

Big data on pornhub insights: Datafication and the making of a new sexual culture

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Abstract

Big data has been crucial to the expansion of the pornography industry and its online evolution over the past 40 years. The datafication of digital users' desire is the economic basis of free porn platforms. These now dominate the industry and foster an easy accessibility that has made pornography so profoundly culturally influential. The Pornhub Network is well-known as the world's largest collection of free porn sites, receiving over one hundred million visits a day. Only Google, YouTube, Meta and Reddit receive more of digital users' attention. Porn viewers therefore constitute a massive global audience. The data gathered from them provides important insights into contemporary sexual culture. Pornhub Insights is an important part of this datafication of viewers' desire. This site parses the big data gathered from the hundreds of millions of daily 'hits' across The Pornhub Network, using Google Analytics 'to dig deep into the data' about the sexual preferences of its viewers. Where the dataveillance conducted by corporations is often a relatively clandestine practice, Pornhub Insights explicitly foregrounds its datafication. Because the 'statisticians at Pornhub' (Pornhub Insights) are able to draw from such huge data stores, Pornhub Insights is used as a resource for journalists and researchers. Its statistics are conceptualised as providing definitive facts about sexuality, drawing on big data's associations with the scientific and objective. Where statistics and counting have served a regulatory function in relation to sexuality, this article explores what this big data really tells us about contemporary porn consumption and sexuality. It investigates the ideological objectives of data visualisations and asks what the company's objectives are in publishing the data. This article asks whether the 'bigness' of Pornhub's data makes it more meaningful than other important sociological studies of sexuality. Ultimately, it considers the significance of these massive data sets lies less in their insights about sexuality and more in what they reveal about cultural perceptions and expectations of big data itself.

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Introduction

Data has been crucial to the expansion of the one hundred billion dollar pornography industry (Laughton, 2018) and its online evolution over the past 40 years. The capacity to extract data from users' desire is the economic basis of free porn platforms and foster an easy accessibility that has made pornography profoundly culturally influential. The Pornhub Network is well-known as the world's largest porn company, acquired by Canadian private equity firm Ethical Capital Partners in 2023 and rebranded from MindGeek to Aylo. It gathers data from over one hundred million visits to its free and premium sites a day (Milmo, 2023) and from significant population sizes in individual countries: eight and a half million adults in the UK and ninety million in America (Cox et al., 2022; Ofcom, 2023). This dataveillance (Van Dijck, 2014) provides a view into the sexual tastes of millions of people that has not been possible before. In 2013, MindGeek began publishing the results of its extensive global dataveillance on a non-pornographic site called Pornhub Insights (PI). Data visualisations and statistical analysis sought to, as the site's tagline puts it, 'dig deep into the data' (Pornhub Insights) of its millions of users. The company now possesses the largest database related to sexuality in human history. This article investigates this huge data store, to explore 'the ideological work that data visualisations do' (Kennedy and Hill, 2017: 773) on PI and whether the significance of these massive data sets lay less in their insights about sexuality and more in what they reveal about cultural perceptions and expectations of big data itself.

Big data, pornography and truth

The importance of truth and objectivity to big data and to sexuality converge on PI. Notions of facticity are central to big data and its connections with scientific authority. Critiquing the unproblematic truthfulness of big data is central to critical data studies. Truth and objectivity are also crucial to visual and scientific histories of sexuality, where developments from clinical representations of the body to sexology to pornography have sought to reveal and definitively know the sexual body.

Van Dijck defines the 'ideology of *dataism*' as characterised by a 'widespread *belief* in the objective quantification [...] of all kinds of human behaviour,' and '*trust* in the (institutional) agents that collect, interpret, and share (meta)data culled from social media' (2014: 198). The faith in big data derives in part from the historical relationship between numbers and objectivity, where statistics are considered more factual than words (Daston and Galison, 2021; Porter 1996). Data being gathered automatically from people's networked activities adds to this sense of objectivity (Kitchin, 2021).

This presumed facticity has been critiqued by critical data studies scholars. Crawford et al. point out that '[t]he rhetoric of objectivity can be very seductive,' but '[i]t is big data's opacity to outsiders and subsequent claims to veracity through volume that discursively neutralizes the tendency to make errors, fail to account for certain people [...] or discriminate.' (2014: 1667; see also Gitelman and Jackson 2013; boyd 2020; Shepard 2022). Counteracting the presumed truthfulness of big data requires foregrounding the biases involved in data collection and an awareness of limitations in what big data can communicate. These include its tendency towards decontextualization and abstraction that can render data meaningless (boyd and Crawford 2012) and its provision of marketable correlations rather than deeper understandings of causation (Cowls and Schroeder 2015).

Truth and objectivity are also central to pornography. Where sex is freighted with taboos and secrecy, there is a concomitant imperative to uncover and definitively ‘know’ the sexual body. Foucault calls this ‘knowledge of pleasure,’ which he defines as the ‘insatiable desire to hear [sex] speak and be spoken about’ (Foucault, 1978: 177, 77). Pornography typifies this imperative to show the ‘truth’ of sex. Williams explores how the development of pornographic film is bound up with the revelation of ‘hidden [...] truths’ (1999: 45) of sex. The objective machine of the camera exposes and captures the ‘out-of-control’ (1999: 50) expression of pleasure - or pain (Jones, 2010; Maddison, 2009) - that reveal incontrovertible truths of particularly the female body and sexual subjectivity.

