marking a tally on the calendar. The app is designed to provide users various kinds of advice and support. The "My Pregnancy" app features a cartoon-like pink and cuddly foetus looking very baby-like addressing its mother from the womb, as in the following message that appears on the user's smartphone: "Hi Mommy! When will I see you for the first time?" Several pregnancy-tracking apps also allow women to input the name that they have chosen for their expected baby, to receive customised non-verbal progress (Luston is nine weeks and two days old today).

Many apps also incorporate images of foetuses that represent them as wondrous entities, adopting the visual style of 1960s foetal photography pioneer Lennart Nilsson, or what Stormer (Stormer) has referred to as 'prenatal cutlery'. The "Pregnancy" app features such images. Users can choose to view foetal development week-by-week, with a colourful considered animation of 2D or 3D ultrasound scans that have been digitally manipulated to render them aesthetically appealing. These images replicate the soft, plump, glowing portrayals of miraculous unborn life typical of Nilsson's style.

Other apps adopt a more contemporary aesthetic and allow parents to store and manipulate images of their foetal ultrasounds and then share them via social media. The 'Pregn My Ultrasound' app, for example, invites prospective parents to manipulate images of their foetal ultrasounds by adding in novelty features to the foetal likeness such as baseball caps, jewellery, credit cards and musical instruments. The "Hello Mommy" app also features the image of a foetus taking a selfie, while the 'ultrasound Viewer' app lets users manipulate their 3D/4D foetal ultrasound images: 'Have fun viewing it from every angle, rotating, panning and zooming to see your baby's (sic) features and share with your family and friends via Facebook and Twitter!'. Once uploaded, you can customize your scan with a background colour and skin colour of your choice.

Discussion

Pregnancy, like any other form of embodiment, is performative. Pregnant women are expected to conform to norms and assumptions about their physical appearance and to perform their bodies as people that expect them to remain well-groomed, fit and physically attractive without appealing overly sexual (Longhurst "(A)Dressing Pregnant Bodies in New Zealand: Clothing, Subjectivities, and Spatialities", Longhurst "Corporonographies of Pregnancy: 'Nuclear Babies'? "‘Nath: Leather, Sissy: Sticker"). Women are often instructed to protect their bodies from potential dangers by strictly disciplining their bodies and policing to what substances they allow entry (Lupton "The Social Worlds of the Unborn: Lupton "Precious Cargo: Risk and Reproductive Citizenship"). Pregnancy self-tracking apps enact the soft politics of political authority, encouraging people to conform to expected body and self-management by self-tracking on monitoring their bodies and acting on the data (Tharner & Hillington "Amusing Ourselves to Life: Fashion Consumerism and the Birth of Games", Lupton "The Quantified Self: A Sociology of Self-Tracking").

Many commentators have remarked on the sexism inherent in digital games (e.g. Dickerman, Christiansen and Keri-Clark: "Thornham"). Very little research has been conducted specifically on the gendered nature of app games. However, our analysis suggests that, at least in relation to the pregnant women, reductionist heteronormative, cisgendered, patronising and paternalist stereotypical abound. In the games for girls, pregnant women are idealized young, heterosexual, partnered, attractive, slim and well-groomed, before, during and after birth. In self-tracking apps, pregnant women are portrayed as ideally self-responsible, enthused about their pregnancy and foetus to the point that they are counting the days until the birth and enthusiastic about collecting and sharing details about themselves and their unborn (often via social media).

Ambivalence about pregnancy, the foetus or impending motherhood, and lack of interest in monitoring the pregnancy or sharing details of it with others are not uncommon, acknowledged or expected by these apps. Acknowledgement of the possibility of pregnant women who are not overly positive about their pregnancy or who are in transition or different who or who are more different by dint of race or gender.

Common practices we noted in apps – such as giving foetuses names before birth and representing them as verbally communicating with their mothers from inside the womb – underpins a growing intensification around the notion of the unborn entity as already an infant and social actor in its own right. These practices have significant implications for political agendas around the treatment of pregnant women in terms of their protection or otherwise of their unborn, and for debates about women's reproductive rights and access to abortion (Lupton "The Social Worlds of the Unborn: Taylor "The Public Life of the Fetal Sonogram: Technology, Consumption and the Politics of Reproduction"). Further, the gamification and ludification of pregnancy serve to further commodify the experience of pregnancy and childbirth, constructing an already highly commercialised environment in which expectant parents, and particularly mothers, are invited to invest in these many ways and to experience their pregnancy and childbirth related to pregnancy and early parenthood (Taylor "Of Sonograms and Baby Names: Prenatal Diagnosis, Pregnancy, and Consumption"; Kroellmich; Thomson et al.; Taylor "The Public Life of the Fetal Sonogram: Consumption, and the Politics of Reproduction; Thomas").

In the games for girls we examined, the pregnant woman herself was a commodity, a selling point for the app. The foetus was also frequently commodified in its representation as an ascribed entity and the employment of its image (either as an ultrasound or other visual representatives) or identity to market apps such as the girls' apps, such as apps for manipulating ultrasound images, games for predicting the foetus's sex and choosing its name, and pranks apps using fake ultrasound pictures. Combined, these are a pregnancy embodied in yet another way: the generation of personal data that are marketable in themselves. In this era of the digital data knowledge economy, the personal information about people gathered from their online interactions and content creation has become highly profitable for third parties (Andrejevic; van Dijk). Given that pregnant women are usually in the market for many apps, their personal data is a key target for data mining companies, who harvest it to sell to advertisers (Warwick).

To conclude, our analysis suggests that gamification and ludification strategies directed at pregnancy and childbirth can serve to obfuscate the societal pressures that expect and seek to motivate pregnant women to maintain physical fitness and attractiveness, simultaneously ensuring that they protect their foetuses from all possible sources of harm. Both women, through inalienable rights and regulations, must engage in radical embodiment in the way their bodies. These apps also reproduce concepts of the unborn entity as a precious and beautiful already-human. These types of portrayals have important implications for how young girls learn about pregnancy and childbirth, for pregnant women's experiences and for concepts of foetal personhood that in turn may influence women's reproductive rights and abortion politics.

References