PI combines this pornographic drive to uncover the truth of sex with big data’s own promise of truth. Holt questions this truthfulness, noting issues of ‘statistical bias’ and ‘sweeping generalizations’ in PI, though the focus of her article relates to how the ‘assumed objectivity of data visualizations’ erases the affective experience of porn consumption (2020: 125, 127). This article explores in greater depth the ideological role of big data on PI and builds on existing work in Porn Studies on how dataveillance shapes the sexual subjectivity of porn users, as users engage with the taxonomic structures and algorithms that enable the datafication of desire (Keilty, 2017; Saunders 2020; Tziallas, 2018). It also draws on perspectives from feminist and queer data studies regarding the heteronormative, capitalist and colonial objectives of big data (D’Ignazio and Klein, 2020) to consider how PI’s sexual classification system constructs a powerful pornographic – and sexual – culture.

Method

PI has published 455 data posts on its site since it began in 2013. Each post explores a particular trend in porn consumption and features data visualisations and brief explanatory text about the visualisation ranging from 500 to 8000 words long. A random sample of 80 posts were read in full, constituting a 20 percent sample of the total. A thematic analysis was conducted using Braun and Clarke’s six-phase method (2006). This comprises familiarizing one’s self with the data; generating initial codes; searching for themes; defining themes and conducting a final analysis through writing up the results (2006: 87). Data collection took place between April 15th and June 30th 2024 and again between April 1st and 30th 2025.

Eight types of post were identified in the initial phase of gaining familiarity with the data: media phenomena (video game releases, film franchises, music festivals, celebrities); major sporting events; popular holidays (Valentine’s Day, Halloween, Father’s Day etc.); elections and political figures; technology; natural disasters, that is the impact of major natural disasters on porn consumption; geography, which details porn consumption habits in different countries; and marginalised sexual groups.

Theoretical, latent thematic analysis was used to examine and make explicit how ideas and assumptions about objectivity and truth are present on PI and shape its data analysis and visualisations. Initial codes were generated during this phase, with quotes and screenshots of data visualisations collated. Themes were then generated and reviewed with the goal of identifying patterns relevant to understanding how big data is utilised on PI. These themes related to: how numbers are presented and discussed, with reference to scale and facticity; data visualisations, with sub-themes relating to rigour, detail, context and internal validity in visual presentation and textual analysis; how the categorisation of pornography is presented and discussed; and big data as providing socially beneficial visibility.

This article also investigates how the media’s treatment of PI co-constructs the value and meaning of the data. PI posts which reference the media outlets that use their data were cross-referenced with the media articles themselves, in order to understand how the data is discussed beyond PI. A Google

Search of ‘Pornhub data’ and ‘Pornhub study’ of articles between 2013 and 2024 was also conducted, with 30 articles selected on the basis of relevance (titles related to Pornhub data breaches and illegal data gathering were excluded) to understand how PI was reported across a broad range of news and media outlets.

Found data and the hidden truths of sex

PI’s data circulates extensively in the media, presented as a useful way of understanding porn consumption habits and their relationship to other social phenomena, from elections to popular culture trends. PI posts are referenced in legacy media outlets like The BBC, Guardian, Independent and Times in the UK and The New York Times and The Huffington Post in the US. PI data is drawn on most by pop culture stalwarts online such as Mashable, BuzzFeed, The Cut, Vulture and Wired as well as news outlets like Yahoo, MSN and Fox News. Since Pornhub’s data publishing began in 2013, it has been variously described in the media as ‘a trove of insights’ (Griffin, 2015); that ‘fires out many reports of sociological interest’ (Hooton, 2015); and ‘a gold mine for social scientists’ that ‘can shine a light on [...] America’s dark desires’ (Reitman, 2017). What *Metro* calls ‘the porn giant’s all-seeing eye’ (Waugh, 2016) captures the media’s appreciation of the scale of Pornhub’s dataveillance. Marketing magazine CMO Insider asks, ‘[W]hat do the statistics of the largest porn site in the world tell us about a pandemic?’ (Szade, 2020).

The sheer scale of PI’s data collection endows it with a sociological value, both in how it represents its data and in how it is received in academia and the media. On its homepage, PI declares: ‘We’ve compiled data from billions of hits, all to explore the intricacies of online porn viewership.’ (Pride Insights 2024, 2024). Raustiala and Sprigman emphasise the importance of scale to the perception of Pornhub’s data as authoritative, stating that: ‘[w]hile there is a lot of noise in this data, the number of participants and discrete events is so large that meaningful patterns can be discerned.’ (2019: 137) The company is understood as having an unprecedented capacity to ‘see’ the entirety of the world’s sexuality as it is expressed through porn consumption. Its big data is presented as omniscient.

Implicit in this media reception is the assumption that the statistics publicised on PI are factual and that, with big data as its linchpin, Pornhub is an authoritative source of information about porn consumption. That the data has been ‘compiled’ from ‘billions of hits’ also suggests automatic generation. PI’s data has been found rather than made, an indexical imprint of people’s porn searches with no shaping intermediary (Shephard, 2022).

Users cannot manipulate what they reveal about their sexual tastes and so the data cannot help but show the truth of users’ desires. In the construction of this ideological position, the private, sexual nature of the behaviour being surveilled contributes to the idea of the data as *necessarily* revelatory and truthful. The salacious interest in uncovering people’s sexual secrets connects with the concept of found data to create a sense that Pornhub has a unique and significant insight into the most private and hitherto unknowable aspects of people’s sexual desires. PI is described variously as ‘disclos[ing]’, ‘divulg[ing]’ and ‘reveal[ing]’ a culture’s ‘dirtiest desires.’ (Hosie, 2017; Moser, 2023; Oakes, 2023). One article celebrates Pornhub’s ‘intrepid statisticians’ who provide ‘an extensive breakdown of all things pornographic [...] remember that sex is a part of every day life and need not be taboo’ (Mouriquand, 2023). Another writes that ‘Pornhub data dumps never fail to deliver cringe worthy insights into the darkest depths of our smutty souls.’ (Major, 2016) Publishing the data functions to construct Pornhub as a company that is actively concerned with understanding sexuality.

In his introduction to *Sexual Behaviour in the Human Male*, Kinsey states his aspiration of a sexual survey being to ‘obtain data about sex which would represent an accumulation of [objectively determined] scientific fact completely divorced from questions of moral value and social custom’ (Kinsey

et al., 1949: 5, 3). Pornhub's automated gathering of data seems to offer precisely this opportunity for objectivity. Journalist Maureen O'Connor describes PI in a *New York Magazine* article, for example, as 'the Kinsey Report of our time,' 'shedding light on the multiplicity of erotic desires and sexual behaviors in our midst [...] it offers insight into a collective sexual consciousness.' (O'Connor, 2017) There is a latent assumption in how the data is presented on PI and analysed in the media, that the data unearths definitive truths about people's sexual tastes and behaviour.

The fact that PI foregrounds the conglomerate's dataveillance so explicitly is also depicted as a sign of corporate transparency and this blends with the sense of Pornhub's data as yielding truths about sex. The popular online magazine *Psychology Today* writes that 'PornHub is the only major player in the online porn industry to release such data,' bringing 'to light [...] intriguing new information' about current sexual mores (Castleman, 2018). Social scientist Silvia Rodeschini states: 'No operator in the sector had ever disclosed the consumption data of its users [...] but Pornhub now does this' (2021: 83). Business magazine Quartz also describes the conglomerate as 'offer[ing] more than many other tech giants do [...] It provides transparency into its data collection—on the most intimate of subjects [...] operat[ing] one of the most sophisticated digital data analysis operations that caters primarily to users and not advertisers.' (Hassan, 2018) The implication is that, where most technology platforms prefer to hide their dataveillance, Pornhub permits access to its data because it is motivated by a desire to advance public knowledge of sexuality. It is common for a post to begin by referencing a publication that has requested insights from Pornhub. PI gestures towards their sense of social responsibility in releasing the data: 'When our friends at the New York Post asked us to provide some data, our statisticians were happy to provide it!' (2024 Presidential Election, 2024). Where porn consumption is an expression of people's private, often secret, sexual desires and fantasies, PI's production and publishing of data is presented as a sociologically-motivated dredging up of the hidden truths of sex.

Pornhub is progressive

Pornhub's big data becomes a sign of the company's sociological interest in porn consumption. Making visible aspects of sexuality that were previously hidden is even cast as its principle motivation for dataveillance. Where porn consumption and sexuality are still cloaked in shame and domestic privacy, PI has a sexually progressive ethos. Its matter-of-fact graphs about hardcore search terms and statistics on masturbation times and breakdowns of niche sexual proclivities, position Pornhub as unashamed and non-judgemental. In opposition to the prohibition and hypocritical modesty of normative society, PI is constructed as bringing the truths of people's sexual desires, however outlandish, unflinchingly to the surface.

Of the approximately 18 posts made each year, at least four focus on female, gay male and trans users. Every year there is a post celebrating Trans Day of Visibility, Gay Pride and International Women's Day. In 2018, it published data in conjunction with the #MeToo-related women's marches around the world, concluding:

Our statisticians [...] found a [...] dramatic increase in searches containing "feminist" which shot up 287% compared to the daily average. So who was searching for all that feminist porn? Proportionately, it was men who were 42% more likely to be searching for feminist related porn compared to women. (Women's March 2018, 2018)

For International Women's Day that same year, another post states: 'we're joined by Newsweek for an exclusive look at female traffic on this day as well as a special report on recent changes we made

to better cater Pornhub's content to the needs of women.' (Popular With Women, 2018). Gathering data is taken as a sign of politicised care for women's sexual needs. The way the data is taken up in the media also suggests the motivation of PI's dataveillance is to attenuate shame around female sexuality and celebrate female sexual empowerment by making women's porn consumption visible. 'Pornhub Data Reveals What Women Want: Amy Schumer, Curvy Performers and Dirty Talk' (Gaudette, 2018), writes *Newsweek*. 'Pornhub reveals what women are searching in honor of International Women's Day' (Gilmer, 2019), says Mashable. A PI post for Trans Day of Visibility begins: 'It is a day to celebrate the Transgender community and raise awareness of the discrimination Trans people face worldwide.' (Trans Day of Visibility Insights, 2024) The data itself is cast as contributing to a cultural acceptance of trans sexualities. Media responses bolster this. One article notes that 'the Transgender category grew by +75% to become the 7th most popular category worldwide' (Mouriquand, 2023) and another about the data is titled 'How Mainstream Porn Is Finally Making Room for Trans Performers.' (Lynsey, 2017). Non-heteronormative pornography does have an important political function for marginalised sexual groups, and this type of data post aligns Pornhub's data with this progressive politics of porn (Pezzutto and Comella, 2020).

This framing of PI's data as alternative, where the objective in making the dataveillance public is to further societal understanding and acceptance of non-heteronormative sexualities, is part of the company's attempt to establish itself as ethical. Pornhub's Vice President Corey Price 'stated' in an interview (it has emerged that Price is a fictional persona): 'It is our corporate responsibility as part of the global tech community to promote ethical and responsible behaviour' (Brown, 2017; Coffee, 2020). The conglomerate launched the Pornhub Cares initiative in 2015. The website lists the many philanthropic organisations it raises money for, including a bee-saving charity, a company which removes plastic rubbish from the ocean and campaigns like 'Give a F**k, Get a F**k' to encourage Americans to vote. During Covid, it offered its Premium services for free with the slogan 'let's help flatten the curve' and gave free advertising space to small businesses with its 'Big Package for Small Businesses' campaign. In 2017, Pornhub established its own 'Sexual Wellness Centre', offering sexual health information and educational videos that position the company as a sexually progressive organisation. It created a \$25,000 Pornhub Grant for Sexual Wellness Research awarded to psychology Professor Omri Gillath at the University of Kansas to work with the company's data to research pornography consumption (Tayag, 2020). The legitimacy of big data is central to Aylo's branding strategy that moves away from online pornography's seedy, pathetic associations towards what Rodeschini describes as the company's new focus on 'professionalism, technology, pop culture, education, transparency and social responsibility' (Rodeschini, 2021: 76–78). The way the company foregrounds its dataveillance on PI establishes its data gathering as a positive corporate act, motivated by a sociological interest in understanding sexuality, even constructing Pornhub as a liberal authority on sex.

Bad data science

But what exactly does this big data reveal about porn consumption and contemporary sexuality? Nowhere is the scale of Pornhub's dataveillance more apparent than in its geographical posts. Bar graphs and maps, sometimes of the entire world, compare porn consumption statistics between and within countries. The most culturally illuminating findings relate to what PI calls 'Categorical Analysis', where countries' most searched for porn categories and terms are brought to light. The most searched for pornography in states, countries and sometimes entire continents are shown, in ways that seem to offer fascinating insights into sexual cultures.

A map of the world comparing global porn consumption in 2022, for example, proclaims that the most viewed porn category in Iran is ‘MILF’; Saudi Arabia is ‘ANAL’; Kazakhstan is ‘REALITY’; Sierra Leone is ‘EBONY’; China is ‘JAPANESE’ and so on ([The 2022 Year in Review, 2022](#)). The map seems to tell a definitive - though fascinatingly mysterious - story. The search terms emblazoned over each country are a powerful visual assertion of Pornhub’s ‘all-seeing eye’. However, the legend for this map only provides nine categories to be applied to every country in the world. It gives no more details about the visualisation other than the colour coding for each category. There are no annotations to facilitate deeper exploration of the data visualisation or any explanation about how the data was collected. Central to the interpretation of the map and its assertion that meaningful comparisons between countries can be made, is the assumption that the data about each country is equally valid. However, the data gathered from a country like the UK where 14 million people regularly watch pornography ([Vallance, 2023](#)) and 90% have access to at least one digital device ([Office for National Statistics, 2022](#)) are far more culturally significant than those where pornography is banned, such as in Saudi Arabia or where Internet access is lower, such as in Sierra Leone. The data post does not explore these complexities or provide details regarding the number of Internet users in each country or whether equal numbers of people have been surveyed from each country. There is therefore no way to discern how representative a category is. A single post from 2016 mentions in passing that 40% of all Pornhub’s data is gathered from America ([Gay Searches in the United States, 2016](#)). This aspect of its data collection is fundamental and significantly impacts the accuracy of these global maps, yet it is absent from the extensive number of posts that make bold claims of international comparison.

The role of Google Analytics in producing and analysing the data is also not explored on PI. Google Analytics uses data-based predictions rather than providing data on actual user behaviour and uses a sampling algorithm to analyse a subset of data and then extrapolate it to apply to a larger group of users. When almost half of all Pornhub’s data comes from America, what impact does sampling have on the validity of its findings about other countries? What PI presents as irrefutable facts about geographical cultures of porn consumption may not be related to real people at all. PI also does not include any references to real numbers, referring instead to percentage increases and decreases and concepts like ‘top gaining search terms’. It says, for example, that searches for Meghan Markle increased by 2208% after her engagement announcement ([Megan Markle Searches, nd](#)) or that ‘dominant submissive’ is ‘+155%’ more popular among female than male viewers ([BDSM Insights, nd](#)). Without grounding these percentages in real user numbers, their significance remains oblique. The impression created instead is that every type of pornography is very popular.

Results are further problematised by variables like GDPR provisions in Europe, which means users in European countries may select not to have data gathered about their porn searches, and Google Analytics counting sessions lasting over 30 min as a new session. A PI data post on ‘Transgender Porn Searches’ mentions that PI only collects data about viewers according to a male/female binary: ‘Our statistics are derived from Google Analytics, so for demographics data we are limited to two genders – male and female. So we are unable to see what type of porn transgender identifying people prefer to view.’ ([Transgender Porn Searches, nd](#)). Not collecting data about transgender users is a significant omission and troubles the idea that PI seeks to meaningfully celebrate transgender sexuality through the progressive visibility of its data. Catherine D’Ignazio defines queer data approaches as the use of ‘a data epistemology that [...] centers the lives and well-being of queer, trans, nonbinary, and LGBT + people [...] [and] challenges the gender binary, along with other systems of counting and classification that perpetuate oppression.’ ([D’Ignazio, 2023](#)). PI’s associations with progressive sexual visibility are therefore misleading. A queer data epistemology would require PI to both gather meaningful data about its queer and trans users and to trouble the

capabilities of its own dataveillance by demonstrating an awareness of the limitations in what its data can show.

The lack of clarity about the data collection process and its algorithmic management refuses an acknowledgement of limitations to Pornhub's data. This fosters what Yu-Ho Lo et al. describe as the construction of intentionally misleading data visualisations. This can involve 'misrepresentation,' 'inconsistent value labels' and 'inconsistent grouping', where 'data values are drawn disproportionately or not to scale,' 'labels are inconsistently annotated', 'some entities are grouped while others are not' and where incomparable items are falsely put together (2022: 522–523). In this 2022 map of the world, 'informal fallacy' is also present, which describes 'cherry-picking or double counting the data and false analogies or causal linkages.' (2022: 515–516). The lack of rigour and detail in the presentation and analysis of the data means readers are unable to make sense of the data even on its own terms. It is as if the 'bigness' of the data, together with its pornographic subject, is considered inherently revealing and truthful, so as to require no further elucidation. The vagueness and lack of transparency in the presentation and analysis of the data visualisations constructs the data as self-evident.

In another geographical example, a map of America created for Pride 2024 offers potentially interesting observations regarding the relationship between the growing illegitimacy of homosexuality in certain American states and the taboo thrall of gay porn. The stated goal with this data is to find '[t]he gayest state[s] in America', with each state labelled with its 'percent difference in the proportion of gay porn viewers when compared to the national average' (Pride Insights 2024, 2024). The assumption here is that male gay porn is being consumed by gay men, so that the amount of gay porn consumed is indicative of the size of a state's male gay population and, perhaps further, the acceptability of gay culture in that state. The data post also specifies that Pride.com requested the data, again suggesting that the data is about gay men. Pride's headline about the data post reads: 'Pornhub drops shocking gay adult content insights for Pride Month.' (Cornish, 2024). There are some surprising results, such as that the residents of Kentucky and South Carolina, where gay people face extensive discrimination and legal challenges, are 26% and 20% more likely to search for gay porn compared to the national average (Pride Insights 2024, 2024). PI does not, however, provide any analysis or sociopolitical contextual information about why these Republican states would have a higher interest in gay porn than the national average. At the very end of the post, it is cursorily mentioned that '[o]ur statisticians found male viewers made up 57% of gay porn viewers, whereas women made up 43%.' The fact that almost half of the consumers of male gay porn are women radically changes the meaning of the results. However, nowhere else in the post is this vital aspect of the data clarified and the maps do not represent any division of male and female consumers. This is also lost in its transition to Pride.com: the lack of precision in PI's explication of its statistics produces similarly imprecise analysis as the data circulates in the media. Instead, the decontextualised numbers, like countries' favourite search terms, become reified as - albeit very simplistic - facts. This lack of transparency and clarity characterises the 80 data posts sampled, with data visualisations lacking axes labels, providing overly simplistic or absent legends and with no reflexive examination of the methods and parameters of data collection.

A lack of context about the users being surveilled means PI's data posts actively evade meaning. A 2021 post detailing the most searched for types of pornography in each UK county features a multicoloured map of the country emblazoned with different porn categories. A brief text below the map gives more detail in percentages. Scottish users are 55% more likely to search for pegging. The most searched for term in the North West is 'chubby porn'. In East Anglia they search for 'jerk-off instructions' (United Kingdom's Favourite Searches, 2021) and in Wales users search most for ASMR, which describes physical sensations produced through certain audio and visual stimuli. The

map seems to offer compelling information about British sexual culture and begs the question: what are the cultural differences that explain these results? Is Wales' cultural history of poetry and song finding expression in pornography focused on sound and voice? Is Essex's interest in videos where the presumed male viewer is (aggressively) told how to touch themselves indicative of a different, local culture of performative masculinity and neoliberal self-improvement? Despite Google Analytics being able to infer a wide range of social and cultural characteristics about users, no contextual information about the people described in the statistics is provided. Readers are therefore unable to explore the meaning of the data in any depth, coming away from the post with unexplicated and simplistic correlations. Though the results *seem* interesting, without any information about the age, gender, ethnicity or education of users, they communicate very little.

Other surveys related to sexuality, though they gather data on a much smaller scale, are motivated by a desire to understand - and communicate - the complexities of human sexuality. The 1948 and 1953 Kinsey Reports of 10,000 white American men and women; the 2023-2024 UK's National Survey of Sexual Attitudes and Lifestyle (Natsal) of 15,000 people; and the 2019 LGBTI II survey of one hundred and forty thousand people, conducted by the EU Agency for Fundamental Rights, provide valuable insights into sexual behaviour. This value lies partly in their provision of context regarding people's age, education, income, religion, ethnicity, sexual orientation and so on. The first Kinsey Report finds, for example, that American men who only received an education up to 14 years old were half as likely to touch a woman's vulva or give oral sex during sex than men who had received a college education (Kinsey et al., 1949: 368). The 2018 Natsal was able to show increases in oral and anal sex in the 16-24 year age range compared to 10 and 20 years ago (Lewis et al., 2017) and could map these findings onto education, ethnicity and class variables. Lesser-known surveys, like the 1929 *Factors in the sex life of twenty-two hundred women* (Davis, 1929) still provide a fascinating insight into the sexual lives of post-war American women. Details regarding the surveyed women's education level; their occupation outside of their domestic labour; their age when they got married and the age of their husband; how many children they had, and so on, that makes sense of other data collected regarding women's attitudes towards issues like contraception, marriage and sexual pleasure, and which makes the data still meaningful today. One graph charts, for example, 'masturbation correlated with education' and found that over double the number of women who were college graduates masturbated regularly compared to women who had not attended college (Davis, 1929: 157). These sexual surveys show how illuminating data about people's sexual behaviour and attitudes can be, as a central part of human life in which so many other embodied realities related to class, race, age and so on are also expressed.

PI actively avoids providing context or reflections on causation. The lack of information about user demographics means the data lacks external validity, as results cannot be placed within a broader cultural context that would endow them with meaning. Rather than transparency and objectivity, PI therefore offers data as faith. It circulates culturally as a technological fetish, to be appreciated for the scale and sense of certainty it offers, without the expectation that readers will question its sources or limitations.

Pornhub data talks about itself

If these data posts seem curiously inadequate in providing meaningful insights into porn consumption, it is because this is not ultimately what PI is interested in or about. The patterns of behaviour revealed in the data do not tell us anything about sexuality as it is expressed through porn, because its data is not about sex at all: it is about the mechanics of attention and platform engagement. Though porn categories and sexual references provide a libidinal frame that usefully

eroticises the data, its actual content is about how, not why, pornography is consumed: which days and times do people watch porn; for how long; which browser do people of different ages use; which operating system, and so on. Technology-related posts focus on how porn consumption is impacted by Internet outages or when major platforms like Zoom or Instagram go down. Posts which map porn consumption against Valentine's Day or celebrity scandals or US elections, are not seeking to explore sexual desire, but to understand the impact of different mediated phenomena on traffic in order to target advertising and market useful data.

What, then, is PI's objective in publishing its data, if not to provide the public with sociologically rigorous insights about porn consumption? This section explores the idea that PI's lack of reflexivity and transparency around its own terms purposefully prevents deep engagement with the data and that this has intended effects. Readers are forced into only the most superficial engagement with the data, on PI's highly simplistic and oblique terms, and are not provided with the detail to interpret it for themselves. By refusing an examination of the edges and limitations of its data and of its collection methods and motivations, PI obscures its constructedness. Kennedy and Hill describe the way the pretence of objectivity in data visualisations obscures the reality that they are: 'the result of the decisions and priorities of the people and organizations who make them, who influence and shape the design, development, arrangement, and implementation of data/visualizations in many ways.' (2017: 773). PI denies its construction both of how it presents its data and of the taxonomic system itself. Intentional vagueness means the system of categories, subcategories and tags on which the company's datafication process relies, is not made explicit. Instead, the constructedness of this culturally dominant pornographic taxonomy is rendered invisible and naturalised. It is the practice of categorisation, rather than what is revealed through the categories, that becomes the focus in media responses to the data, because there is nothing else available to analyse.

In relation to Pornhub's 2015 Year in Review, Pegg notes in *The Conversation*, for example, the reduction of the search term 'teen': though it 'remains the seventh most searched for term by Pornhub users globally [...] It seems users have got more creative with their top search terms [...] "Step-sister" and "step-mom" were among the UK's top five searches' (Pegg 2018). *The Independent* similarly describes how 'Pornhub's prolific Insights blog [...] lays bare different age groups' sexual proclivities. Looking at the most popular searches among 18-24s, there are several familial terms including "step mom", "milf", "mom" and "step sister", a trend that seems to die out somewhat in users' 30s.' (Hooton 2015). Because PI provides no depth, detail or context, the emphasis is necessarily placed on the search terms themselves. It is not possible to provide analysis of what the data might mean. A TMZ story on a data post about the 2024 eclipse states:

The good folks over at Pornhub tell TMZ [...] Monday's eclipse majorly impacted their site's traffic [...] eclipse-related searches climaxed on Monday with a 6,801% increase [...] [t]he word "Eclipse" saw the biggest search increase, followed by "solar eclipse" [...] "eclipse my c***," "witch eclipse" and "eclipse glasses." [...] Here's hard proof everything is sexual [...] the next total solar eclipse isn't hitting the U.S. until 2044 ... whereas Pornhub isn't going anywhere!!! (Eclipse Searches Skyrocket, 2024)

This one-dimensional restating of the categories functions to reify this hyper-taxonomic way of thinking about sex and engaging with pornography. TMZ's assertion that 'everything is sexual' describes the establishment of Pornhub's taxonomic rationale into mainstream culture. Its ordered system of subcategories and definitively labelled bodies and acts becomes familiar and just simply how sex is described. 'Price' gestures towards this goal in a statement soon after the company began publishing its big data:

We utilize our data and trends to make interesting SFW (safe for work) content that people love to read about and share [...] Our data blog [...] has played a major part in [making] [...] the general public and media become more receptive to us. Being mainstream was Pornhub's goal from day one. (Simpson 2016)

PI uses the validity of big data to naturalize the transformation of desire into definitive data points. By engaging with PI's graphs and statistics, the (sub)categories, tag system, emerging trends and common search terms become well-known. This taxonomic structure is what Pornhub's datafication relies upon. Foregrounding and formalising it on PI encourages people to articulate their sexual desires within these codified terms. Establishing this labelled and quantifiable way of relating to porn and sex fits users to the needs of the data economy (Saunders, 2020: 57–61) and in the process produces a sexual culture defined by atomised sexual acts.

The legitimacy of big data also functions to establish deeply problematic aspects of its taxonomy's nomenclature as normative and acceptable. Performers are racially segregated in categories (Keilty, 2018) and non-heteronormative performers are labelled with offensive, derogatory terms. In a post called 'Transgender Visibility Day', terms like 'ebony transgender' and "transgender f*cks girl" (2024) are parsed into formal tables and graphs as if they are simply descriptive. Such terms are then circulated without critique in media reports on PI. Other categories, such as 'Rough Sex' serve a useful obfuscatory function. This category describes acts of (sexual) violence and abuse in straight porn such as women crying or being injured, being dragged around by their hair, slapped in the face, strangled, spat at etc., and includes content made by male directors and performers such as James Deen and Nacho Vidal against whom accusations of rape and assault on and off set have been made (Innes, 2020). This content pervades The Pornhub Network and bears obvious links to the company's reputation for hosting non-consensual content, including films of trafficked women, rape and illegal upskirt videos (Cohen, 2023; Cox, 2018; Mohan, 2020). Data posts about 'Rough Sex' normalise the behaviour it describes, as well as facilitating confusion between misogynistic abuse and BDSM. 'Rough Sex' becomes an established cultural concept. A *Men's Health* article about PI post 'Extreme Category Insights' (n.d.) reads:

Women are 63% more likely to view the rough sex category compared to men [...] Pop culture would have us believe that men are the planet's only porn-watchers. But the truth is that women watch their fair share of porn – and according to exclusive new data from Pornhub ... we're not just talking about porn for women. We're talking about so-called "extreme" categories like "rough sex". (Men's Health Staff, 2021).

Here, the apparent revelation that women are the biggest consumers of pornography that eroticises their victimisation functions to legitimise sexual violence. The customarily unexplicated statistic contributes to the broader societal idea that sexual violence experienced by women is ultimately rooted in their own desire and culpability. The categorisation and tagging system is also central to the company's failure to remove non-consensual content (Cole and Maiberg, 2019). Though particular search terms like 'Girls Do Porn' or 'deepfake' may be removed, films of rape and abuse can easily be found with slightly altered search terms. Pornhub's algorithmic recommendation system also helps spread non-consensual content by actively pushing similar content to users (Rama et al., 2023). Data posts about women's rights and marginalised sexualities therefore become highly dubious. PI's system of dataveillance fetishes and discriminates against queer, trans, female and non-white bodies. The data functions as a cynical legitimising of the heteropatriarchal violence embedded in PI's taxonomy.

Big data is not, then, the means by which Pornhub attempts to explore the nature of porn consumption; it is the means by which pornography and sexuality are reformulated in data terms and

the cultural validity of Pornhub's taxonomy is strengthened. The tautological function of PI bears out the common critique that big data talks more about itself than the sociological phenomenon it purports to investigate. Pornhub's data is about itself, speaking only of its own system of categories.

Pornhub as a universal socio-sexual order

PI helps to establish its taxonomic system as an all-encompassing reality. The lack of clarity about its methods of data collection, the formation of its statistics and the construction of its data visualisations asserts its data as offering a totality of knowledge about porn consumption. Its refusal to explain and meaningfully dissect the rationales and limitations of data collection, means there is no 'outside' of PI's datafied way of representing sex. All of pornography, and beyond that all of sex, is cast as entirely containable within PI's datafied frame.

Yet, PI's apparent ability to represent every imaginable sexual desire, behaviour and identity, conceals a reductive simplicity. In her article comparing Pornhub's data to Kinsey's, O'Connor describes The Pornhub Network as:

An expansive erotic landscape unto itself, pornography exists adjacent to and in constant conversation with real sex — but is much more capricious and capacious and creative [...] It has also become a laboratory of the sexual imagination [a golden age of sexual creativity unprecedented in human history] — and as such, it offers insight into a collective sexual consciousness that is in a state of high-speed evolution. (2017)

Pornography is as complex as human sexuality, but Pornhub's taxonomic structure that enables datafication does not foster sexual plurality. The maps of the world considered in the previous sections may suggest expansiveness, but these data visualisations actually proffer a profound homogeneity. A 2016 post called 'Women's Favorite Searches Worldwide' is indicative of PI's apparent interest in the global diversity of porn consumption. Yet, every single country in the world is labelled with one of only nine categories. Most of Europe, the Americas, South Asia and Australia are designated 'LESBIAN', and almost the entire continent of Africa is 'EBONY' (2016). This simplicity is not the reality of pornographic cultures.

The Porn Research Project conducted by Feona Attwood, Clarissa Smith and Martin Barker in 2015 with 5000 people explored the complex realities of porn consumption. They described their goal as to 'capture a body of quantitative data which generated patterns and categories, and relations among these; along with a dense body of qualitative "talk".' (Attwood et al., 2019: 174). Their study dismantled the notion of a singular porn viewer and showed users' very different motivations for consuming porn. They found, for example, that queer participants were more likely than heterosexual respondents to watch porn 'to reconnect with my body' (16.2%) or 'for recognition of my sexual interests' (52.5%) and that porn consumption was marked by contradictory spectatorial experiences that were 'satisfying and exciting or disappointing, disturbing and disgusting.' (Attwood et al., 2019: 174–176). This conflicted consumptive experience is particularly true for marginalised groups who must navigate an unrepresentative or offensive nomenclature in order to find pornography. PI, the largest data set about porn consumption in history, has no interest in exploring these complexities.

Instead, it asserts an extremely simplistic picture of pornographic culture, where entire continents can be apparently meaningfully described in one word. Under the guise of multiplicity, of exposing anything and everything through data, PI produces a reductive, Americanised pornographic culture which it depicts as universal. Over one hundred of PI's four hundred and 50 posts relate specifically to America, with posts like 'Patriotic Porn – America versus Canada' (n.d.) and 'Election Day

Insights' (n.d.). The national holidays and sports events featured in its data posts are Thanksgiving and the Superbowl. Its racialised categories are also constructed from an American perspective, with notions of normative white and othered bodies baked in to the taxonomy that undergirds the datafication process. PI redraws the world again and again in these Americanised terms, asserting its framing of pornography as equally applicable and relevant to every country and erasing the complexity of global sexual cultures. PI's assertion of its data as a totality, adequately containing all of the complexities of porn consumption, constructs a universality not only on the level of pornographic culture but on the level of sex itself. By refusing to clarify or critique its own construction, PI asserts its taxonomic structure as simply reality, and a distinction between pornography and sex is also elided. The goal of PI is not to uncover hidden truths about porn consumption, but to assert its taxonomic structure as universal, as *the* truth of pornographic culture and sexual desire that covers over alternative, complex and culturally specific ways that porn and sex can be understood. This big data is not found. It is highly manipulated.

Pornhub's dataveillance is also, because of the close reciprocal links between the data, viewers and content, generative of the pornographic culture it surveills. A key function of Pornhub's data gathering is to provide the many porn production studios owned by Aylo with information about user preferences in order to shape the content of porn films. 'Price' states: '“We license content from studios based on our users' viewing habits [...] We regularly send reports to our content partners featuring top searches in various regions so they can better cater to users.”' (O'Connor, 2017) Pornhub uses the same data-driven production rationale as Netflix, though the far greater number of data points available to Pornhub – because it has a much larger number of viewers, far more and shorter videos and many more categories – means its content can be shaped with even greater specificity. Raustiala and Sprigman describe the extent of this specificity, with A/B testing comparing the impact of single altered variables and prescriptions made for 'exact clothing [...] certain dialogue, sex acts, and particular positions and camera angles [...] furniture, carpet styles' (2019: 135–136, 138). Dataveillance recursively constructs porn culture. Users' search data forms what Pornhub produces while its taxonomic structure and algorithmic recommendation system shapes what users watch. This co-construction of 'taste cultures' (Adalian, 2018) happens fast. Raustiala and Sprigman describe how, because 'adult content is cheap and fast to produce [...] MindGeek can rapidly adapt new content to meet these emerging preferences' (2019: 137). PI does not unearth truths of sexuality, then; it constructs what it sees. This construction takes place in relation to porn culture and in relation to sex itself. As porn consumption has become thoroughly integrated into people's lives and the capacity to make and disseminate porn has become open to everyone in user-generated spaces like The Pornhub Community and OnlyFans, Pornhub's taxonomic system impacts significantly on sexual culture.

Conclusion

This article investigates the ideologies of big data on Pornhub Insights and its media reception. The opacity and confusion in PI's data analysis and visualizations speak to the faith in which big data is (expected to be) held. PI provides no information about how and why data is gathered, sorted and presented. The implication is that its statistics, however simplistic and nonsensical, provide meaningful information about porn consumption and sexual cultures more broadly.

Pornhub's growing archive of data posts says very little about the complexities of global pornographic cultures of consumption. Instead, PI demonstrates Aylo's corporate objective to establish the taxonomic system on which its datafication relies as familiar and universal. The authority and assumed objectivity of big data helps PI to proffer its economised taxonomy as *the* way

to engage with porn and desire. By providing no clarification of the limitations, the ‘edges’ of its data, PI creates a sense that there is no sex that cannot be contained within its homogenising, Americanised taxonomy. As Nick Couldry explores, big data does not just measure the social but produces a new social order: when we prioritize ‘automated large-scale data collection’ we ‘lose hold of the expectation that social knowledge should be grounded in how people, not machines, interpret the world.’ (Couldry, 2020: 1140, 1139). PI constructs a new socio-sexual order, where categorising sex and desire becomes entirely normal and where its taxonomy holds increasing power to shape pornographic and sexual culture according to the imperatives of the data economy.

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